

Práctica 3:

Monitorización y "Profiling"

Práctica realizada por Juan Sánchez Rodríguez

Sistemas operativos utilizados:

- Ubuntu Server
- Centos 7

Instalación de Zabbix en Ubuntu Server

```
jsr@ubuntu:~$ wget https://repo.zabbix.com/zabbix/3.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_3.4-1+xenial_all.deb
--2019-11-18 12:19:05-- https://repo.zabbix.com/zabbix/3.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_3.4-1+xenial_all.deb
Resolviendo repo.zabbix.com (repo.zabbix.com)... 162.243.159.138, 2604:a880:1:20::b82:1001
Conectando con repo.zabbix.com (repo.zabbix.com)[162.243.159.138]:443... conectado.
Petición HTTP enviada, esperando respuesta... 200 OK
Longitud: 3884 (3,8K) [application/octet-stream]
Grabando a: "zabbix-release_3.4-1+xenial_all.deb"

zabbix-release_3.4-1+xen 100%[=====>] 3,79K --.-KB/s in 0s

2019-11-18 12:19:07 (851 MB/s) - "zabbix-release_3.4-1+xenial_all.deb" guardado [3884/3884]

jsr@ubuntu:~$ _
```

Después usamos:

```
$> sudo dpkg -i zabbix-release_3.4-1+xenial_all.deb
```

```
$> sudo apt update
```

Ahora instalamos el servidor:

```
$> sudo apt install -y zabbix-server-mysql zabbix-frontend-php
```

Y configuramos la base de datos:

```
jsr@ubuntu:~$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 5
Server version: 5.7.27-0ubuntu0.16.04.1 (Ubuntu)

Copyright (c) 2000, 2019, Oracle and/or its affiliates. All rights reserved.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

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

mysql> create database zabbix character set utf8 collate utf8_bin;
Query OK, 1 row affected (0,00 sec)

mysql> grant all privileges on zabbix.* to zabbix@localhost identified by 'practicas,ISE';
Query OK, 0 rows affected, 1 warning (0,00 sec)

mysql> flush privileges;
Query OK, 0 rows affected (0,00 sec)

mysql> exit
Bye
```

Después importamos el esquema inicial y accedemos al fichero de configuración:

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

```
$> sudo nano /etc/zabbix/zabbix_server.conf
```

Establecemos la clave (DBPassword) e iniciamos y activamos el servicio de zabbix:

```
# Mandatory: no
# Default:
# DBSchema=

### Option: DBUser
#       Database user.
#
# Mandatory: no
# Default:
# DBUser=
DBUser=zabbix

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

### Option: DBSocket
#       Path to MySQL socket.
#
# Mandatory: no
# Default:
# DBSocket=/tmp/mysql.sock

### Option: DBPort

jsr@ubuntu:~$ sudo systemctl enable zabbix-server
Synchronizing state of zabbix-server.service with SysV init with /lib/systemd/systemd-sysv-install..
Executing /lib/systemd/systemd-sysv-install enable zabbix-server
jsr@ubuntu:~$ sudo systemctl start zabbix-server
```

Ahora configuramos la zona horaria del PHP (date.timezone), reiniciamos el servidor web y añadimos su correspondiente regla para el firewall y reiniciamos zabbix:

```
; Module Settings ;
;::::::::::::::::::;

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

[Date]
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

jsr@ubuntu:~$ sudo systemctl restart apache2
jsr@ubuntu:~$ sudo ufw allow 80/tcp
Reglas actualizadas
Reglas actualizadas (v6)
jsr@ubuntu:~$ sudo systemctl start zabbix-server
jsr@ubuntu:~$ sudo systemctl enable zabbix-server
Synchronizing state of zabbix-server.service with SysV init with /lib/systemd/systemd-sysv-install..
Executing /lib/systemd/systemd-sysv-install enable zabbix-server
jsr@ubuntu:~$
```

A continuación accedemos desde el host usando 192.168.56.105/zabbix, pulsamos en “next” y nos encontramos la siguiente pantalla donde deben estar marcados todos con un “OK”:

ZABBIX Check of pre-requisites

	Current value	Required
PHP version	7.0.33-0ubuntu0.16.04.7	5.4.0 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 option "date.timezone"	Europe/Madrid	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 [GPL v2](#)

Zabbix 3.4.15. © 2001-2019, Zabbix SIA

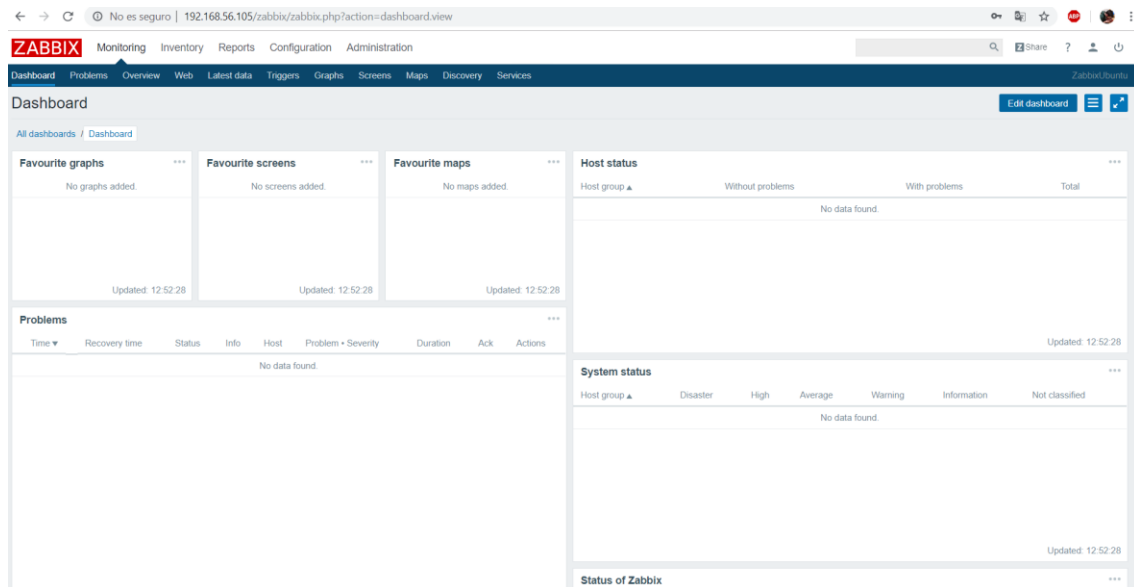
En la siguiente pantalla introducimos la contraseña de la base de datos:

The screenshot shows a web browser window with the URL `192.168.56.105/zabbix/setup.php`. The page title is "ZABBIX" and the main heading is "Configure DB connection". Below the heading, there is a instruction: "Please create database manually, and set the configuration parameters for connection to this database. Press 'Next step' button when done." The form contains the following fields: "Database type" (a dropdown menu set to "MySQL"), "Database host" (text input with "localhost"), "Database port" (text input with "0" and a note "0 - use default port"), "Database name" (text input with "zabbix"), "User" (text input with "zabbix"), and "Password" (password input field with masked characters). At the bottom right of the form are "Back" and "Next step" buttons. A sidebar on the left lists the installation steps: "Welcome", "Check of pre-requisites", "Configure DB connection" (highlighted), "Zabbix server details", "Pre-installation summary", and "Install". At the bottom of the page, it says "Licensed under GPL v2" and "Zabbix 3.4.15 © 2001–2018, Zabbix SIA".

Y por último le damos un nombre al servidor:

The screenshot shows the same web browser window, but the page title is "ZABBIX" and the main heading is "Zabbix server details". Below the heading, there is a instruction: "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)." The form contains the following fields: "Host" (text input with "localhost"), "Port" (text input with "10051"), and "Name" (text input with "ZabbixUbuntu"). At the bottom right of the form are "Back" and "Next step" buttons. A sidebar on the left lists the installation steps: "Welcome", "Check of pre-requisites", "Configure DB connection", "Zabbix server details" (highlighted), "Pre-installation summary", and "Install". At the bottom of the page, it says "Licensed under GPL v2" and "Zabbix 3.4.15 © 2001–2018, Zabbix SIA".

Ahora podemos acceder a Zabbix usando como nombre de usuario “Admin” y contraseña “zabbix”, la pantalla que nos carga sería la siguiente:



Por último debemos activar y arrancar el agente:

```
Executing /lib/systemd/systemd-sysv-install enable zabbix-server
jsr@ubuntu:~$ sudo apt install -y zabbix-agent
[sudo] password for jsr:
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias
Leyendo la información de estado... Hecho
Se instalarán los siguientes paquetes NUEVOS:
  zabbix-agent
0 actualizados, 1 nuevos se instalarán, 0 para eliminar y 163 no actualizados.
Se necesita descargar 165 kB de archivos.
Se utilizarán 638 kB de espacio de disco adicional después de esta operación.
Des:1 http://repo.zabbix.com/zabbix/3.4/ubuntu xenial/main amd64 zabbix-agent amd64 1:3.4.15-1+xenia
l [165 kB]
Descargados 165 kB en 1s (136 kB/s)
Seleccionando el paquete zabbix-agent previamente no seleccionado.
(Leyendo la base de datos ... 63422 ficheros o directorios instalados actualmente.)
Preparando para desempaquetar .../zabbix-agent_1:3.4.15-1+xenia1_amd64.deb ...
Desempaquetando zabbix-agent (1:3.4.15-1+xenia1) ...
Procesando disparadores para man-db (2.7.5-1) ...
Procesando disparadores para systemd (229-4ubuntu21.4) ...
Procesando disparadores para ureadahead (0.100.0-19) ...
Configurando zabbix-agent (1:3.4.15-1+xenia1) ...
Procesando disparadores para systemd (229-4ubuntu21.4) ...
Procesando disparadores para ureadahead (0.100.0-19) ...
jsr@ubuntu:~$ sudo systemctl enable zabbix-agent
Synchronizing state of zabbix-agent.service with SysV init with /lib/systemd/systemd-sysv-install...
Executing /lib/systemd/systemd-sysv-install enable zabbix-agent
jsr@ubuntu:~$ start zabbix-agent
El programa «start» no está instalado. Puede instalarlo escribiendo:
sudo apt install upstart
jsr@ubuntu:~$ systemctl start zabbix-agent
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to start 'zabbix-agent.service'.
Authenticating as: Juan Sanchez Rodriguez,,, (jsr)
Password:
==== AUTHENTICATION COMPLETE ====
jsr@ubuntu:~$ _
```

Instalación de Zabbix en CentOS

Añadimos el siguiente repositorio:

```
arch.rpm - transferencia fallida
[root@localhost jrodriguez]# rpm -ivh https://repo.zabbix.com/zabbix/3.4/rhel/7/x86_64/zabbix-release-3.4-2.el7.noarch.rpm
Recuperando https://repo.zabbix.com/zabbix/3.4/rhel/7/x86_64/zabbix-release-3.4-2.el7.noarch.rpm
advertencia:/var/tmp/rpm-tmp.Otkwad: EncabezadoU4 RSA/SHA512 Signature, ID de clave a14fe591: NOKEY
Preparando... ##### [100%]
Actualizando / instalando...
 1:zabbix-release-3.4-2.el7 ##### [100%]
```

Instalamos el agente y activamos y arrancamos el servicio:

```
#> yum install -y zabbix-agent
```

```
#> systemctl enable zabbix-agent
```

```
#> systemctl start zabbix-agent
```

Como podemos comprobar da un error al arrancar, para solucionarlo usamos:

```
#> semodule -i zabbix_agent_setrlimit.pp
```

Después añadimos la IP del servidor de Zabbix al archivo de configuración:

```
#> nano /etc/zabbix/zabbix_agentd.conf
```

Modificamos las siguientes líneas:

```
Server=192.168.56.105
```

```
ServerActive=192.168.56.105
```

Abrimos el puerto 10050 tanto en Ubuntu como en CentOS:

```
jsr@ubuntu:~$ sudo ufw allow 10050/tcp
[sudo] password for jsr:
Reglas actualizadas
Reglas actualizadas (v6)
```

```
[root@localhost jrodriguez]# firewall-cmd --zone=public --add-port=10050/tcp --permanent
success
[root@localhost jrodriguez]# firewall-cmd --reload
success
```

Después reiniciamos el servicio:

```
#> systemctl restart zabbix-agent
```

Ahora debemos añadir CentOS al frontend. Accedemos a 192.168.56.105/zabbix -> Configuration -> Hosts -> Create Host y establecemos los siguientes parámetros:

The screenshot shows the Zabbix web interface for creating a new host. The browser address bar shows 192.168.56.105/zabbix/hosts.php?groupid=0&form=Create+host. The Zabbix logo is in the top left. The navigation bar includes Monitoring, Inventory, Reports, Configuration, and Administration. The 'Hosts' section is active, showing tabs for Host, Templates, IPMI, Macros, Host inventory, and Encryption. The 'Host' tab is selected, displaying the 'Create Host' form. The form includes fields for 'Host name' (CentOS), 'Visible name', 'Groups' (In groups, Other groups), 'New group' (ISE), 'Agent interfaces' (IP address: 192.168.56.110, DNS name, Connect to: IP, DNS, Port: 10050, Default: Remove), 'SNMP interfaces', 'JMX interfaces', 'IPMI interfaces', and 'IPMI interfaces'.

Monitorización de SSH y HTTP

Accedemos a 192.168.56.105/zabbix -> Configuration -> Hosts -> CentOS -> Templates para añadir las plantillas:

The screenshot shows the Zabbix web interface for the 'Templates' page of the CentOS host. The browser address bar shows 192.168.56.105/zabbix/hosts.php. The Zabbix logo is in the top left. The navigation bar includes Monitoring, Inventory, Reports, Configuration, and Administration. The 'Hosts' section is active, showing tabs for Host, Templates, IPMI, Macros, Host inventory, and Encryption. The 'Templates' tab is selected, displaying the 'Templates' page. The page includes a table of linked templates, a search bar for linking new templates, and buttons for Update, Clone, Full clone, Delete, and Cancel.

Name	Action
Template App HTTP Service	Unlink
Template App SSH Service	Unlink

Link new templates:

Después accedemos a 192.168.56.105/zabbix -> Configuration -> Templates -> Template App SSH Service -> Items -> SSH service is running y cambiamos el campo Key para que use el puerto 22022:

The screenshot shows the Zabbix web interface for configuring an item. The breadcrumb trail is: Configuration > Templates > Template App SSH Service > Items > SSH service is running. The 'Item' tab is selected. The configuration form includes the following fields:

- Name: SSH service is running
- Type: Simple check
- Key: net.tcp.service[ssh,22022] (with a 'Select' button)
- User name: (empty)
- Password: (empty)
- Type of information: Numeric (unsigned)
- Units: (empty)
- Update interval: 1m
- Custom intervals: A table with columns Type, Interval, Period, and Action. It contains one row: Flexible, Scheduling, 50s, 1-7:00:00-24:00, with a 'Remove' button.
- History storage period: 1w
- Trend storage period: 365d
- Show value: Service state (with a 'show value mappings' link)
- New application: (empty)

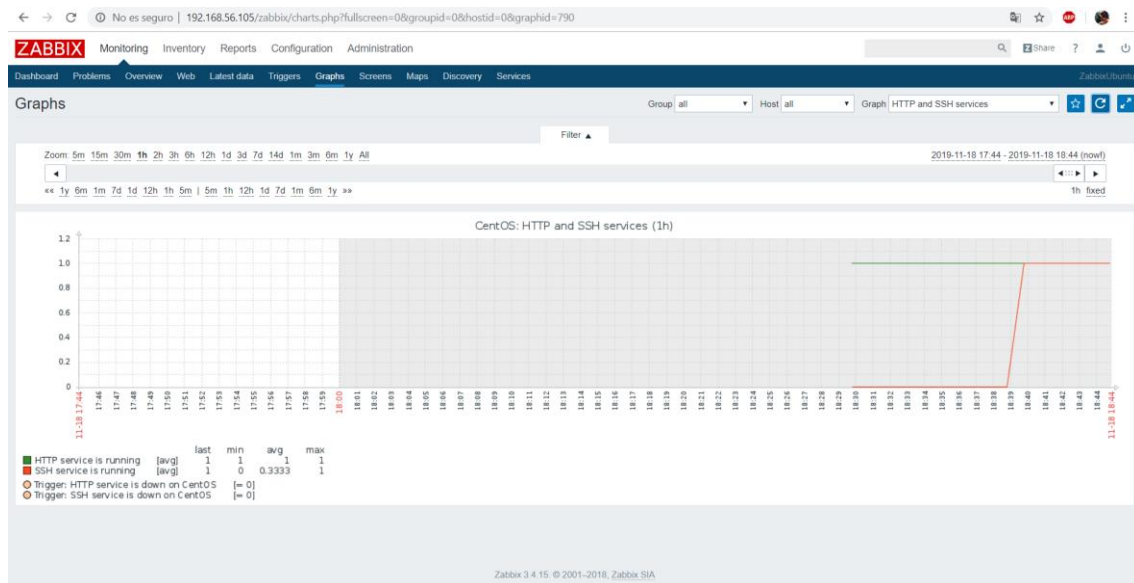
Ahora accedemos a 192.168.56.105/zabbix -> Configuration -> Hosts -> Graph -> Create Graph y añadimos los servicios de HTTP y de SSH:

The screenshot shows the Zabbix web interface for creating a graph. The breadcrumb trail is: Configuration > Hosts > Graph > Create Graph. The 'Graph' tab is selected. The configuration form includes the following fields:

- Name: HTTP and SSH services
- 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: A table with columns Name, Function, Draw style, Y axis side, Colour, and Action. It contains two rows:
 - 1: CentOS: HTTP service is running, avg, Line, Left, 1A7C11, Remove
 - 2: CentOS: SSH service is running, avg, Line, Left, F63100, Remove

At the bottom, there are 'Add' and 'Cancel' buttons.

Si vamos a Dashboard -> Graphs podemos ver las gráficas que tenemos, aquí está la que acabamos de crear:



Después instalamos `zabbix_get` en Ubuntu server, esta herramienta nos sirve para enviar peticiones de datos que están monitorizadas desde el servidor al agente, teniendo así una monitorización local:

```
jsr@ubuntu:~$ sudo apt install -y zabbix-get
[sudo] password for jsr:
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias
Leyendo la información de estado... Hecho
Se instalarán los siguientes paquetes NUEVOS:
  zabbix-get
0 actualizados, 1 nuevos se instalarán, 0 para eliminar y 163 no actualizados.
Se necesita descargar 62,4 kB de archivos.
Se utilizarán 215 kB de espacio de disco adicional después de esta operación.
Des:1 http://repo.zabbix.com/zabbix/3.4/ubuntu xenial/main amd64 zabbix-get amd64 1:3.4.15-1+xenial
[62,4 kB]
Descargados 62,4 kB en 0s (85,1 kB/s)
Seleccionando el paquete zabbix-get previamente no seleccionado.
(Leyendo la base de datos ... 63434 ficheros o directorios instalados actualmente.)
Preparando para desempaquetar .../zabbix-get_1/3a3.4.15-1+xenial_amd64.deb ...
Desempaquetando zabbix-get (1:3.4.15-1+xenial) ...
Procesando disparadores para man-db (2.7.5-1) ...
Configurando zabbix-get (1:3.4.15-1+xenial) ...
jsr@ubuntu:~$
```

Podemos usar los siguientes comandos para monitorizar localmente (en Ubuntu):

```
$> zabbix_get -s 192.168.56.110 -k net.tcp.service[ssh,,22022]
```

```
$> zabbix_get -s 192.168.56.110 -k net.tcp.service[http]
```

REFERENCIAS:

<https://www.zabbix.com/documentation/3.4/manual/concepts/agent>

<https://www.zabbix.com/documentation/3.4/manual/config/hosts/inventory>

https://www.zabbix.com/forum/zabbix-help/49796-zabbix_get

https://www.zabbix.com/documentation/3.4/manual/installation/install_from_packages/debian_ubuntu

https://www.zabbix.com/documentation/3.4/manual/installation/install_from_packages/rhel_centos