

ZABBIX

Antes de empezar, la fuente de la cual he sacado la información sobre la instalación y uso de Zabbix es esta:

[▷ Cómo instalar Zabbix en Ubuntu 20.04 LTS ✓ \[2020\] Paso a paso \(comoinstalar.me\)](#)

Instalación en el host

El host será la máquina virtual de Ubuntu Server con la configuración de la práctica 2 (ssh y http puestos en marcha).

El primer paso será instalar el repositorio oficial de Zabbix para Ubuntu, por lo que descargamos el paquete que configura dicho repositorio.

```
javierrp@javierrp:~$ wget -q https://repo.zabbix.com/zabbix/5.0/ubuntu/pool/main/z/zabbix-release_5.0-1+focal_all.deb  
javierrp@javierrp:~$ _
```

Por si la orden no se ve completa (por tener la ventana minimizada para seguir los pasos):

```
~$ wget -q https://repo.zabbix.com/zabbix/5.0/ubuntu/pool/main/z/zabbix-release/zabbix-release_5.0-1+focal_all.deb
```

A continuación, lo instalamos con la herramienta dpkg:

```
javierrp@javierrp:~$ sudo dpkg -i zabbix-release_5.0-1+focal_all.deb  
[sudo] password for javierrp:  
Selecting previously unselected package zabbix-release.  
(Reading database ... 72456 files and directories currently installed.)  
Preparing to unpack zabbix-release_5.0-1+focal_all.deb ...  
Unpacking zabbix-release (1:5.0-1+focal) ...  
Setting up zabbix-release (1:5.0-1+focal) ...  
javierrp@javierrp:~$
```

Y actualizamos la información de los repositorios para incluir los nuevos paquetes de Zabbix.

```
javierrp@javierrp:~$ sudo apt update
Hit:1 http://es.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://es.archive.ubuntu.com/ubuntu focal-updates InRelease [111 kB]
Get:3 http://repo.zabbix.com/zabbix/5.0/ubuntu focal InRelease [4930 B]
Get:4 http://es.archive.ubuntu.com/ubuntu focal-backports InRelease [98.3 kB]
Get:5 http://es.archive.ubuntu.com/ubuntu focal-security InRelease [107 kB]
Get:6 http://es.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [670 kB]
Get:7 http://repo.zabbix.com/zabbix/5.0/ubuntu focal/main Sources [1192 B]
Get:8 http://es.archive.ubuntu.com/ubuntu focal-updates/main Translation-en [167 kB]
Get:9 http://es.archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [1192 B]
Get:10 http://es.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [695 B]
Get:11 http://repo.zabbix.com/zabbix/5.0/ubuntu focal/main amd64 Packages [3217 B]
Get:12 http://es.archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [135 kB]
Get:13 http://es.archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata [135 kB]
Get:14 http://es.archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [5 kB]
Get:15 http://es.archive.ubuntu.com/ubuntu focal-backports/universe amd64 c-n-f Metadata [5 kB]
Fetched 2023 kB in 3s (739 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
73 packages can be upgraded. Run 'apt list --upgradable' to see them.
javierrp@javierrp:~$
```

Ahora vamos a instalar Zabbix Server seleccionando los paquetes para el motor de bases de datos que nos interese. Como tenemos un entorno LAMP con Apache, PHP y MySQL, la elección adecuada es la siguiente:

```
javierrp@javierrp:~$ sudo apt install -y zabbix-server-mysql zabbix-frontend-php zabbix-agent
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core fping libfontconfig1 libgd3 libjbig0 libjpeg-tu
  libmysqlclient21 libodbc1 libonig5 libopenipmi0 libsensors-config libsensors5 libsr
  libsnmp35 libtiff5 libwebp6 libxpm4 php-bcmath php-gd php-ldap php-mbstring php-xml
  php7.4-bcmath php7.4-gd php7.4-ldap php7.4-mbstring php7.4-xml snmpd ttf-dejavu-cor
Suggested packages:
  libgd-tools libmyodbc odbc-postgresql tdsodbc unixodbc-bin lm-sensors snmp-mibs-dow
  snmptrapd zabbix-nginx-conf
The following NEW packages will be installed:
  fontconfig-config fonts-dejavu-core fping libfontconfig1 libgd3 libjbig0 libjpeg-tu
  libmysqlclient21 libodbc1 libonig5 libopenipmi0 libsensors-config libsensors5 libsr
  libsnmp35 libtiff5 libwebp6 libxpm4 php-bcmath php-gd php-ldap php-mbstring php-xml
  php7.4-bcmath php7.4-gd php7.4-ldap php7.4-mbstring php7.4-xml snmpd ttf-dejavu-cor
  zabbix-agent zabbix-apache-conf zabbix-frontend-php zabbix-server-mysql
0 upgraded, 35 newly installed, 0 to remove and 73 not upgraded.
Need to get 10.8 MB of archives.
After this operation, 48.8 MB of additional disk space will be used.
Get:1 http://es.archive.ubuntu.com/ubuntu focal-updates/main amd64 libmysqlclient21 a
untu0.20.04.2 [1224 kB]
Get:2 http://repo.zabbix.com/zabbix/5.0/ubuntu focal/main amd64 zabbix-server-mysql a
focal [2473 kB]
8% [1 libmysqlclient21 738 kB/1224 kB 60%] [2 zabbix-server-mysql 312 kB/2473 kB 13%]
```

Si no se ve bien la orden de la captura anterior:

```
~$ sudo apt install -y zabbix-server-mysql zabbix-frontend-php zabbix-apache-conf zabbix-
agent
```

Conectamos con el cliente de consola mysql y un usuario administrador para preparar la base de datos

```
javierrp@javierrp:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.22-Ubuntu0.20.04.2 (Ubuntu)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

Creamos la base de datos atendiendo al juego de caracteres que requiere Zabbix en esta versión y creamos el usuario de la siguiente manera:

```
mysql> create database zabbix charset utf8 collate utf8_bin;
Query OK, 1 row affected, 2 warnings (0.02 sec)

mysql> create user zabbix@localhost identified by 'practicas,ISE';
Query OK, 0 rows affected (0.05 sec)
```

Damos los permisos necesarios sobre la base de datos y salimos del cliente:

```
mysql> grant all privileges on zabbix.* to zabbix@localhost;
Query OK, 0 rows affected (0.02 sec)

mysql> exit
Bye
javierrp@javierrp:~$
```

Ahora inicializamos una nueva base de datos a partir de un script SQL proporcionado por el paquete Zabbix con el usuario y contraseña recién creadas:

```
javierrp@javierrp:~$ zcat /usr/share/doc/zabbix-server-mysql/create.sql.gz | mysql -u
ix
Enter password:

javierrp@javierrp:~$
```

Por si no se ve la orden anterior:

```
~$ zcat /usr/share/doc/zabbix-server-mysql/create.sql.gz | mysql -u zabbix -p zabbix
```

Ahora vamos a configurar Zabbix Server para que utilice la contraseña de acceso a la base de datos:

```
javierrp@javierrp:~$ sudo nano /etc/zabbix/zabbix_server.conf
```

```
### Option: DBPassword
#           Database password.
#           Comment this line if no password is used.
#
# Mandatory: no
# Default:
DBPassword=practicas,ISE
```

Ya si podemos arrancar el servicio zabbix-server:

```
javierrp@javierrp:~$ sudo systemctl start zabbix-server.service
javierrp@javierrp:~$ systemctl status zabbix-server.service
```

Y al hacer el 'status' deberíamos ver si todo está correcto algo como:

```
zabbix-server.service - Zabbix Server
   Loaded: loaded (/lib/systemd/system/zabbix-server.service; disabled; vendor pres
   Active: active (running) since Sun 2020-11-22 11:23:30 UTC; 12s ago
     Process: 5403 ExecStart=/usr/sbin/zabbix_server -c $CONFFILE (code=exited, status
    Main PID: 5415 (zabbix_server)
      Tasks: 38 (limit: 1074)
     Memory: 74.6M
        CPU: 0.000 seconds total (0% user, 0% system)
       CGroup: /system.slice/zabbix-server.service
               ├─5415 /usr/sbin/zabbix_server -c /etc/zabbix/zabbix_server.conf
               ├─5418 /usr/sbin/zabbix_server: configuration syncer [synced configurati
               ├─5419 /usr/sbin/zabbix_server: housekeeper [startup idle for 30 minutes
               ├─5420 /usr/sbin/zabbix_server: timer #1 [updated 0 hosts, suppressed 0
               ├─5421 /usr/sbin/zabbix_server: http poller #1 [got 0 values in 0.000478
               ├─5422 /usr/sbin/zabbix_server: discoverer #1 [processed 0 rules in 0.00
               ├─5423 /usr/sbin/zabbix_server: history syncer #1 [processed 1 values, 1
               ├─5424 /usr/sbin/zabbix_server: history syncer #2 [processed 0 values, 0
               ├─5425 /usr/sbin/zabbix_server: history syncer #3 [processed 0 values, 0
               ├─5426 /usr/sbin/zabbix_server: history syncer #4 [processed 0 values, 0
               ├─5427 /usr/sbin/zabbix_server: escalator #1 [processed 0 escalations in
               ├─5428 /usr/sbin/zabbix_server: proxy poller #1 [exchanged data with 0 p
               ├─5429 /usr/sbin/zabbix_server: self-monitoring [processed data in 0.000
               ├─5430 /usr/sbin/zabbix_server: task manager [processed 0 task(s) in 0.0
               ├─5431 /usr/sbin/zabbix_server: poller #1 [got 0 values in 0.000065 sec,
               ├─5432 /usr/sbin/zabbix_server: poller #2 [got 0 values in 0.000041 sec,
               ├─5433 /usr/sbin/zabbix_server: poller #3 [got 1 values in 0.000087 sec,
               ├─5434 /usr/sbin/zabbix_server: poller #4 [got 0 values in 0.000064 sec,
               ├─5443 /usr/sbin/zabbix_server: poller #5 [got 0 values in 0.000065 sec,
               ├─5444 /usr/sbin/zabbix_server: unreachable poller #1 [got 0 values in 0
               ├─5445 /usr/sbin/zabbix_server: trapper #1 [processed data in 0.000000 s
               ├─5446 /usr/sbin/zabbix_server: trapper #2 [processed data in 0.000000 s
               ├─5447 /usr/sbin/zabbix_server: trapper #3 [processed data in 0.000000 s
               ├─5455 /usr/sbin/zabbix_server: trapper #4 [processed data in 0.000000 s
               ├─5456 /usr/sbin/zabbix_server: trapper #5 [processed data in 0.003791 s
               ├─5457 /usr/sbin/zabbix_server: icmp pinger #1 [got 0 values in 0.000068
               ├─5458 /usr/sbin/zabbix_server: alert manager #1 [sent 0, failed 0 alert
               ├─5459 /usr/sbin/zabbix_server: alertter #1 started
```

Y para que el servicio Zabbix Server inicie automáticamente con cada arranque de Ubuntu Server lo habilitamos tal que:

```
Javierrp@javierrp:~$ sudo systemctl enable zabbix-server.service
Synchronizing state of zabbix-server.service with SysV service script with /lib/systemd/systemctl.
Executing: /lib/systemd/systemd-sysv-install enable zabbix-server
Created symlink /etc/systemd/system/multi-user.target.wants/zabbix-server.service → /lib/systemd/zabbix-server.service.
Javierrp@javierrp:~$ systemctl status zabbix-agent.service
● zabbix-agent.service - Zabbix Agent
   Loaded: loaded (/lib/systemd/system/zabbix-agent.service; enabled; vendor preset: disabled)
   Active: active (running) since Sun 2020-11-22 11:11:32 UTC; 13min ago
     Main PID: 4198 (zabbix_agentd)
        Tasks: 6 (limit: 1074)
       Memory: 7.5M
      CGroup: /system.slice/zabbix-agent.service
              ├─4198 /usr/sbin/zabbix_agentd -c /etc/zabbix/zabbix_agentd.conf
              ├─4199 /usr/sbin/zabbix_agentd: collector [idle 1 sec]
              ├─4200 /usr/sbin/zabbix_agentd: listener #1 [waiting for connection]
              ├─4201 /usr/sbin/zabbix_agentd: listener #2 [waiting for connection]
              ├─4202 /usr/sbin/zabbix_agentd: listener #3 [waiting for connection]
              └─4203 /usr/sbin/zabbix_agentd: active checks #1 [idle 1 sec]

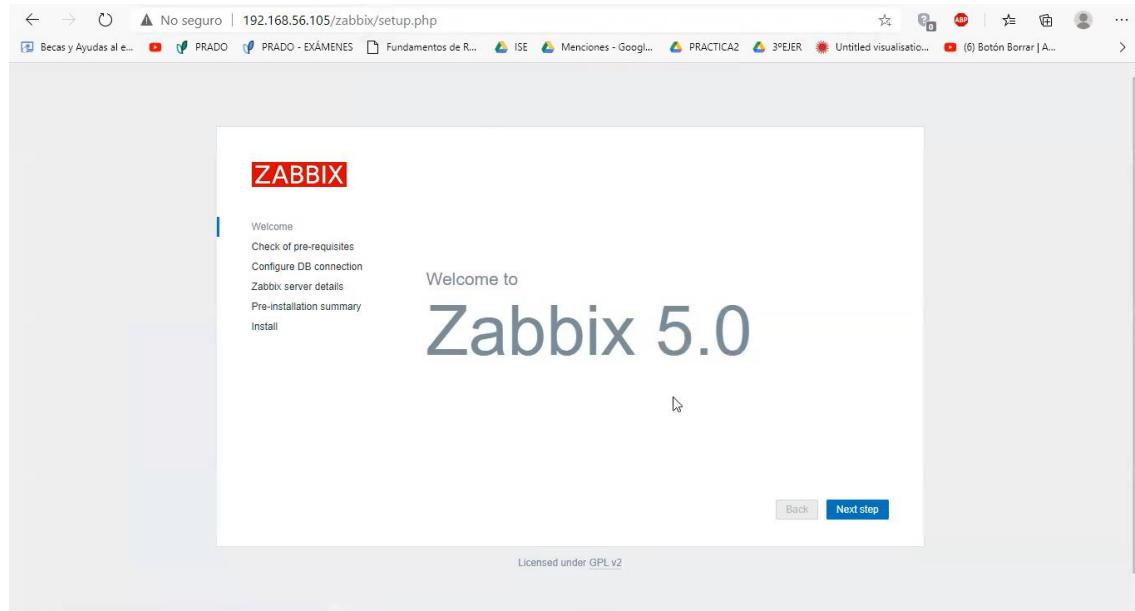
Nov 22 11:11:32 javierrp systemd[1]: Starting Zabbix Agent...
Nov 22 11:11:32 javierrp systemd[1]: zabbix-agent.service: Supervising process 4198 u
Nov 22 11:11:32 javierrp systemd[1]: Started Zabbix Agent.
lines 1-17/17 (END)
```

Para que el agente Zabbix también inicie automáticamente con cada arranque y reiniciamos el servicio de apache2 para poder conectarnos desde el buscador correctamente a través de la IP y poder configurar el frontend:

```
Javierrp@javierrp:~$ sudo systemctl enable zabbix-agent
Synchronizing state of zabbix-agent.service with SysV service script with /lib/systemd/systemctl.
Executing: /lib/systemd/systemd-sysv-install enable zabbix-agent
Javierrp@javierrp:~$ sudo systemctl reload apache2
Javierrp@javierrp:~$ _
```

Frontend

Este se puede configurar desde cualquier buscador, por lo que yo uso el de Windows introduciendo ‘192.168.56.105/zabbix’:



Al hacer next step, saldrán los requisitos mínimos que necesitas. Debería estar todo correcto, pero a mí personalmente me salió un error del “date.timezone”, así que paso a explicar cómo lo arreglé por si a alguien le pasa.

Check of pre-requisites



Time zone for PHP is not set (configuration parameter "date.timezone").

Abrimos como superusuarios el siguiente archivo de configuración:

```
root@javierrp:/home/javierrp# vi /etc/php/7.4/apache2/php.ini
```

Y modificamos el siguiente valor (el ; de delante es como comentarlo para que venga con valores por defecto, por lo que hay que quitarlos):

```
date.timezone =Europe/Madrid

;extension=sodium
;extension=sqlite3
;extension=tidy
;extension=xmlrpc
;extension=xsl

;;;;;;
; Module Settings ;
;;;;;

[CLI Server]
; Whether the CLI web server uses ANSI color coding in its terminal output.
cli_server.color = On

[Date]
; Defines the default timezone used by the date functions
; http://php.net/date.timezone
date.timezone =Europe/Madrid

; http://php.net/date.default-latitude
;date.default_latitude = 31.7667

; http://php.net/date.default-longitude
;date.default_longitude = 35.2333

; http://php.net/date.sunrise-zenith
;date.sunrise_zenith = 90.583333

; http://php.net/date.sunset-zenith
;date.sunset_zenith = 90.583333

[filter]
; http://php.net/filter.default
;filter.default = unsafe_raw

; http://php.net/filter.default-flags
-- INSERT --
```

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Se reinicia el sistema de apache2:

```
root@javierrp:/home/javierrp# systemctl restart apache2
root@javierrp:/home/javierrp# sudo systemctl restart zabbix-server
root@javierrp:/home/javierrp# sudo systemctl restart zabbix-agent
          " " "
```

Este paso es para prevenir, como sabemos que Zabbix usará el puerto 10050, permitimos desde ya con el cortafuegos que Ubuntu oiga por ese puerto.

```
root@javierrp:/home/javierrp# sudo ufw allow 10050/tcp
Skipping adding existing rule
Skipping adding existing rule (v6)
root@javierrp:/home/javierrp#
```

El fallo de timezone habrá desaparecido y continuamos configurando el Frontend:

X Configure DB connection

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

uisites	Database type	MySQL
nnection	Database host	localhost
tails	Database port	0
ummary	Database name	zabbix
	User	zabbix
	Password	practicasISE 
Database TLS encryption	Connection will not be encrypted because it uses a socket file (on Unix) or shared memory (Windows).	

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Zabbix server details

Please enter the host name or host IP address and port number of the Zabbix server, as well as the name of the installation (optional).

Host

Port

Name

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Pre-installation summary

Please check configuration parameters. If all is correct, press "Next step" button, or "Back" button to change configuration parameters.

Database type MySQL

Database server localhost

Database port default

Database name zabbix

Database user zabbix

Database password *****

Database TLS encryption false

Zabbix server localhost

Zabbix server port 10051

Zabbix server name

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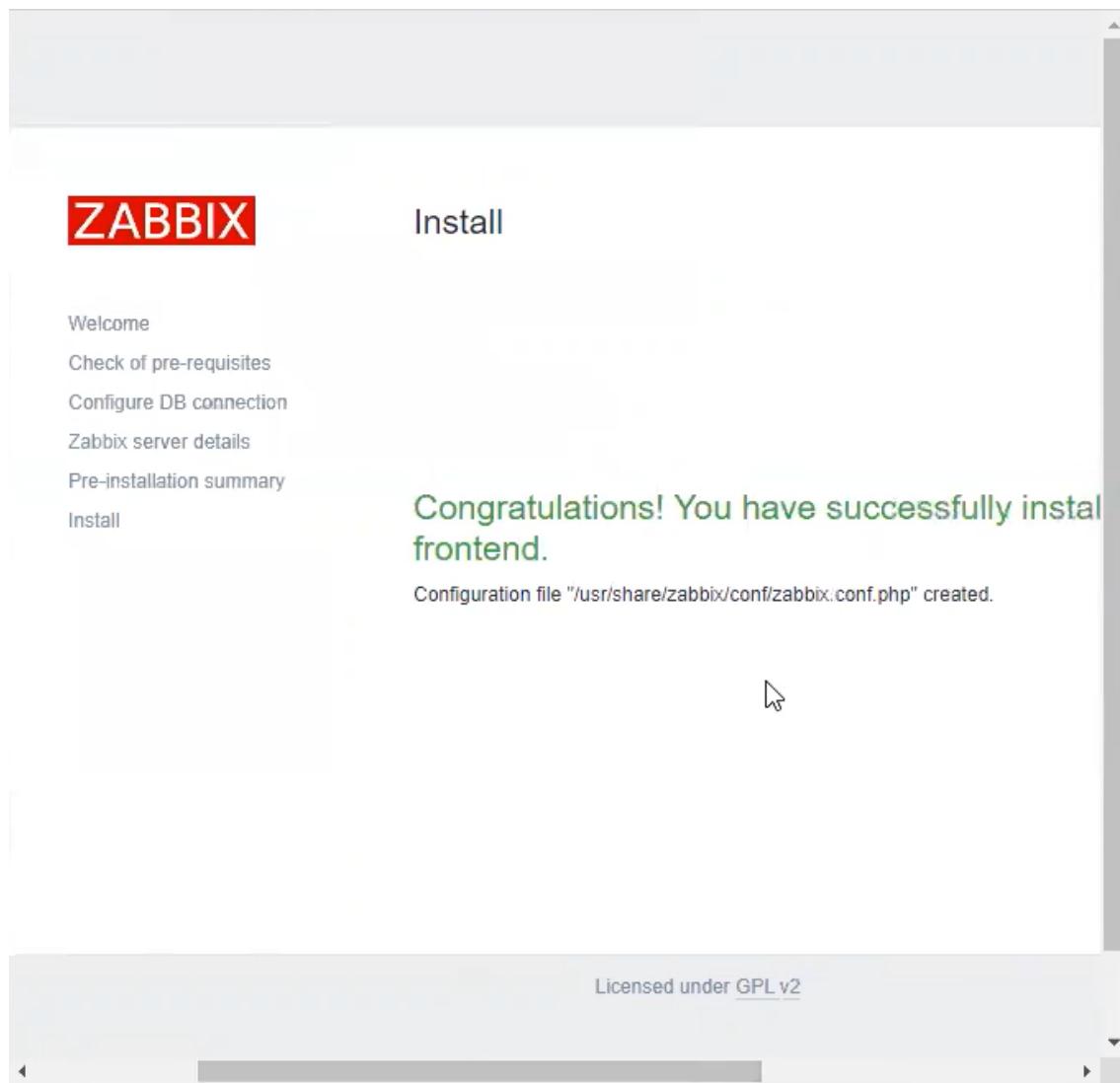
[Next step](#)



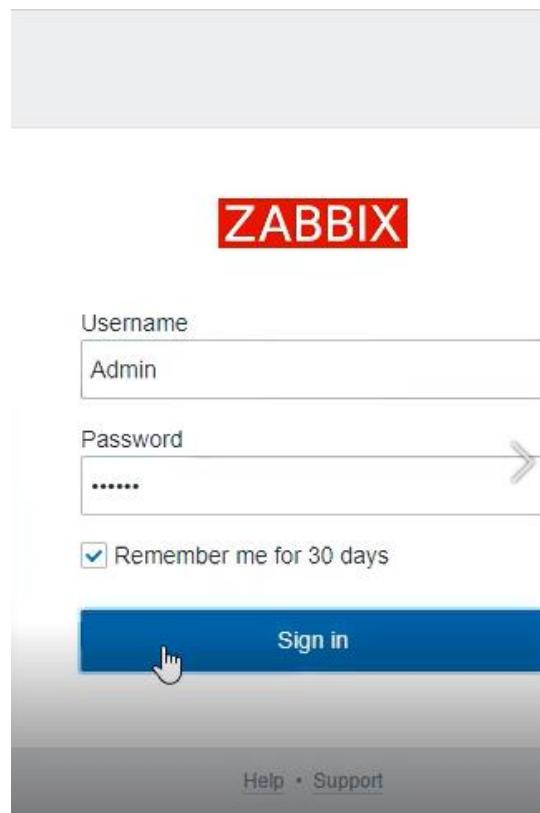
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Zabbix 5.0.5. © 2001–2020, Zabbix SIA

Esta es la pantalla tras seguir todos los pasos que te saldrá si ha ido correctamente el proceso:



Iniciamos sesión con el usuario y contraseña por defecto: Admin y zabbix, respectivamente.



Y con eso ya entramos a ver las máquinas que tenemos monitorizadas.

The screenshot shows the Zabbix monitoring interface. The left sidebar is titled 'Monitoring' and includes links for various monitoring components like Dashboard, Problems, Hosts, and Services. The main content area is titled 'Hosts' and displays a form for creating a new host entry. The form fields include 'Name', 'Host groups' (with a search bar and 'Select' button), 'IP', 'DNS', and 'Port'. Below the form are severity level checkboxes for Not classified, Warning, High, Information, Average, and Disaster. A table below the form lists existing hosts, with the first host being 'Zabbix server' at '127.0.0.1: 10050' with availability status 'ZBX SNMP JMX IPMI'. A cursor icon is hovering over the 'Zabbix server' row.

En este caso, Zabbix server sería la máquina de Ubuntu Server, pero vamos a crearla de nuevo para ver el procedimiento y para tener un nombre descriptivo con una correcta IP.

Configuración para ser monitorizado

En Ubuntu Server, con todos los paquetes y programas ya instalados para el host, simplemente modificamos el siguiente archivo de configuración de zabbix:

```
root@javierrp:/home/Javierrp# sudo vi /etc/zabbix/zabbix_agentd.conf
```

```
## Option: Server
#       List of comma delimited IP addresses, optionally in CIDR notation, or D
rvers and Zabbix proxies.
#       Incoming connections will be accepted only from the hosts listed here.
#       If IPv6 support is enabled then '127.0.0.1', '::127.0.0.1', '::ffff:127
qually
#           and '::/0' will allow any IPv4 or IPv6 address.
#           '0.0.0.0/0' can be used to allow any IPv4 address.
#           Example: Server=127.0.0.1,192.168.1.0/24,::1,2001:db8::/32,zabbix.examp
#
# Mandatory: yes, if StartAgents is not explicitly set to 0
# Default:
# Server=

Server=192.168.56.105

### Option: ListenPort
#       Agent will listen on this port for connections from the server.
#
# Mandatory: no
# Range: 1024-32767
# Default:
# ListenPort=10050

### Option: ListenIP
#       List of comma delimited IP addresses that the agent should listen on.
#       First IP address is sent to Zabbix server if connecting to it to retrie
cks.
#
```

Y reiniciamos zabbix-agent, dándole permisos con el cortafuegos:

```
root@javierrp:/home/javierrp# sudo systemctl restart zabbix-agent
root@javierrp:/home/javierrp# sudo ufw allow zabbix-agent
Rule added
Rule added (v6)
root@javierrp:/home/javierrp# _
```

Añadir Ubuntu como monitorizado

Ahora vamos a añadir una nueva máquina monitorizada. Para ello vamos al menú lateral izquierdo en *Configuration -> hosts -> create host* (Este último se encuentra arriba a la derecha)

The screenshot shows the Zabbix configuration interface. On the left, there is a dark sidebar with various menu items: Monitoring, Inventory, Reports, Configuration (which is expanded to show Host groups, Templates, Hosts, Maintenance, Actions, Event correlation, Discovery, Services, Administration, Support, Share, and Help), Administration (also expanded), and Help. The 'Hosts' item under 'Configuration' is currently selected. The main area is titled 'Create host' and contains a search bar with 'Proxy' typed into it, a 'Select' button, and a filter section with dropdowns for 'Contains' and 'Equals' and a 'value' input field. Below this is a table header with columns: Status, Availability, Agent encryption, Info, and Tags. A single row is visible in the table, showing 'Enabled' status, 'ZBX' as the agent type, and 'NONE' for encryption. At the bottom of the table area, it says 'Displaying 1 of 1 found'. There are also 'Import' and 'Create host' buttons at the top right of the main area.

Configuraremos los nombres y grupos de servidores a los que pertenecerá.

The screenshot shows the Zabbix configuration interface for creating a new host. The left sidebar is the navigation menu. The main area is titled 'Hosts' and has tabs for Host, Templates, IPMI, Tags, Macros, Inventory, and Encryption. The 'Host' tab is active. The host name is 'UbuntuISE', and it is assigned to the 'Linux servers' group. An interface is defined with the IP address '192.168.56.105' and port '10050'. A description is provided: 'Maquina virtual de ubuntu'. The 'Enabled' checkbox is checked. At the bottom are 'Add' and 'Cancel' buttons.

Y antes de dar en “Add”, vamos a la solapa superior donde pone “Templates” y añadimos el siguiente:

The screenshot shows the Zabbix configuration interface for creating a new host. The left sidebar is the navigation menu. The main area is titled 'Hosts' and has tabs for Host, Templates, IPMI, Tags, Macros, Inventory, and Encryption. The 'Host' tab is active. A modal dialog is open, showing a list of available templates under the 'Host group' 'Templates/Operating systems'. One template, 'Template OS Linux by Zabbix agent', is selected and highlighted with a blue border. At the bottom of the dialog are 'Select' and 'Cancel' buttons.

Ya se habrá creado y podemos verlo en nuestro *Monitoring -> Hosts*

Instalación en centos

Añadimos el repositorio correspondiente

```
[root@localhost ~]# rpm -ivh http://repo.zabbix.com/zabbix/3.4/rhel/7/x86_64/zabbix-release-3.4-2.el7.noarch.rpm
Recuperando http://repo.zabbix.com/zabbix/3.4/rhel/7/x86_64/zabbix-release-3.4-2.el7.noarch.rpm
advertencia:/var/tmp/rpm-tmp.w001fT: EncabezadoV4 RSA/SHA512 Signature, ID de clave a14fe591: NOKEY
Verifying... ###### [100%]
Preparando... ###### [100%]
Actualizando / instalando...
  1:zabbix-release-3.4-2.el7 ###### [100%]
[root@localhost ~]#
```

Como centos solo va a ser monitorizado y no será host, instalamos solamente el agente.

```
[root@localhost ~]# yum install zabbix-agent
Zabbix Official Repository - x86_64                                     96 kB/s | 141 kB
Zabbix Official Repository non-supported - x86_64                         2.7 kB/s | 2.3 kB
Dependencias resueltas.
=====
Paquete          Arquitectura      Versión           Repositorio
=====
Instalando:
zabbix-agent     x86_64            3.4.15-1.el7    zabbix
Instalando dependencias:
compat-openssl10 x86_64            1:1.0.2o-3.el8  AppStream
make             x86_64            1:4.2.1-10.el8 BaseOS
Resumen de la transacción
=====
Instalar 3 Paquetes

Tamaño total de la descarga: 2.0 M
Tamaño instalado: 5.9 M
¿Está de acuerdo [s/N]?:
```

Ya podemos iniciar lo y, como sabemos que tenemos el cortafuegos activado, añadimos el puerto de Zabbix a la configuración.

```
[root@localhost ~]# service zabbix-agent start
Redirecting to /bin/systemctl start zabbix-agent.service
[root@localhost ~]# firewall-cmd --add-port=10050/tcp --permanent
success
[root@localhost ~]# firewall-cmd --reload
success
[root@localhost ~]#
```

Añadir la máquina de centOS en Zabbix

Volvemos a crear un nuevo host

The screenshot shows the Zabbix web interface with the 'Monitoring' menu selected. The left sidebar includes 'Monitoring', 'Inventory', 'Reports', 'Configuration', 'Host groups', 'Templates', and several sub-options under 'Administration'. The main content area displays a table of hosts. A search bar at the top right contains the text 'Proxy'. Below it is a 'Select' button. A filter bar at the bottom allows filtering by 'Contains' or 'Equals' for the 'value' column. The table columns are 'Name', 'Status', 'Availability', 'Agent encryption', 'Info', and 'Tags'. One host entry is visible:

Name	Status	Availability	Agent encryption	Info	Tags
Zabbix agent	Enabled	ZBX	SNMP JMX IPMI	NONE	

At the bottom of the table, a message says 'Displaying 1 of 1 found'.

Le añadimos el nombre, grupo, IP y descripción correctamente:

The screenshot shows the Zabbix 5.0.5 web interface. The left sidebar has a dark blue background with white text and icons. The main content area has a light gray background. A modal dialog box is open in the center, titled 'Add host'. The 'Hosts' tab is selected in the sidebar.

Host Details:

- Name:** CentOS_ISE
- Type:** Agent
- IP address:** 192.168.56.110
- Description:** Maquina virtual de centos de ISE
- Proxy:** (no proxy)
- Enabled:**

Buttons: Add, Cancel

Page Footer: Zabbix 5.0.5. © 2001–202

Configuramos los “Templates” antes de darle a “Add” de nuevo

The screenshot shows a web browser window for Zabbix version 5.0.5. The title bar says "ZABBIX". The main content is a "Templates" dialog box. At the top, there is a search bar labeled "Host group" with the value "Templates/Operating systems" and a "Select" button. Below the search bar is a list of checkboxes for various operating system templates. The list includes:

- Name
- Template OS AIX
- Template OS FreeBSD
- Template OS HP-UX
- Template OS Linux by Prom
- Template OS Linux by Zabbix agent
- Template OS Linux by Zabbix agent active
- Template OS Linux SNMP
- Template OS Mac OS X
- Template OS OpenBSD
- Template OS Solaris
- Template OS Windows by Zabbix agent
- Template OS Windows by Zabbix agent active
- Template OS Windows SNMP

At the bottom right of the dialog box are "Select" and "Cancel" buttons. The footer of the browser window shows "Zabbix 5.0.5. © 2001–2020, Zabbix SIA".

Para que el agente Zabbix inicie automáticamente con cada arranque

```
[root@localhost ~]# systemctl enable zabbix-agent
Created symlink /etc/systemd/system/multi-user.target.wants/zabbix-agent.service → /usr/lib/systemd/system/zabbix-agent.service.
[root@localhost ~]# systemctl start zabbix-agent
[root@localhost ~]#
```

Y configuramos lo mismo que tuvimos que hacer en Ubuntu Server:

```
[root@localhost ~]# vi /etc/zabbix/zabbix_agentd.conf
```

```

### Option: Server
#       List of comma delimited IP addresses, optionally in CIDR notation, or hostnames
#       and Zabbix proxies.
#       Incoming connections will be accepted only from the hosts listed here.
#       If IPv6 support is enabled then '127.0.0.1', '::127.0.0.1', '::ffff:127.0.0.1'
#       and '::0' will allow any IPv4 or IPv6 address.
#       '0.0.0.0/0' can be used to allow any IPv4 address.
#       Example: Server=127.0.0.1,192.168.1.0/24,::1,2001:db8::/32,zabbix.domain
#
# Mandatory: yes, if StartAgents is not explicitly set to 0
# Default:
# Server=

Server=192.168.56.105_

```

Y con eso ya vemos como están ambas creadas correctamente:

Name	Interface	Availability	Tags	Problems	Status	Latest data	Problems	Graphs	Screens	Web
CentOS JSE	192.168.56.110:10050	ZBX SNMP JMX IPMI	1	Enabled	Latest data	Problems 1	Graphs	Screens	Web	
UbuntuISE	192.168.56.105:10050	ZBX SNMP JMX IPMI		Enabled	Latest data	Problems	Graphs 19	Screens 2	Web	

Hay varias formas de añadir los templates necesarios para el control de SSH y HTTP. El que yo he realizado es yendo a la configuración de una de las máquinas (*Configuration->Hosts->Centos->Templates*) y añadiendo los templates necesarios

The screenshot shows the Zabbix 5.0.5 configuration interface. The left sidebar has sections for Monitoring, Inventory, Reports, Configuration (selected), Host groups, Templates (selected), Hosts, Maintenance, Actions, Event correlation, Discovery, Services, Administration, Support, Share, and Help. The main content area is titled 'Templates' and shows two selected items: 'Template App HTTP Service' and 'Template App SSH Service'. Below these are buttons for 'Update' (highlighted with a mouse cursor), 'Clone', 'Full clone', 'Delete', and 'Cancel'. At the bottom right of the content area, it says 'Zabbix 5.0.5. © 2001–2020, Zabbix SIA'.

Y creo también los Items (de cada uno de los dos templates recién añadidos) que harán falta para las gráficas de después:

The screenshot shows the Zabbix configuration interface. On the left, the navigation menu is visible with options like Monitoring, Inventory, Reports, Configuration, Administration, Support, Share, and Help. The main panel shows the 'Templates / Template App SSH Service' configuration. The 'Items' tab is selected, showing one item defined:

Name	Type	Key
SSH service is running	Simple check	net.tcp.service[ssh,,22022]

Below the item table, there are sections for 'Preprocessing', 'Custom intervals', 'History storage period', and 'Trend storage period'. The 'Show value' dropdown is set to 'Service state'.

Quedando así configurado:

<input type="checkbox"/>	Wizard	Name ▲
<input type="checkbox"/>	...	Template App HTTP Service: HTTP service is running
<input type="checkbox"/>	...	Template App SSH Service: SSH service is running

Vuelvo a ir a Configuration->Hosts->centos->graphs->create graph y Configuration->Hosts->ubuntu->graphs->create graph para crear las gráficas que muestren el funcionamiento de ssh y http en cada una (4 gráficas en total):

The screenshot shows the Zabbix web interface. On the left, there is a dark sidebar with various navigation options: Monitoring, Inventory, Reports, Configuration (selected), Host groups, Templates, Hosts (selected), Maintenance, Actions, Event correlation, Discovery, Services, Administration, Support, Share, and Help. The main content area has a header bar with tabs: 'Becas y Ayudas al e...', 'PRADO', 'PRADO - EXÁMENES', 'Fundamentos de R...', and 'ISE'. Below the header, a search bar contains 'ZABBIX'. A large blue button labeled 'Create graph' is visible at the top right of the main content area. The main content area displays a table with two rows, both of which have a 'Select' button next to them. The first row has columns 'Graph type' and 'Info'. The second row has a column 'Displaying 0 of 0 found'. At the bottom of the main content area, there is a horizontal scrollbar.

ZABBIX Configuration of graphs

No seguro | 192.168.56.105/zabbix/graphs.php?hostid=10341&form=create

Becas y Ayudas al e... PRADO PRADO - EXÁMENES Fundamentos de R... ISE Menciones - Googl... PRACTICA2 3ºEJER Untitled visualisatio... (6) Botón Borrar | A...

Graphs

All hosts / CentOS_ISE Enabled ZBX|SNMP|JMX|IPMI Applications 2 Items 2 Triggers 2 Graphs 1 Discovery rules Web scenarios

Graph Preview

* Name: HTTP CENTOS

* Width: 900

* Height: 200

Graph type: Normal

Show legend:

Show working time:

Show triggers:

Percentile line (left):

Percentile line (right):

Y axis MIN value: Calculated

Y axis MAX value: Calculated

Items	Name	Function	Draw style	Y axis side	Colour	Action
1:	CentOS_ISE: HTTP service is running	avg	Line	Left	1A7C11	Remove

Add Cancel

The screenshot shows the Zabbix configuration interface for creating a new graph. The graph is titled 'HTTP CENTOS' with a width of 900 and height of 200 pixels. It is set to a 'Normal' type and includes a legend, working time, and triggers. A single item 'CentOS_ISE: HTTP service is running' is added with an 'avg' function, a line draw style, and the Y-axis positioned on the left side. The color of the line is set to 1A7C11.

ZABBIX Configuration of graphs

No seguro | 192.168.56.105/zabbix/graphs.php?hostid=10341&form=create

Becas y Ayudas al e... PRADO PRADO - EXÁMENES Fundamentos de R... ISE Menciones - Googl... PRACTICA2 3ºEJER Untitled visualisatio... (6) Botón Borrar | A...

Graphs

All hosts / CentOS_ISE Enabled ZBX|SNMP|JMX|IPMI Applications 2 Items 2 Triggers 2 Graphs 1 Discovery rules Web scenarios

Graph Preview

* Name: SSH CENTOS

* Width: 900

* Height: 200

Graph type: Normal

Show legend:

Show working time:

Show triggers:

Percentile line (left):

Percentile line (right):

Y axis MIN value: Calculated

Y axis MAX value: Calculated

Items	Name	Function	Draw style	Y axis side	Colour	Action
1:	CentOS_ISE: SSH service is running	avg	Line	Left	1A7C11	Remove

Add Cancel

The screenshot shows the Zabbix configuration interface for creating a new graph. The graph is titled 'SSH CENTOS' with a width of 900 and height of 200 pixels. It is set to a 'Normal' type and includes a legend, working time, and triggers. A single item 'CentOS_ISE: SSH service is running' is added with an 'avg' function, a line draw style, and the Y-axis positioned on the left side. The color of the line is set to 1A7C11.

ZABBIX

Hosts

All hosts / UbuntuSE Enabled ZBX SHMPL JMX IPMI Applications 18 Items 88 Triggers 34 Graphs 19 Discovery rules 3 Web scenarios

Host Templates IPMI Tags Macros Inventory Encryption

* Host name Visible name * Groups
* Interfaces Type IP address DNS name Connect to Port Default
[Add](#)
Description
Monitored by proxy
Enabled

192.168.56.105/zabbix/hosts.php?form=update&hostid=10340

ZABBIX

Configuration of graphs

All hosts / UbuntuSE Enabled ZBX SHMPL JMX IPMI Applications 20 Items 90 Triggers 36 Graphs 19 Discovery rules 3 Web scenarios

Graph Preview

Name Width Height Graph type
Show legend
Show working time
Show triggers
Percentile line (left)
Percentile line (right)
Y axis MIN value Y axis MAX value
Items

Name	Function	Draw style	Y axis side	Colour	Action
Add					

Add Cancel

ZABBIX Configuration of graphs

No seguro | 192.168.56.105/zabbix/graphs.php?hostid=10340&form=create

Becas y Ayudas al e... PRADO PRADO - EXÁMENES Fundamentos de R... ISE Menciones - Googl... PRACTICA2 3ºEJER Untitled visualisatio... (6) Botón Borrar | A...

Graphs

All hosts Host UbuntuSE

Graph

Item	Host	Function	Type	Status
CPU steal time	UbuntuSE	Zabbix agent	Numeric (float)	Enabled
CPU system time	UbuntuSE	Zabbix agent	Numeric (float)	Enabled
CPU user time	UbuntuSE	Zabbix agent	Numeric (float)	Enabled
CPU utilization	UbuntuSE	Dependent item	Numeric (float)	Enabled
Free swap space	UbuntuSE	Zabbix agent	Numeric (unsigned)	Enabled
Free swap space in %	UbuntuSE	Zabbix agent	Numeric (float)	Enabled
<input checked="" type="checkbox"/> HTTP service is running	UbuntuSE	Simple check	Numeric (unsigned)	Enabled
Interface enp0s3: Bits received	UbuntuSE	Zabbix agent	Numeric (unsigned)	Enabled
Interface enp0s3: Bits sent	UbuntuSE	Zabbix agent	Numeric (unsigned)	Enabled
Interface enp0s3: Inbound packets discarded	UbuntuSE	Zabbix agent	Numeric (unsigned)	Enabled
Interface enp0s3: Inbound packets with errors	UbuntuSE	Zabbix agent	Numeric (unsigned)	Enabled
Interface enp0s3: Interface type	UbuntuSE	Zabbix agent	Numeric (unsigned)	Enabled
Interface enp0s3: Operational status	UbuntuSE	Zabbix agent	Numeric (unsigned)	Enabled
Interface enp0s3: Outbound packets discarded	UbuntuSE	Zabbix agent	Numeric (unsigned)	Enabled
Interface enp0s3: Outbound packets with errors	UbuntuSE	Zabbix agent	Numeric (unsigned)	Enabled

Selected Cancel

ZABBIX Configuration of graphs

No seguro | 192.168.56.105/zabbix/graphs.php?hostid=10340&form=create

Becas y Ayudas al e... PRADO PRADO - EXÁMENES Fundamentos de R... ISE Menciones - Googl... PRACTICA2 3ºEJER Untitled visualisatio... (6) Botón Borrar | A...

Graphs

All hosts / UbuntuSE Enabled ZBX SNMP JMX IPMI Applications 20 Items 90 Triggers 36 Graphs 20 Discovery rules 3 Web scenarios

Graph Preview

Name: SSH UNTBUNTU

Width: 900

Height: 200

Graph type: Normal

Show legend:

Show working time:

Show triggers:

Percentile line (left):

Percentile line (right):

Y axis MIN value: Calculated

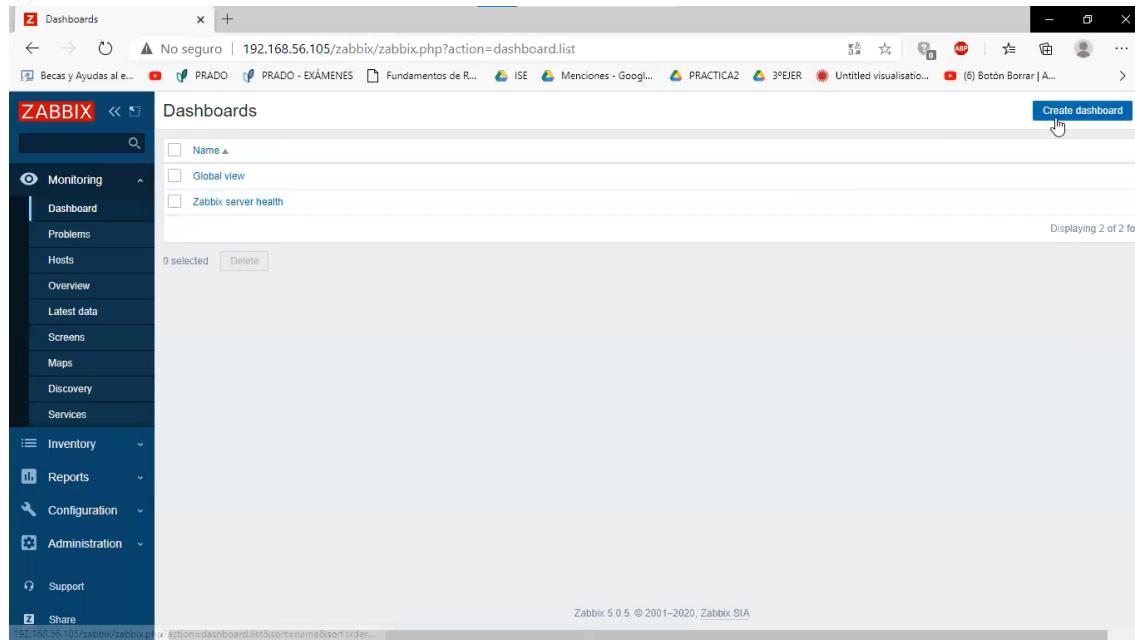
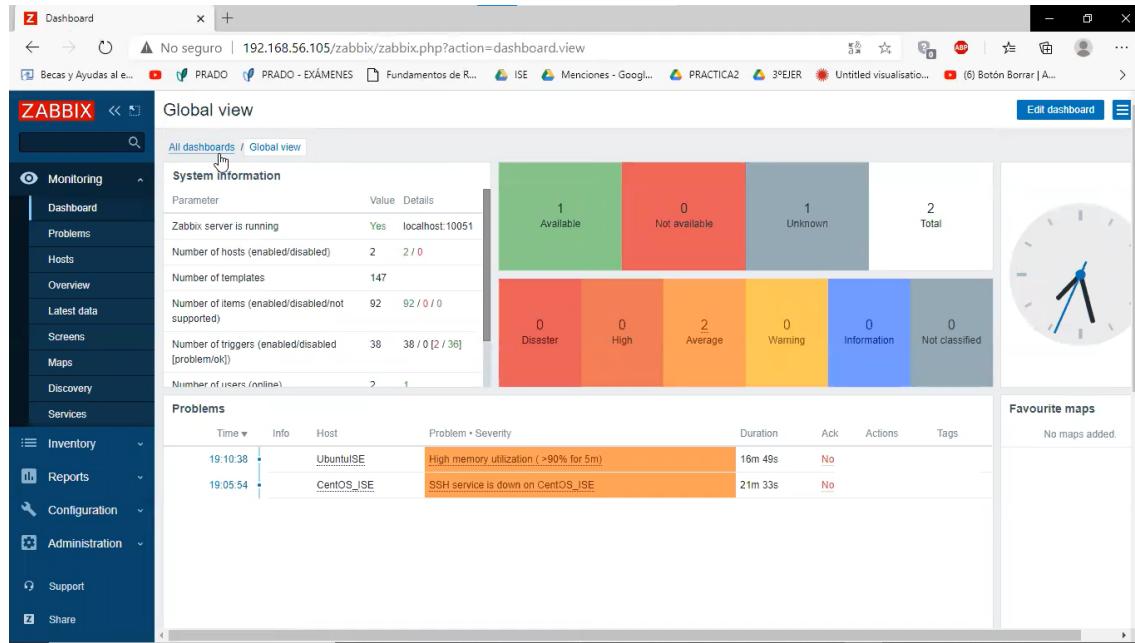
Y axis MAX value: Calculated

Items	Name	Function	Draw style	Y axis side	Colour	Action
1:	UbuntuSE: SSH service is running				Green	Remove

Add Cancel

Una vez creadas todas las gráficas, voy a *Monitoring->Dashboard->(arriba izq.)All dashboards->create dashboard*

Podemos modificar una existente, pero creo una únicamente para tener las 4 gráficas que quiero.



Añadimos las gráficas anteriormente creadas y podemos ver la monitorización de estas funcionalidades ya.



COMPROBACION

Paro el sistema de sshd y http en centos

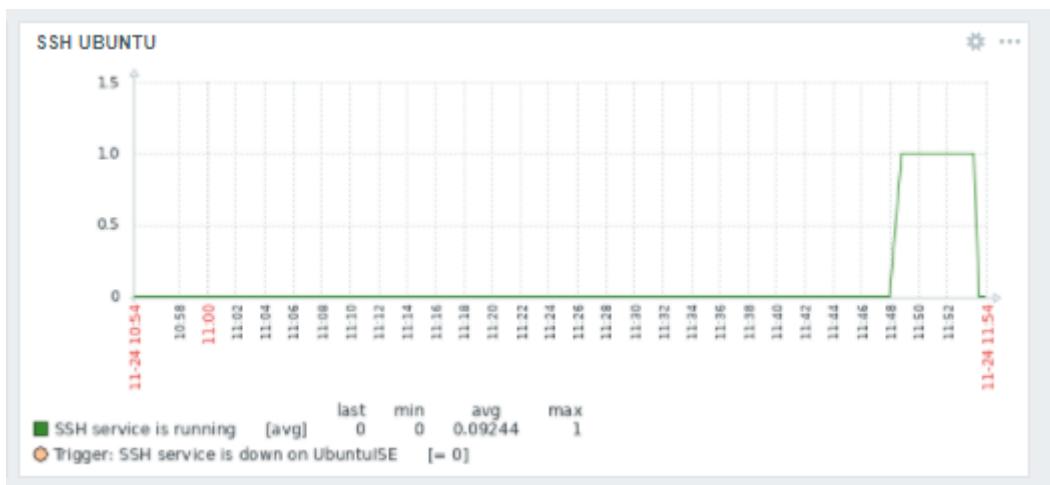
```
[javierrp@localhost ~]$: sudo systemctl stop sshd
[sudo] password for javierrp:
[javierrp@localhost ~]$: sudo systemctl stop httpd.service
[javierrp@localhost ~]$
```

Y así se refleja en los gráficos:



Y ahora detengo sshd en Ubuntu y esto es lo que se registra:

```
javierrp@javierrp:~$ sudo systemctl stop sshd  
javierrp@javierrp:~$ _
```



ANSIBLE

Las fuentes usadas para la instalación y prueba de ansible han sido:

- [Installing Ansible — Ansible Documentation](#)
- [Getting Started — Ansible Documentation](#)

Ansible en Ubuntu Server

Yo utilizaré como servidor mi máquina virtual de Ubuntu Server para asegurarme una correcta configuración de ssh y cortafuegos.

Lo primero es actualizar repositorios:

```

javierrp@javierrp:~$ sudo apt update
[sudo] password for javierrp:
Hit:1 http://es.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://es.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Hit:3 http://repo.zabbix.com/zabbix/5.0/ubuntu focal InRelease
Get:4 http://es.archive.ubuntu.com/ubuntu focal-backports InRelease [101 kB]
Get:5 http://es.archive.ubuntu.com/ubuntu focal-security InRelease [109 kB]
Get:6 http://es.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [670 kB]
Get:7 http://es.archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [11
Get:8 http://es.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [696
Get:9 http://es.archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [136
Get:10 http://es.archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadat
Get:11 http://es.archive.ubuntu.com/ubuntu focal-security/main amd64 Packages [372 kB
Get:12 http://es.archive.ubuntu.com/ubuntu focal-security/main amd64 c-n-f Metadata [
Get:13 http://es.archive.ubuntu.com/ubuntu focal-security/universe amd64 Packages [51
Get:14 http://es.archive.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Metada
Fetched 2755 kB in 9s (298 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
77 packages can be upgraded. Run 'apt list --upgradable' to see them.
javierrp@javierrp:~$ sudo apt install software-properties-common
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  python3-software-properties
The following packages will be upgraded:
  python3-software-properties software-properties-common
2 upgraded, 0 newly installed, 0 to remove and 75 not upgraded.
Need to get 35.9 kB of archives.
After this operation, 0 B of additional disk space will be used.
Do you want to continue? [Y/n] y
0% [Working]_

```

A estos repositorios añadimos el siguiente:

```

javierrp@javierrp:~$ sudo apt-add-repository --yes --update ppa:ansible/ansible
Hit:1 http://es.archive.ubuntu.com/ubuntu focal InRelease
Ign:2 http://ppa.launchpad.net/ansible/ansible/ubuntu focal InRelease
Get:3 http://es.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Err:4 http://ppa.launchpad.net/ansible/ansible/ubuntu focal Release
  404  Not Found [IP: 91.189.95.83 80]
Hit:5 http://repo.zabbix.com/zabbix/5.0/ubuntu focal InRelease
Get:6 http://es.archive.ubuntu.com/ubuntu focal-backports InRelease [101 kB]
Get:7 http://es.archive.ubuntu.com/ubuntu focal-security InRelease [109 kB]
Get:8 http://es.archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [11
Get:9 http://es.archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata
Reading package lists... Done
E: The repository 'http://ppa.launchpad.net/ansible/ansible/ubuntu focal Release' doe
lease file.
N: Updating from such a repository can't be done securely, and is therefore disabled
N: See apt-secure(8) manpage for repository creation and user configuration details.
javierrp@javierrp:~$ 

```

E instalamos ansible:

```
javierrp@javierrp:~$ sudo apt install ansible
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  ieee-data python3-argcomplete python3-crypto python3-dnspython python3-jmespath pyt
  python3-libcloud python3-lockfile python3-netaddr python3-ntlm-auth python3-request
  python3-requests-ntlm python3-selinux python3-winrm python3-xmldict
Suggested packages:
  cowsay sshpass python-lockfile-doc ipython3 python-netaddr-docs
The following NEW packages will be installed:
  ansible ieee-data python3-argcomplete python3-crypto python3-dnspython python3-jmes
  python3-kerberos python3-libcloud python3-lockfile python3-netaddr python3-ntlm-auth
  python3-requests-kerberos python3-requests-ntlm python3-selinux python3-winrm python3-xm
0 upgraded, 16 newly installed, 0 to remove and 75 not upgraded.
Need to get 9643 kB of archives.
After this operation, 90.2 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://es.archive.ubuntu.com/ubuntu focal/main amd64 python3-crypto amd64 2.6.1
  [1 kB]
Get:2 http://es.archive.ubuntu.com/ubuntu focal/main amd64 python3-dnspython all 1.16
  [1 kB]
Get:3 http://es.archive.ubuntu.com/ubuntu focal/main amd64 ieee-data all 20180805.1 [_
Get:4 http://es.archive.ubuntu.com/ubuntu focal/main amd64 python3-netaddr all 0.7.19
Get:5 http://es.archive.ubuntu.com/ubuntu focal/universe amd64 ansible all 2.9.6+dfsg
  [30% [5 ansible 921 kB/5794 kB 16%] _
```

Instalación en centos

La instalación en centos es más simple:

```
[javierrp@localhost ~]$ sudo yum install ansible
[sudo] password for javierrp:
Última comprobación de caducidad de metadatos hecha hace 1:28:37, el lun 23 nov 2020
Dependencias resueltas.
=====
Paquete           Arquitectura   Versión      Repositorio
=====
Instalando:
ansible          noarch        2.9.15-1.el8    epel
Instalando dependencias:
libsodium         x86_64        1.0.18-2.el8    epel
python3-asn1crypto noarch        0.24.0-3.el8    BaseOS
python3-babel     noarch        2.5.1-5.el8    AppStream
python3-bcrypt    x86_64        3.1.6-2.el8.1  epel
python3-cffi       x86_64        1.11.5-5.el8  BaseOS
python3-cryptography x86_64        2.3-3.el8    BaseOS
python3-idna      noarch        2.5-5.el8    BaseOS
python3-jinja2    noarch        2.10.1-2.el8_0  AppStream
python3-jmespath  noarch        0.9.0-11.el8   AppStream
python3-markupsafe x86_64        0.23-19.el8   AppStream
python3-ply        noarch        3.9-8.el8    BaseOS
python3-pyasn1    noarch        0.3.7-6.el8   AppStream
python3-pycparser noarch        2.14-14.el8   BaseOS
python3-pynacl    x86_64        1.3.0-5.el8   epel
python3-pttz      noarch        2017.2-9.el8   AppStream
sshpss            x86_64        1.06-9.el8   epel
Instalando dependencias débiles:
python3-paramiko  noarch        2.4.3-1.el8   epel
Resumen de la transacción
=====
Instalar 18 Paquetes

Tamaño total de la descarga: 25 M
Tamaño instalado: 129 M
¿Está de acuerdo [s/N]?:
```

Configuración de Ubuntu Server para que sea host

Ahora volviendo a Ubuntu Server, que será servidor, modificamos el siguiente archivo:

```
javierrp@javierrp:~$ sudo nano /etc/ansible/hosts -
```

Añadiendo al final de este lo siguiente:

```
ubuntuISE ansible_host=192.168.56.105 ansible_user='javierrp'  
centosISE ansible_host=192.168.56.110 ansible_user='javierrp'
```

Eso permitirá referirnos a las máquinas con un nombre y no tener que meter sus IP's ni usuarios en cada uso.

Ponemos el puerto en 22022 para tener la misma configuración que el ssh de ambas máquinas:

```
javierrp@javierrp:~$ sudo nano /etc/ansible/ansible.cfg
```

```
#inventory      = /etc/ansible/hosts  
#library        = /usr/share/my_modules/  
#module_utils   = /usr/share/my_module_utils/  
#remote_tmp     = ~/.ansible/tmp  
#local_tmp      = ~/.ansible/tmp  
#plugin_filters_cfg = /etc/ansible/plugin_filters.yml  
#forks          = 5  
#poll_interval  = 15  
#sudo_user      = root  
#ask_sudo_pass  = True  
#ask_pass       = True  
#transport      = smart  
remote_port    = 22022  
#module_lang    = C  
#module_set_locale = False
```

Y ahora vamos a conectar nuestro host con ambas máquinas remotas. Para este paso, y de forma temporal, deberemos poner el ‘permitrootlogin’ a ‘yes’ tanto en centos como en Ubuntu (con su correspondiente “systemctl restart sshd”). Tras tener eso habilitado, creamos una clave pública y privada con ssh-keygen en Ubuntu server y la distribuimos tanto a centos como a ella misma con ssh-copy-id:

```
javierrp@javierrp:~$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/javierrp/.ssh/id_rsa):
/home/javierrp/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/javierrp/.ssh/id_rsa
Your public key has been saved in /home/javierrp/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:s0obF7Yxg4+Uobfs2d4VWJ0TCnR3Lh+C8HeuvYg4Rew javierrp@javierrp
The key's randomart image is:
+---[RSA 3072]---+
| .+ . o .
| = =
| .. .= B +
| . + o oo. B .
| . = B So. o
| + * * E. o
| * +
| o = ..o . .
| =oo o... .
+---[SHA256]---+
javierrp@javierrp:~$ ssh-copy-id 192.168.56.105 -p 22022
```

```
Javierrp@javierrp:~$ ssh-copy-id 192.168.56.105 -p 22022
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/javierrp/.ssh/id
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out a
eady installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted no
all the new keys
Password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh -p '22022' '192.168.56.105'"
and check to make sure that only the key(s) you wanted were added.

javierrp@javierrp:~$
```

```
Javierrp@javierrp:~$ ssh-copy-id 192.168.56.110 -p 22022
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/javierrp/.ssh/id
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out a
eady installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted no
all the new keys
javierrp@192.168.56.110's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh -p '22022' '192.168.56.110'"
and check to make sure that only the key(s) you wanted were added.

javierrp@javierrp:~$ _
```

Tras esto volvemos a poner el ‘permitrootlogin no’ y reiniciamos el sistema sshd.

Comprobación

Para la comprobación, hacemos un ping a ambas máquinas (no hay que hacerlo por separado, vale con un “ansible all”)

```
javierrp@javierrp:~$ ansible all -m ping
centosISE | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/libexec/platform-python"
    },
    "changed": false,
    "ping": "pong"
}
ubuntuISE | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
javierrp@javierrp:~$ _
```

Y como funciona, creamos un archivo .py en el directorio `~/` de cada máquina (con el mismo nombre) para probar a ejecutarlo desde el host. Este script se toma del guion de prácticas y sirve para comprobar que los RAID están bien configurados.

Centos:

```
[javierrp@localhost ~]$ sudo nano ~/javi.raid.py_
```

```
import re
f=open('/proc/mdstat')
for line in f:
    b=re.findall('^\[[\w]*[_]+[\w]*\]',line)
    if(b!=[]):
        print("--ERROR_en_RAID--")
print("--OK_Script--)
```

Ubuntu:

```
javierrp@javierrp:~$ sudo nano ~/javi-raid.py_
```

```
GNU nano 4.8                               /home/javierrp/javi-
import re
f=open('/proc/mdstat')
for line in f:
    b=re.findall('^\[[\w]*[_]+[\w]*\]',line)
    if(b!=[]):
        print("--ERROR_en_RAID--")
print("--OK_Script--)
```

Y ya desde Ubuntu Server como Hosts:

```
javierrp@javierrp:~$ ansible all -a "python3 ~/javi-raid.py"
centosISE | CHANGED | rc=0 >>
--OK_Script--
ubuntuISE | CHANGED | rc=0 >>
--OK_Script--
javierrp@javierrp:~$
```