ZABBIX 20 YEARS

Deploying Zabbix components with Docker and Docker Compose

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ZABBIX DEPLOYMENT

Want to test new Zabbix features before production server upgrade?

Tired of making and configuring VM?

Need a lightweight solution?

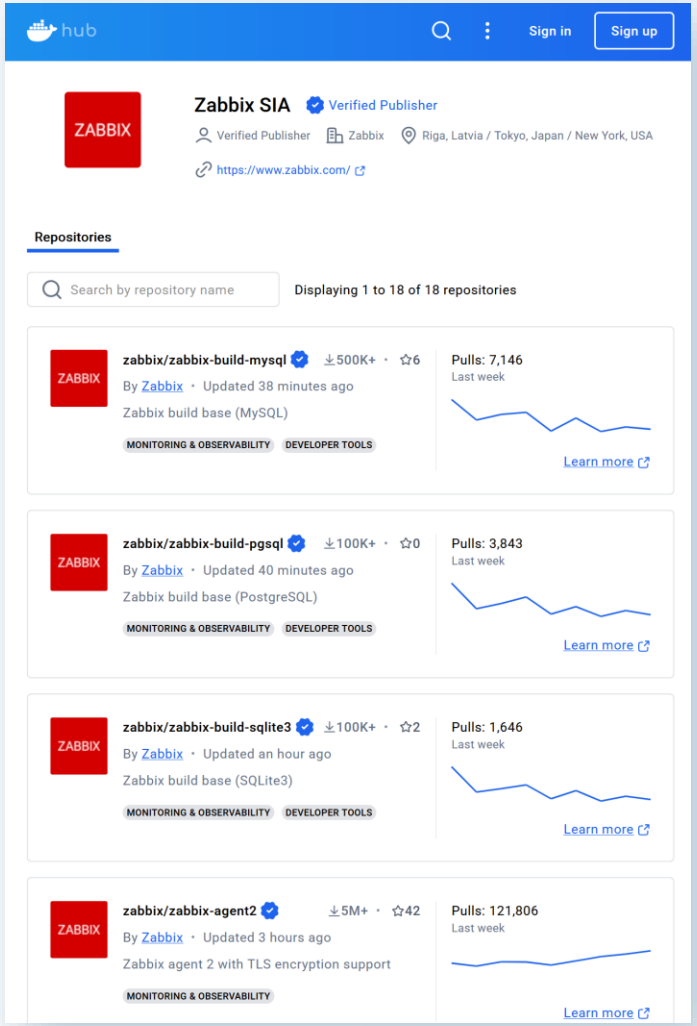
Want to spin up/down systems fast?

Want to do it without any significant time commitment?

ZABBIX CONTAINERS IN DOCKERHUB

Multiple official Zabbix components available:
https://hub.docker.com/u/zabbix

- Zabbix Server (with MySQL/PostgreSQL database)
- Zabbix Proxy (with MySQL/SQLite3 database)
- Zabbix Frontend (Apache/Nginx with MySQL/PostgreSQL DB)
- Zabbix Agent (TLS encryption)
- Zabbix Agent2 (TLS encryption)
- Zabbix Java Gateway
- Zabbix SNMP traps
- Zabbix Web Service



DOCKER CONTAINENER IMAGES

New official Zabbix docker images are based on (*may vary):

- Alpine Linux v3.21
- Ubuntu 24.04 (noble)
- CentOS Stream 9
- Oracle Linux 9 image
- *Windows 10 LTSC 2019
- *Windows 11 LTSC 2022 images

Images are updated when new releases are published

Latest tag image is based on Alpine Linux

DOCKER CONTAINENER TAGS

Tags are used to specify:

- Which OS container image will be based on
- Which Zabbix version will be used

```
Zabbix proxy 5.0 (tags: alpine-5.0-latest, ubuntu-5.0-latest, ol-5.0-latest)
Zabbix proxy 5.0.* (tags: alpine-5.0.*, ubuntu-5.0.*, ol-5.0.*)
Zabbix proxy 6.0 (tags: alpine-6.0-latest, ubuntu-6.0-latest, ol-6.0-latest)
Zabbix proxy 6.0.* (tags: alpine-6.0.*, ubuntu-6.0.*, ol-6.0.*)
Zabbix proxy 7.0 (tags: alpine-7.0-latest, ubuntu-7.0-latest, ol-7.0-latest)
Zabbix proxy 7.0.* (tags: alpine-7.0.*, ubuntu-7.0.*, ol-7.0.*)
Zabbix proxy 7.2 (tags: alpine-7.2-latest, ubuntu-7.2-latest, ol-7.2-latest, alpine-latest,
ubuntu-latest, ol-latest, latest)
Zabbix proxy 7.2.* (tags: alpine-7.2.*, ubuntu-7.2.*, ol-7.2.*)
Zabbix proxy 7.4 (tags: alpine-trunk, ubuntu-trunk, ol-trunk)
```

SYSTEM PLATFORMS

Wide range of different platforms supported

TAG

7.2-alpine-latest

Last pushed **12 days** by dotneft

```
docker pull zabbix/zabbix-proxy-sqlite3:7.2-alpine-latest
```

Copy

Digest	OS/ARCH	Compressed size
3c334f526d9f	linux/amd64	21.33 MB
473911abc7ae	linux/arm64	21.94 MB
f17b58a12bce	linux/ppc64le	22.17 MB
633caa5969ec	linux/riscv64	20.87 MB
33dd2e6ace37	linux/s390x	21.68 MB

ZABBIX CONTAINERS IN DOCKERHUB

Helpful guide how to start with Zabbix container deployment:

- https://www.zabbix.com/documentation/current/en/manual/installation/containers

Every container also has a short introduction and example in Dockerhub

How to use this image

Start `zabbix-proxy-sqlite3`

Start a Zabbix proxy container as follows:

```
docker run --name some-zabbix-proxy-sqlite3 -e ZBX_HOSTNAME=some-hostname -e ZBX_SERVER_HOST=some-zabbix-server --init -d zabbix/zabbix-proxy-sqlite3:tag
```

Where `some-zabbix-proxy-sqlite3` is the name you want to assign to your container, `some-hostname` is the hostname, it is Hostname parameter in Zabbix proxy configuration file, `some-zabbix-server` is IP or DNS name of Zabbix server and `tag` is the tag specifying the version you want. See the list above for relevant tags, or look at the full list of tags.

> Note
>
> Zabbix server has possibility to execute `fping` utility to perform ICMP checks. When containers are running in rootless mode or with specific restrictions environment, you may face errors related to fping: `fping: Operation not permitted` or lost all packets to all resources in this case add `--cap-add=net_raw` to `docker run` or `podman run` commands. Additionally fping executing in non-root environments can require sysctl modification: `net.ipv4.ping_group_range=0 1995` where 1995 is `zabbix` GID.

Connects from Zabbix server (Passive proxy)

This image exposes the standard Zabbix proxy port (10051) and can operate as Passive proxy in case `ZBX_PROXYMODE = 1`. Start Zabbix server container like this in order to link it to the Zabbix proxy container:

```
$ docker run --name some-zabbix-server --link some-zabbix-proxy-sqlite3:zabbix-proxy-sqlite3 --init -d zabbix/zabbix-server:latest
```

ZABBIX CONTAINERS IN DOCKERHUB

- The container configuration is done using environment variables
- Some environmental variables may be specific for each container
- For more information, check out the documentation

Environment Variables

When you start the `zabbix-proxy-sqlite3` image, you can adjust the configuration of the Zabbix proxy by passing one or more environment variables on the `docker run` command line.

`ZBX_PROXYMODE`

The variable allows to switch Zabbix proxy mode. Bu default, value is `0` - active proxy. Allowed values are `0` - active proxy and `1` - passive proxy.

`ZBX_HOSTNAME`

This variable is unique, case sensitive hostname. By default, value is `zabbix-proxy-sqlite3` of the container. It is `Hostname` parameter in `zabbix_proxy.conf`.

`ZBX_SERVER_HOST`

This variable is IP or DNS name of Zabbix server or Zabbix proxy. By default, value is `zabbix-server`. It is `Server` parameter in `zabbix_proxy.conf`. It is allowed to specify Zabbix server or Zabbix proxy port number using `ZBX_SERVER_PORT` variable. It make sense in case of non-default port for active checks.

`ZBX_SERVER_PORT`

This variable is port Zabbix server listening on. By default, value is `10051`.

Other variables

Additionally the image allows to specify many other environment variables listed below:

```
ZBX_ENABLEREMOTECOMMANDS=0 # Available since 3.4.0
ZBX_LOGREMOTECOMMANDS=0 # Available since 3.4.0
ZBX_SOURCEIP=
ZBX_HOSTNAMEITEM=system.hostname
ZBX_PROXYLOCALBUFFER=0
ZBX_PROXYOFFLINEBUFFER=1
ZBX_PROXYHEARTBEATFREQUENCY=60 # Deprecated since 6.4.0
ZBX_CONFIGFREQUENCY=3600 # Deprecated since 6.4.0
ZBX_PROXYCONFIGFREQUENCY=10 # Available since 6.4.0
ZBX_DATASENDERFREQUENCY=1
ZBX_STARTPOLLERS=5
ZBX_STARTPREPROCESSORS=3 # Available since 4.2.0
ZBX_STARTIPMIPOLLERS=0
ZBX_STARTPOLLERSUNREACHABLE=1
ZBX_STARTTRAPPERS=5
ZBX_STARTPINGERS=1
ZBX_STARTDISCOVERERS=1
ZBX_STARTHISTORYPOLLERS=1 # Available since 5.4.0 till 6.0.0
ZBX_STARTHTTPPOLLERS=1
```

USEFUL DOCKER COMMANDS

ZABBIX

For container management:

docker container run	Create and run a new container from an image
docker container start	Start one or more stopped containers
docker container stop	Stop one or more running containers
docker container rm	Remove one or more containers
docker container ls	List containers
docker container inspect	Display detailed information on one or more containers
docker container restart	Restart one or more containers
docker container logs	Fetch the logs of a container

USEFUL DOCKER COMMANDS

ZABBIX

For image management:

- **docker image pull** Download an image from a registry
- **docker image push** Upload an image to a registry
- **docker image ls** List images
- **docker image rm** Remove one or more images
- **docker image inspect** Display detailed information on one or more images

USEFUL DOCKER COMMANDS

ZABBIX

Docker Compose commands:

docker compose up	Create and start containers
docker compose down	Stop and remove containers, networks
docker compose ps	List containers
docker compose logs	View output from containers
docker compose start	Start services
docker compose stop	Stop services
docker compose config	Parse, resolve and render compose file

USEFUL DOCKER COMMANDS

ZABBIX

Other commands:

- **docker login** Authenticate to a registry
- **docker logout** Log out from a registry
- **docker search** Search Docker Hub for images
- **docker ps -a** Show both running and stopped containers
- **docker cp** Copy files/folders between a container and the local filesystem

ADDITIONAL HELP

Whenever something does not work as intended or fails :

- Check container logs! This will help you to narrow down the cause of the issue:
  - Issue with container, environment variables, connectivity, etc./

Show last 10 log lines (must pass line number as positive number)

```
# docker logs --tail 10 container
```

Show logs since timestamp or relative time (--since 1h)/(--until)

```
# docker logs --since 2025-02-19T06:00:00.000000000Z container
```

Show log in real-time

```
# docker logs -f container
```

In rare cases, restarting the container service resolves issues

ADDITIONAL HELP

Reading the log files when encountering an issue will help to narrow the cause:

- Forgot to mount /etc/hosts file to container

```
2025/02/25 14:39:41.017956 [103] sending of heartbeat message for [zabbix-agent-02] started to fail
2025/02/25 14:39:41.018008 [101] cannot connect to [zabbix.proxy.ha1:10051]: dial tcp :0->172.20.240.31:10051: connect: connection refused
2025/02/25 14:39:41.018012 [101] active check configuration update from host [zabbix-agent-02] started to fail
2025/02/25 14:39:41.029176 [101] cannot connect to [zabbix.proxy.ha1:10051]: dial tcp :0->172.20.240.31:10051: connect: connection refused
2025/02/25 14:39:41.033866 [101] sending of heartbeat message for [zabbix-agent-02] started to fail
2025/02/25 14:39:41.043087 [102] cannot connect to [zabbix.proxy.ha2:10051]: dial tcp :0->172.20.240.32:10051: connect: connection refused
2025/02/25 14:39:41.043124 [102] active check configuration update from host [zabbix-agent-02] started to fail
2025/02/25 14:39:41.094563 [102] cannot connect to [zabbix.proxy.ha2:10051]: dial tcp :0->172.20.240.32:10051: connect: connection refused
2025/02/25 14:39:41.095816 [102] sending of heartbeat message for [zabbix-agent-02] started to fail
```

- Agent is monitored by Zabbix-proxy group, but connections allowed only from Zabbix-server

```
2025/02/25 15:18:49.675645 failed to accept an incoming connection: connection from "172.20.240.33" rejected, allowed hosts: "zabbix.server.ha1,zabbix.server.ha2,zabbix.server.ha3"
2025/02/25 15:19:01.038352 [102] sequential redirect responses detected
2025/02/25 15:19:01.038380 [102] sending of heartbeat message for [Not working with proxies] started to fail
2025/02/25 15:19:04.673456 failed to accept an incoming connection: connection from "172.20.240.33" rejected, allowed hosts: "zabbix.server.ha1,zabbix.server.ha2,zabbix.server.ha3"
2025/02/25 15:20:04.676299 failed to accept an incoming connection: connection from "172.20.240.33" rejected, allowed hosts: "zabbix.server.ha1,zabbix.server.ha2,zabbix.server.ha3"
^Ccontext canceled
[root@zabbix ~]# cat /etc/hosts |grep "server\|proxy"
172.20.240.21  zabbix.server.ha1
172.20.240.22  zabbix.server.ha2
172.20.240.23  zabbix.server.ha3
172.20.240.24  zabbix.server.ha4
172.20.240.31  zabbix.proxy.ha1
172.20.240.32  zabbix.proxy.ha2
172.20.240.33  zabbix.proxy.ha3
```

ADDITIONAL HELP

- You can also open a shell inside a running container

```
# docker exec -ti container /bin/bash
```

- File or directory on the host can be mounted to a container with bind mounts
- To create a bind mount, you can use either the --mount or --volume flag:

```
# docker run --mount type=bind,src=<host-path>,dst=<container-path>
# docker run --volume <host-path>:<container-path>
```

- The difference between both binds is that the --mount flag is more explicit, supports all the available options.

```
docker run ...
...
-v /var/lib/zabbix/db_data:/var/lib/zabbix/db_data \
```

DOCKER NETWORKS

ZABBIX

Can use:

- The default bridge network, set automatically by Docker
- Custom, user-defined networks

Containers in a user-defined net can communicate with each other using:

- container IP addresses
- container names

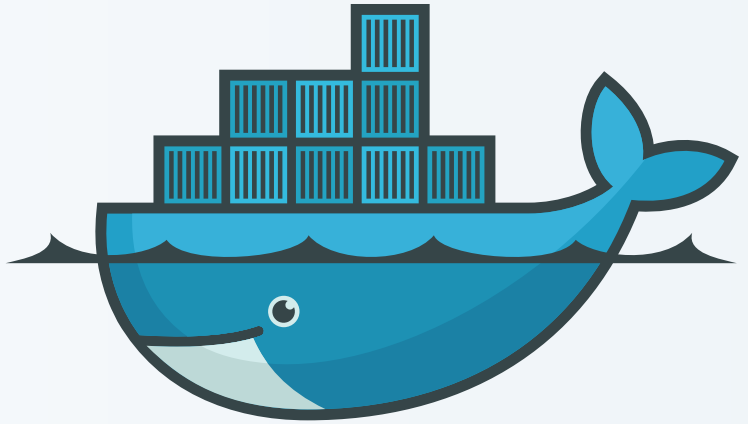
Create a network dedicated to the Zabbix component containers

```
# docker network create --subnet 172.20.0.0/16 --ip-range 172.20.240.0/20 zabbix-net
```

CONTAINERISED POSSIBILITIES

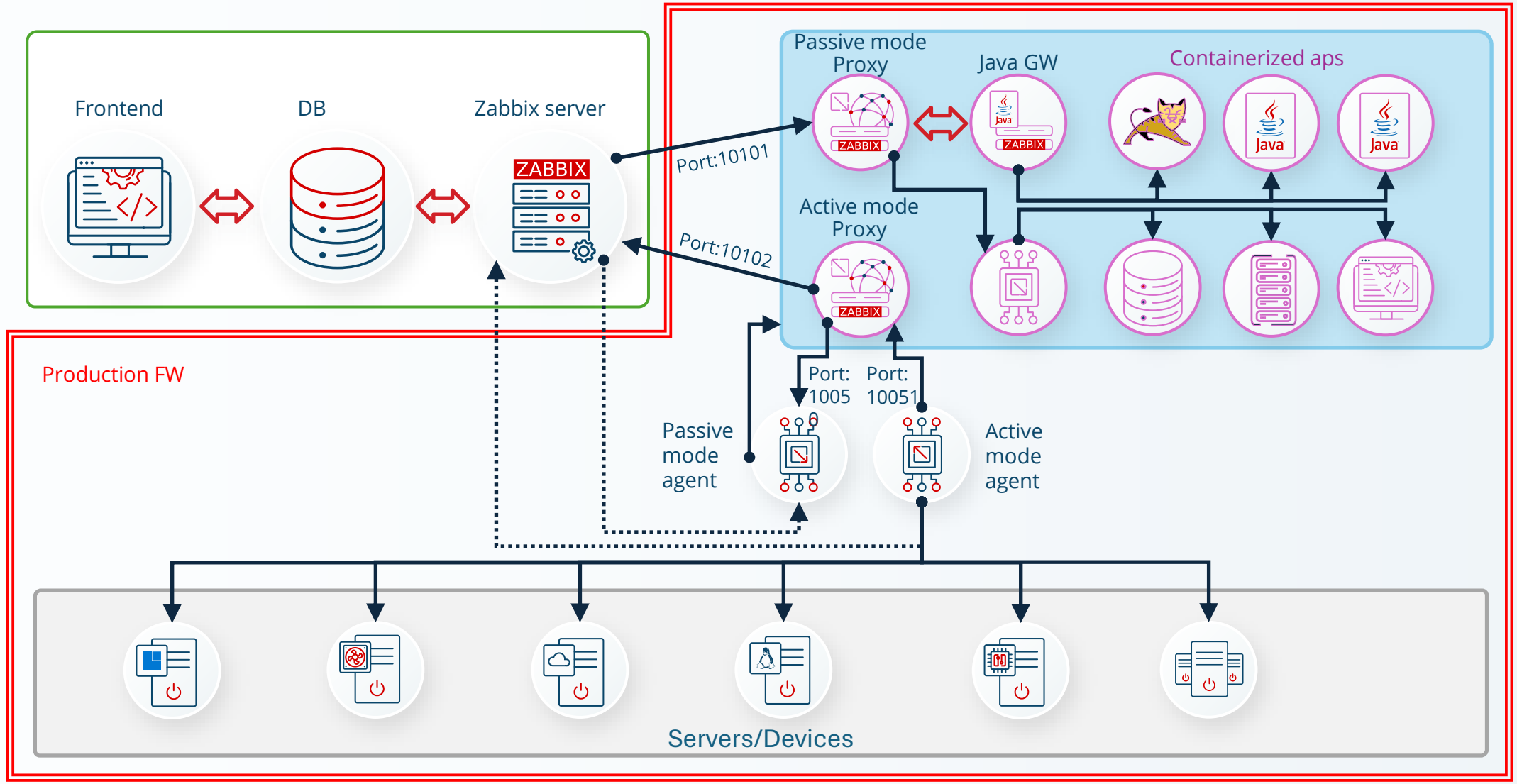
Prospects:

- Create redundant Zabbix services:
  - HA Zabbix-server nodes
  - Multiple proxies
  - Multiple agents
- Scheduled reports
- Multiple pairs of Proxy and Java gateways
- Container monitoring
- Rapidly create Zabbix testing environment:
  - Try out new features



docker

CONTAINERISED POSSIBILITIES



DOCKER RUN

- Specify container parameters using Docker run:
  - Can set any environment variable in the container by using one or more -e flags
  - Mount directories
  - Expose ports

```
docker run --name zabbix-proxy-active-01 \
          -e ZBX_HOSTNAME="Zabbix-proxy-active-01" \
          -e ZBX_SERVER_HOST=46.101.140.98 \
          -e ZBX_PROXYMODE="0" \
          -e ZBX_JAVAGATEWAY_ENABLE=true \
          -e ZBX_JAVAGATEWAY=zabbix-java-gateway-proxy \
          -e ZBX_JAVAGATEWAYPORT=10052 \
          -e ZBX_STARTJAVAPOLLERS=5 \
          --network=zabbix-net \
          -e ZBX_LISTENPORT=10101  \
          -p 10101:10101 \
          -p 10050:10050 \
          -p 10051:10051 \
          -v /var/lib/zabbix/db_data:/var/lib/zabbix/db_data \
          --restart unless-stopped \
          --init -d zabbix/zabbix-proxy-sqlite3:alpine-7.2.4
```

```
docker run --name zabbix-java-gateway-proxy \
              --network=zabbix-net \
              --restart unless-stopped \
              -d zabbix/zabbix-java-gateway:alpine-7.2.4
```

DOCKER COMPOSE

ZABBIX

docker_compose_v3_proxy.yaml

```
services:
  zabbix-proxy-active-01:
    image: "${PROXY_SQLITE3_IMAGE}:${ALPINE_IMAGE_TAG}"
    environment:
      ZBX_HOSTNAME: Zabbix-proxy-active-01
      ZBX_SERVER_HOST: ${ZBX_SERVER_HOST}
      ZBX_PROXYMODE: 0
      ZBX_LISTENPORT: 10101
      ZBX_JAVAGATEWAY_ENABLE: true
      ZBX_JAVAGATEWAY: zabbix-java-gateway-proxy
      ZBX_JAVAGATEWAYPORT: 10052
      ZBX_STARTJAVAPOLLERS: 5
    volumes:
      - /var/lib/zabbix/db_data:/var/lib/zabbix/db_data:rw
    networks:
      - backend
    ports:
      - 10101:10101
      - 10050:10050
      - 10051:10051
    restart: unless-stopped
```

docker_compose_v3_proxy.yaml (contd)

```
  zabbix-java-gateway-proxy:
    image: "${JAVA_GW_IMAGE}:${ALPINE_IMAGE_TAG}"
    networks:
      - backend
    restart: unless-stopped

networks:
  backend:
    name: zabbix-net
    external: true
```

.env

```
PROXY_SQLITE3_IMAGE=zabbix/zabbix-proxy-sqlite3
JAVA_GW_IMAGE = zabbix/zabbix-java-gateway
ALPINE_IMAGE_TAG=alpine-7.2.4
ZBX_SERVER_HOST=46.101.140.98
```

DOCKER COMPOSE

ZABBIX

Create using:

- Docker compose (-d = detach)

```
# docker compose -f ./docker_compose_v3_proxy.yaml up -d
```

```
[root@student-01 compose]# docker compose -f ./docker_compose_v3_proxy.yaml up -d
[+] Running 2/2
 ✔ Container compose-zabbix-java-gateway-proxy-1  Started
 ✔ Container compose-zabbix-proxy-active-01-1     Started
[root@student-01 compose]# docker compose ls
NAME                STATUS              CONFIG FILES
compose             running(2)          /root/compose/docker_compose_v3_proxy.yaml
[root@student-01 compose]#
```

- Make use of ready-made compose files from github for quick evaluation:
  - https://github.com/zabbix/zabbix-docker.git

DEPLOYING REDUNDANT SERVERS

Add configuration parameters to zabbix-server container:

- ZBX_HANODENAME
- ZBX_NODEADDRESS

```
docker run --name zabbix-server-mysql-ha1 -t \
          -e DB_SERVER_HOST="mysql-server" \
          -e MYSQL_DATABASE="zabbix" \
          -e MYSQL_USER="zabbix" \
          -e MYSQL_PASSWORD="zabbix_pwd" \
          -e MYSQL_ROOT_PASSWORD="root_pwd" \
          -e ZBX_HANODENAME="zabbix-server-HA1" \
          -e ZBX_NODEADDRESS="zabbix-server-mysql-ha1" \
          --network=zabbix-net \
          -p 10151:10051 \
          --restart unless-stopped \
          -d zabbix/zabbix-server-mysql:alpine-7.2.4
```

DEPLOYING REDUNDANT SERVERS

ZABBIX

Remove configuration parameters from frontend container:

- ZBX_SERVER_HOST
- ZBX_SERVER_PORT

```
docker run --name zabbix-web-nginx-mysql -t \
             -e DB_SERVER_HOST="mysql-server" \
             -e MYSQL_DATABASE="zabbix" \
             -e MYSQL_USER="zabbix" \
             -e MYSQL_PASSWORD="zabbix_pwd" \
             -e MYSQL_ROOT_PASSWORD="root_pwd" \
             --network=zabbix-net \
             -p 80:8080 \
             --restart unless-stopped \
             -d zabbix/zabbix-web-nginx-mysql:alpine-7.2.4
```

DEPLOYING REDUNDANT SERVERS

ZABBIX

Start multiple zabbix-servers at once in containers:

- Only one will be active at all times, others on standby
- You can execute commands on containers:
  - docker exec -it my_container sh -c "zabbix_server -R ha_status"

```
[root@zabbix ~]# docker exec -it zabbix-server-mysql-ha1 sh -c "zabbix_server -R ha_status"
Failover delay: 60 seconds
Cluster status:
   #  ID                        Name                 Address                 Status      Last Access
   1. cm7kfbfa3000115mi994iu69z zabbix-server-HA2    172.20.240.22:10051     standby     0s
   2. cm7kfcv3500010wpt75oi8d8u zabbix-server-HA3    172.20.240.23:10051     standby     5s
   3. cm7kfcw4d00010ulj8vztavoy zabbix-server-HA1    172.20.240.21:10051     active      2s
[root@zabbix ~]#
```

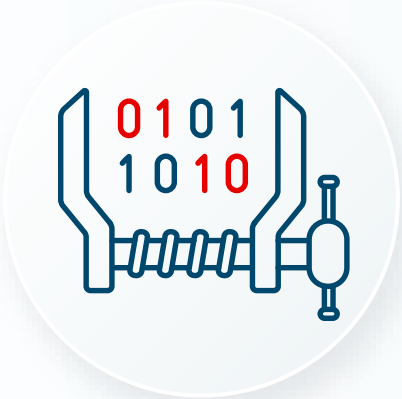
  - Or use shell inside a container

```
[root@zabbix ~]# docker exec -ti zabbix-server-mysql-ha1 /bin/bash
f77345ddcbab:~$ zabbix_server -R ha_status
Failover delay: 60 seconds
Cluster status:
   #  ID                        Name                 Address                 Status      Last Access
   1. cm7kfbfa3000115mi994iu69z zabbix-server-HA2    172.20.240.22:10051     standby     1s
   2. cm7kfcv3500010wpt75oi8d8u zabbix-server-HA3    172.20.240.23:10051     standby     2s
   3. cm7kfcw4d00010ulj8vztavoy zabbix-server-HA1    172.20.240.21:10051     active      2s
f77345ddcbab:~$
```

DEPLOYING ADDITIONAL PROXIES

Start multiple proxies at once:

- Offload the Zabbix server load to proxies
- Place proxies nearby target hosts and send data centrally
- Place proxies behind the FW and open only one port instead of multiple
- Fault tolerance of connectivity, stores data locally
- Data compression



DEPLOYING PROXIES FOR HA SERVER

For Active mode proxies:

- ZBX_PROXYMODE=0
- List of semicolon delimited IP addresses, or DNS names of Zabbix server:
  - ZBX_SERVER_HOST="zabbix-server-mysql-ha1;zabbix-server-mysql-ha2;zabbix-server-mysql-ha3"

For passive mode proxies:

- ZBX_PROXYMODE=1
- List of comma delimited IP addresses, or DNS names of Zabbix server:
  - ZBX_SERVER_HOST="zabbix-server-mysql-ha1,zabbix-server-mysql-ha2,zabbix-server-mysql-ha3"

Name ▲	Mode	Encryption	State	Version	Last seen (age)	Item count	Required vps	Hosts
zabbix-proxy-HA1	Passive	None	Online	7.2.3	2s	0	0	
zabbix-proxy-HA2	Passive	None	Online	7.2.3	2s	0	0	
zabbix-proxy-HA3	Active	None	Online	7.2.3	1s	0	0	
zabbix-proxy-HA4	Active	None	Online	7.2.3	2s	0	0	
zabbix-proxy-HA5	Active	None	Online	7.2.3	2s	0	0	

```
[root@zabbix zabbix]# docker ps --all
CONTAINER ID   IMAGE                                  COMMAND                  CREATED              STATUS                 PORTS                                                  NAMES
6405a8a526ab   zabbix/zabbix-proxy-sqlite3:latest     "/usr/bin/docker-ent…"   About a minute ago   Up About a minute      10051/tcp, 0.0.0.0:10103->10103/tcp, :::10103->10103/tcp   zabbix-proxy-ha5
e62be59b7410   zabbix/zabbix-proxy-sqlite3:latest     "/usr/bin/docker-ent…"   2 minutes ago        Up About a minute      10051/tcp, 0.0.0.0:10102->10102/tcp, :::10102->10102/tcp   zabbix-proxy-ha4
2493c44fb88b   zabbix/zabbix-proxy-sqlite3:latest     "/usr/bin/docker-ent…"   2 minutes ago        Up 2 minutes           10051/tcp, 0.0.0.0:10101->10101/tcp, :::10101->10101/tcp   zabbix-proxy-ha3
05aecc2bbf21   zabbix/zabbix-proxy-sqlite3:latest     "/usr/bin/docker-ent…"   2 minutes ago        Up 2 minutes           10051/tcp, 0.0.0.0:10092->10092/tcp, :::10092->10092/tcp   zabbix-proxy-ha2
0d0781843b97   zabbix/zabbix-proxy-sqlite3:latest     "/usr/bin/docker-ent…"   2 minutes ago        Up 2 minutes           10051/tcp, 0.0.0.0:10091->10091/tcp, :::10091->10091/tcp   zabbix-proxy-ha1
```

PROXY UPGRADE: SQLITE3

- If proxy on startup detects that the existing database file version is older than required, it will delete the database file automatically and create a new one
- History data stored in the SQLite database file will also be lost

```
     7:20250130:034232.423 Starting Zabbix Proxy (passive) [zabbix-proxy-HA6]. Zabbix 7.2.3 (
revision ff99a1b).
     7:20250130:034232.423 **** Enabled features ****
     7:20250130:034232.423 SNMP monitoring:       YES
     7:20250130:034232.423 IPMI monitoring:       YES
     7:20250130:034232.423 Web monitoring:        YES
     7:20250130:034232.423 VMware monitoring:     YES
     7:20250130:034232.423 ODBC:                  YES
     7:20250130:034232.423 SSH support:           YES
     7:20250130:034232.423 IPv6 support:          YES
     7:20250130:034232.423 TLS support:           YES
     7:20250130:034232.423 **************************
     7:20250130:034232.423 using configuration file: /etc/zabbix/zabbix_proxy.conf
     7:20250130:034232.455 The proxy does not match Zabbix database. Current database version
 (mandatory/optional): 06000000/06000000. Required mandatory version: 07020000.
     7:20250130:034232.456 Zabbix does not support SQLite3 database upgrade.
     7:20250130:034232.457 removing database file: "/var/lib/zabbix/db_data/zabbix-proxy-HA6.
sqlite"
     7:20250130:034232.467 cannot open database file "/var/lib/zabbix/db_data/zabbix-proxy-HA
6.sqlite": [2] No such file or directory
     7:20250130:034232.467 creating database ...
     7:20250130:034233.460 current database version (mandatory/optional): 07020000/07020000
     7:20250130:034233.471 required mandatory version: 07020000
     7:20250130:034233.518 proxy #0 started [main process]
    14:20250130:034233.526 proxy #1 started [configuration syncer #1]
    15:20250130:034233.572 proxy #2 started [trapper #1]
    16:20250130:034233.573 proxy #3 started [trapper #2]
    17:20250130:034233.578 proxy #4 started [trapper #3]
    19:20250130:034233.602 proxy #6 started [trapper #5]
    18:20250130:034233.608 proxy #5 started [trapper #4]
```

PROXY UPGRADE: MYSQL

For MYSQL DB schema upgrade, enable **log_bin_trust_function_creators**:

- **mysql -uroot -ppassword -e "set global log_bin_trust_function_creators = 1;"**

```
     6:20250130:054202.860 Starting Zabbix Proxy (passive) [zabbix-proxy-HA7]. Zabbix 7.2.3 (revision ff99a1b).
     6:20250130:054202.860 **** Enabled features ****
     6:20250130:054202.860 SNMP monitoring:       YES
     6:20250130:054202.860 IPMI monitoring:       YES
     6:20250130:054202.860 Web monitoring:        YES
     6:20250130:054202.860 VMware monitoring:     YES
     6:20250130:054202.860 ODBC:                  YES
     6:20250130:054202.860 SSH support:           YES
     6:20250130:054202.860 IPv6 support:          YES
     6:20250130:054202.860 TLS support:           YES
     6:20250130:054202.860 **************************
     6:20250130:054202.860 using configuration file: /etc/zabbix/zabbix_proxy.conf
     6:20250130:054203.044 current database version (mandatory/optional): 06000000/06000054
     6:20250130:054203.044 required mandatory version: 07020000
     6:20250130:054203.044 mandatory patches were found
     6:20250130:054203.065 cannot retrieve database time
     6:20250130:054203.113 starting automatic database upgrade
     6:20250130:054203.397 completed 0% of database upgrade
     6:20250130:054208.398 completed 1% of database upgrade
     6:20250130:054217.020 completed 2% of database upgrade
     6:20250130:054222.551 completed 3% of database upgrade
     6:20250130:054227.779 completed 4% of database upgrade
     6:20250130:054231.216 completed 5% of database upgrade
     6:20250130:054233.712 completed 6% of database upgrade
     6:20250130:054241.146 completed 7% of database upgrade
     6:20250130:054242.669 [Z3005] query failed: [1419] You do not have the SUPER privilege and binary logging
is enabled (you *might* want to use the less safe log_bin_trust_function_creators variable) [create trigger hos
ts_insert after insert on hosts
for each row
insert into changelog (object,objectid,operation,clock)
values (1,new.hostid,1,unix_timestamp())]
     6:20250130:054242.670 database upgrade failed on patch 06010049, exiting in 10 seconds
[root@zabbix ~]#
```

```
  7:20250130:055120.448 Starting Zabbix Proxy (passive) [zabbix-proxy-HA7]. Zabbix 7.2.3 (revision ff99a1b).
  7:20250130:055120.448 **** Enabled features ****
  7:20250130:055120.448 SNMP monitoring:       YES
  7:20250130:055120.448 IPMI monitoring:       YES
  7:20250130:055120.448 Web monitoring:        YES
  7:20250130:055120.448 VMware monitoring:     YES
  7:20250130:055120.448 ODBC:                  YES
  7:20250130:055120.448 SSH support:           YES
  7:20250130:055120.448 IPv6 support:          YES
  7:20250130:055120.449 TLS support:           YES
  7:20250130:055120.449 **************************
  7:20250130:055120.449 using configuration file: /etc/zabbix/zabbix_proxy.conf
  7:20250130:055120.614 current database version (mandatory/optional): 06010048/06010048
  7:20250130:055120.615 required mandatory version: 07020000
  7:20250130:055120.615 mandatory patches were found
  7:20250130:055120.775 cannot retrieve database time
  7:20250130:055120.780 starting automatic database upgrade
  7:20250130:055121.209 completed 0% of database upgrade
  7:20250130:055122.674 completed 1% of database upgrade
  7:20250130:055125.306 completed 2% of database upgrade
  7:20250130:055128.079 completed 3% of database upgrade
  7:20250130:055130.718 completed 4% of database upgrade
  7:20250130:055142.660 completed 5% of database upgrade
  7:20250130:055153.732 completed 6% of database upgrade
  7:20250130:055200.181 completed 7% of database upgrade
  7:20250130:055208.481 completed 8% of database upgrade
```

```
  7:20250130:055925.213 completed 98% of database upgrade
  7:20250130:055925.980 completed 99% of database upgrade
  7:20250130:055926.659 completed 100% of database upgrade
  7:20250130:055926.664 database upgrade fully completed
  7:20250130:055926.742 proxy #0 started [main process]
 32:20250130:055926.777 proxy #1 started [configuration syncer #1]
 33:20250130:055927.722 proxy #2 started [trapper #1]
```

DEPLOYING ADDITIONAL PROXIES

ZABBIX

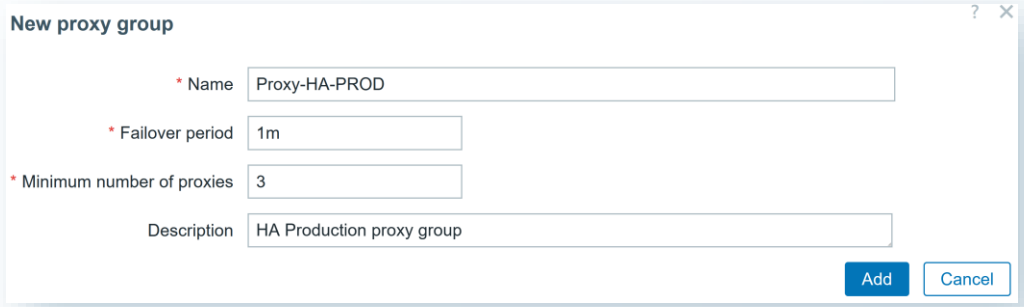
Configure proxy groups at once:

- Make proxy groups to perform load balancing between the proxies:
  - Based on a number of hosts, not NVPS!
  - Rebalancing will be performed after the grace period (10x the Failover period)
- Rebalancing will be performed after either:
  - Difference of hosts is above or below the group's average count by 10
  - Difference of hosts is above or below the group's average by a factor of 2

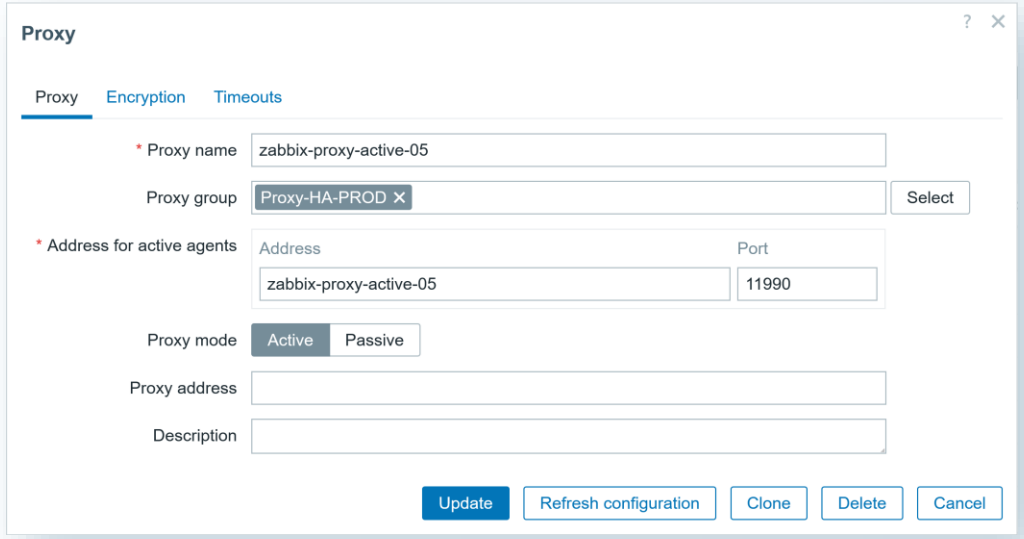
- * Do not forget to specify the proxy address in active/passive Zabbix agent configuration for hosts monitored through proxy
- Configure the Proxy group in frontend

PROXY GROUPS

- Create Proxy group in the Frontend

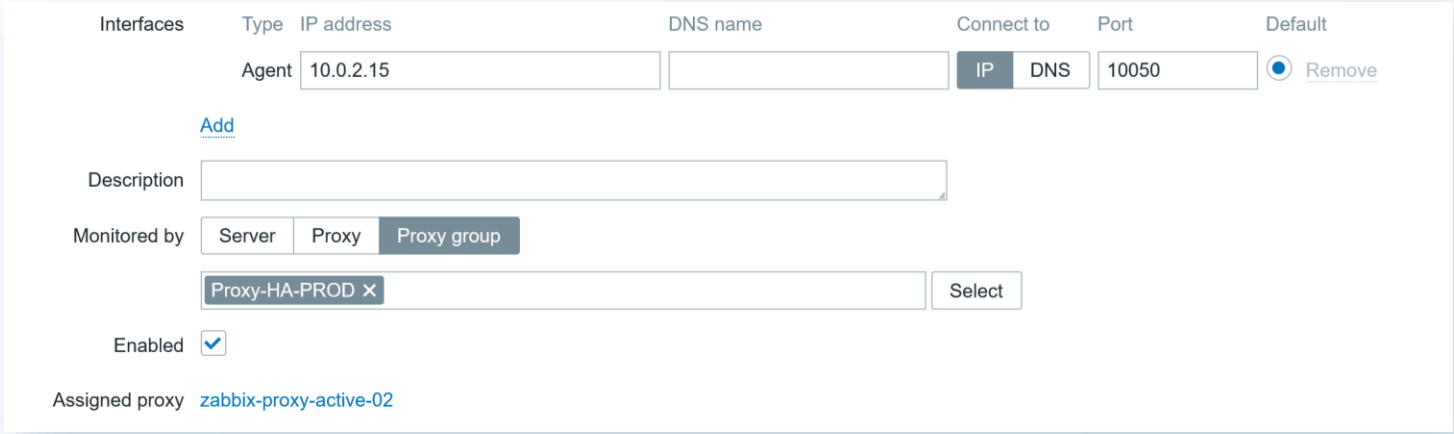


- Add proxies to proxy group, specify proxy address and port for active agents



PROXY GROUPS

Change host config: to be monitored by the Proxy group and select the group



You can also see each proxy group's hosts and VPS in the proxy menu

Name ▲	Mode	Encryption	State	Version	Last seen (age)	Item count	Required vps	Hosts
Proxy-HA-PROD: zabbix-proxy-active-01	Active	None	Online	7.2.4	5s	75	1.01	1 Linux dev
Proxy-HA-PROD: zabbix-proxy-active-02	Active	None	Online	7.2.4	4s	123	1.79	1 MySQL server
Proxy-HA-PROD: zabbix-proxy-active-03	Active	None	Online	7.2.4	5s	241	3.83	1 Zabbix server
Proxy-HA-PROD: zabbix-proxy-active-04	Active	None	Online	7.2.4	5s	43	0.57	1 Ubuntu dev
Proxy-HA-PROD: zabbix-proxy-active-05	Active	None	Online	7.2.4	5s	35	0.58	1 Tomcat by proxy
zabbix-proxy-passive-01	Passive	None	Online	7.2.4	5s	653	10.88	2 Docker containers, zabbix proxy passive 01 health

NEED MORE JAVA GATEWAYS?

Limited to one JAVA Gateway per Zabbix server!

Required settings for configuring the zabbix-server container:

- ZBX_JAVAGATEWAY_ENABLE=true
- ZBX_JAVAGATEWAY=zabbix-java-gateway-server
- ZBX_JAVAGATEWAYPORT=10052
- ZBX_STARTJAVAPOLLERS=5

NEED MORE JAVA GATEWAYS?

Also limited one JAVA Gateway per Zabbix proxy!

Required settings for configuring the zabbix-proxy container:

- ZBX_JAVAGATEWAY_ENABLE=true
- ZBX_JAVAGATEWAY=zabbix-java-gateway-proxy
- ZBX_JAVAGATEWAYPORT=10052
- ZBX_STARTJAVAPOLLERS=5

Can make unlimited number of proxies, each with separate Java GW

LAUCH MULTIPLE FRONTENDS

Fulfilling sudden zabbix-user increase on frontend

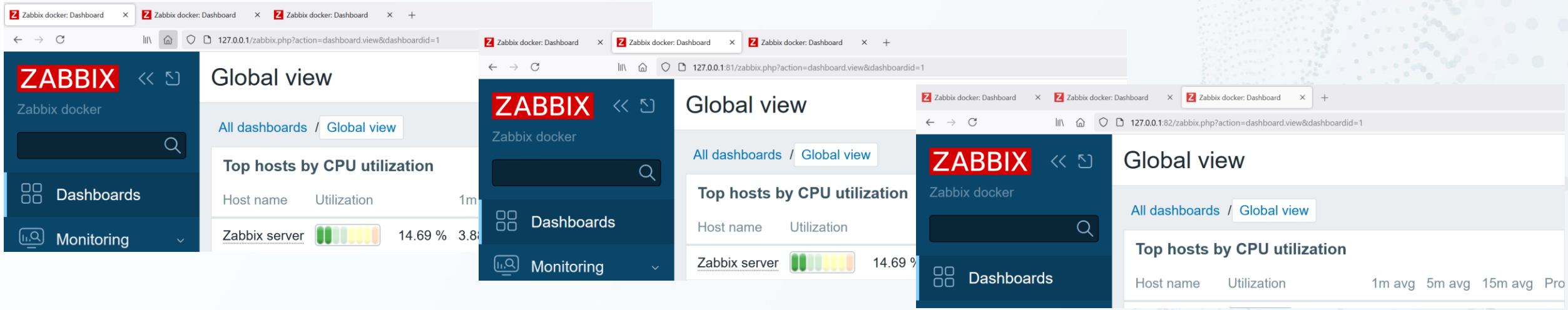
```
docker run --name zabbix-web-nginx-mysq1 -t \
        -e DB_SERVER_HOST="mysql-server" \
        -e MYS
        -e MYS
        -e MYS
        -e MYS
        --netw
        -p 80:
        --rest
        -d zab
```

```
docker run --name zabbix-web-nginx-mysq2 -t \
        -e DB_SERVER_HOST="mysql-server" \
        -e MYSQL_DATABASE="zabbix" \
        -e MYS
        -e MYS
        --netw
        -p 81:
        --rest
        -d zab
```

```
docker run --name zabbix-web-nginx-mysq3 -t \
        -e DB_SERVER_HOST="mysql-server" \
        -e MYSQL_DATABASE="zabbix" \
        -e MYSQL_USER="zabbix" \
        -e MYSQL_PASSWORD="zabbix_pwd" \
        -e MYSQL_ROOT_PASSWORD="root_pwd" \
        --network=zabbix-net \
        -p 82:8080 \
        --restart unless-stopped \
        -d zabbix/zabbix-web-nginx-mysql:alpine-7.2.4
```

LAUCH MULTIPLE FRONTENDS

Fullfilling sudden zabbix-user increase on frontend




```
[root@zabbix ~]# docker ps --all
CONTAINER ID   IMAGE                                          COMMAND                  CREATED          STATUS                    PORTS                                                  NAMES
4a0da4e64245   zabbix/zabbix-web-nginx-mysql:alpine-7.2.4     "docker-entrypoint.sh"   16 seconds ago   Up 14 seconds (healthy)   8443/tcp, 0.0.0.0:80->8080/tcp, [::]:80->8080/tcp      zabbix-web-nginx-mysq1
```

```
[root@zabbix ~]# docker ps --all
CONTAINER ID   IMAGE                                          COMMAND                  CREATED          STATUS                    PORTS                                                  NAMES
01f235654266   zabbix/zabbix-web-nginx-mysql:alpine-7.2.4     "docker-entrypoint.sh"   11 seconds ago   Up 9 seconds (healthy)    8443/tcp, 0.0.0.0:81->8080/tcp, [::]:81->8080/tcp      zabbix-web-nginx-mysq2
4a0da4e64245   zabbix/zabbix-web-nginx-mysql:alpine-7.2.4     "docker-entrypoint.sh"   6 minutes ago    Up 5 minutes (healthy)    8443/tcp, 0.0.0.0:80->8080/tcp, [::]:80->8080/tcp      zabbix-web-nginx-mysq1
```

```
[root@zabbix ~]# docker ps --all
CONTAINER ID   IMAGE                                          COMMAND                  CREATED          STATUS                    PORTS                                                  NAMES
29c825273cb3   zabbix/zabbix-web-nginx-mysql:alpine-7.2.4     "docker-entrypoint.sh"   25 seconds ago   Up 23 seconds (healthy)   8443/tcp, 0.0.0.0:82->8080/tcp, [::]:82->8080/tcp      zabbix-web-nginx-mysq3
01f235654266   zabbix/zabbix-web-nginx-mysql:alpine-7.2.4     "docker-entrypoint.sh"   2 minutes ago    Up 2 minutes (healthy)    8443/tcp, 0.0.0.0:81->8080/tcp, [::]:81->8080/tcp      zabbix-web-nginx-mysq2
4a0da4e64245   zabbix/zabbix-web-nginx-mysql:alpine-7.2.4     "docker-entrypoint.sh"   7 minutes ago    Up 7 minutes (healthy)    8443/tcp, 0.0.0.0:80->8080/tcp, [::]:80->8080/tcp      zabbix-web-nginx-mysq1
```

BROWSER MONITORING

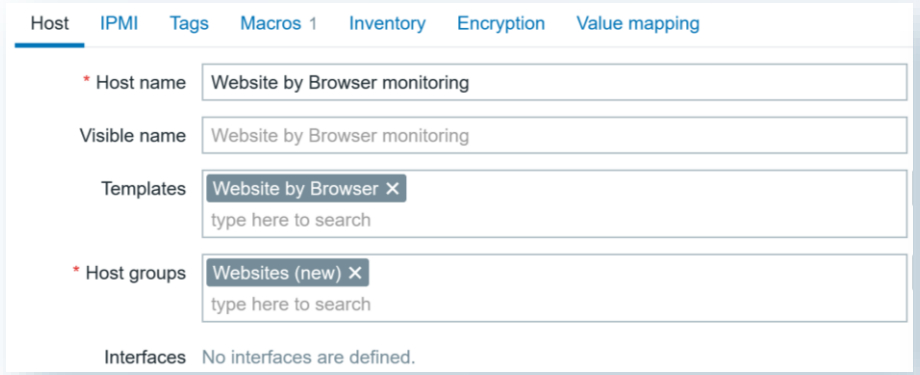
- Start the web driver in docker (Selenium server/ChromeDriver)

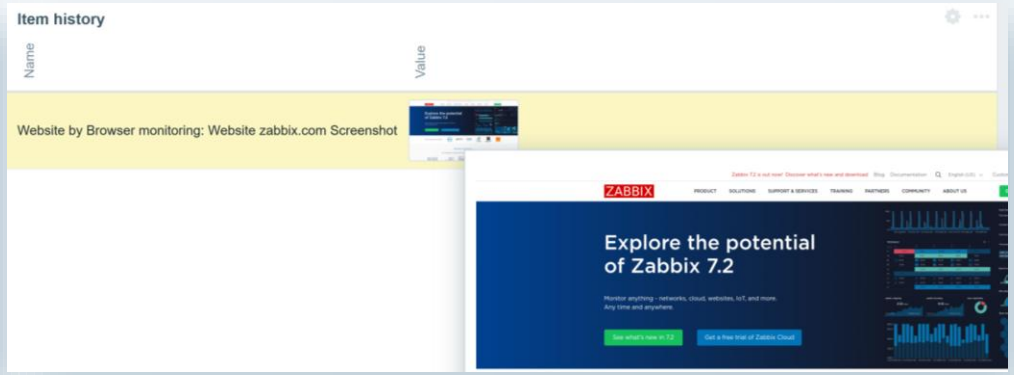
```
docker run --name selenium -t\
        --network=zabbix-net \
        --restart unless-stopped \
        --ip 172.20.240.70 \
        -p 4444:4444 \
        -p 7900:7900 \
        --shm-size="1g" \
        -d selenium/standalone-chrome:latest
```

BROWSER MONITORING

- Start the web driver in docker (Selenium server/ChromeDriver)
- Specify webdriver url and pollers in zabbix-server container:
  - ZBX_WEBDRIVERURL
  - ZBX_STARTBROWSERPOLLERS

```
docker run --name zabbix-server-mysql -t \
          ...
          -e ZBX_WEBDRIVERURL=zabbix.webdriver:4444 \
          -e ZBX_STARTBROWSERPOLLERS=2 \
          ...
```





SNMP TRAPS

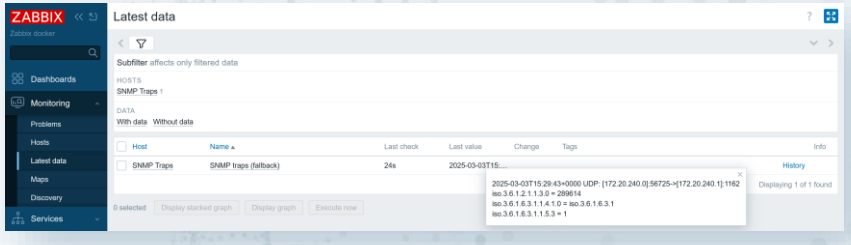
Required configuration parameter in zabbix-server container:

- ZBX_ENABLE_SNMP_TRAPS=true
- shared volume **/var/lib/zabbix/snmptraps**

Requires zabbix-snmptraps container with mounted directory:

- shared volume **/var/lib/zabbix/snmptraps**

```
docker run --name zabbix-snmptraps -t \
        -v /var/lib/zabbix/snmptraps:/var/lib/zabbix/snmptraps:rw \
        --network=zabbix-net \
        -p 162:1162/udp \
        --restart unless-stopped \
        -d zabbix/zabbix-snmptraps:alpine-7.2-latest
```



EASY TO MAKE SCHEDULED REPORTS

Start the Zabbix-web-service with the Google Chrome with specified config parameters:

- ZBX_ALLOWEDIP = 0.0.0.0/0
- ZBX_LISTENPORT=10053

Specify additional parameters in the Zabbix-server config:

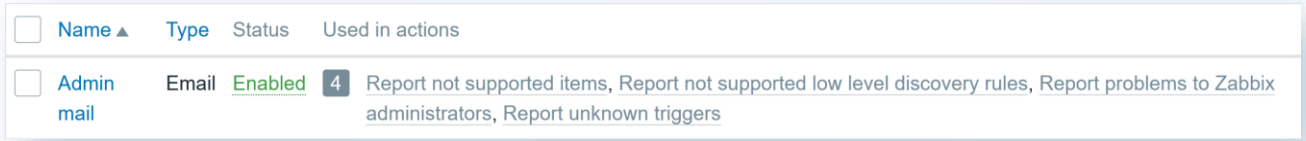
- ZBX_STARTREPORTWRITERS=5
- ZBX_WEBSERVICEURL=http://zabbix-web-service:10053/report

EASY TO MAKE SCHEDULED REPORTS

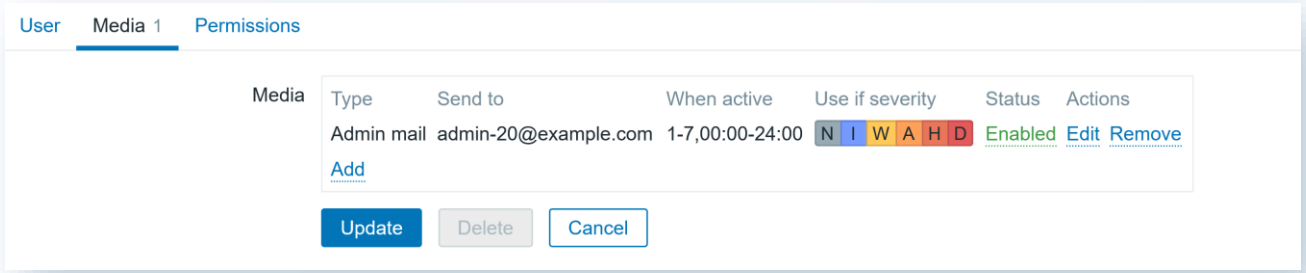
ZABBIX

Do not forget to enable and configure:

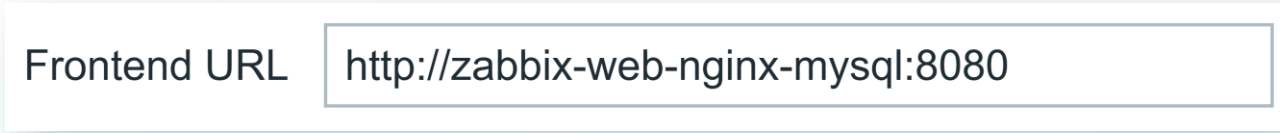
- The media type

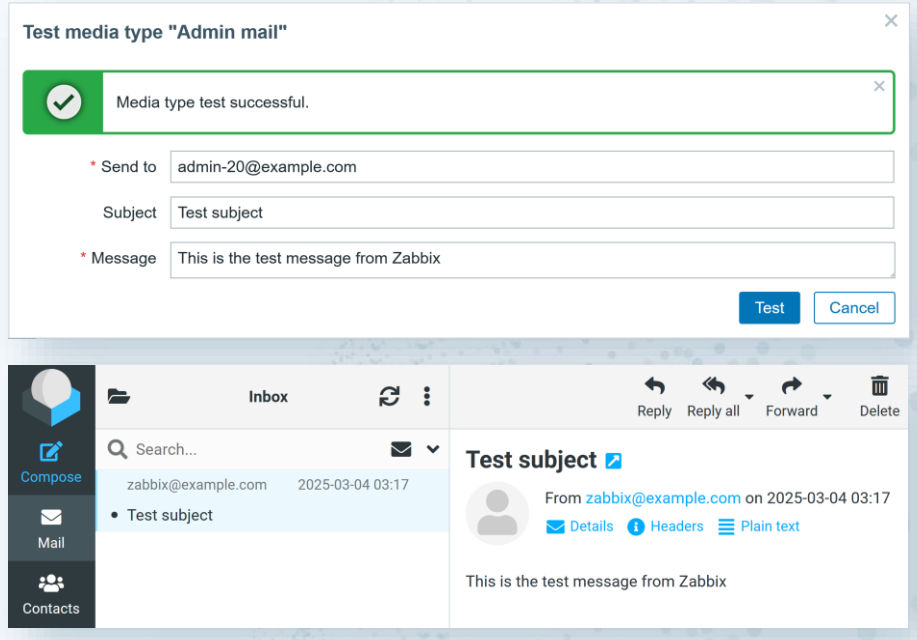


- User media for sending scheduled reports!

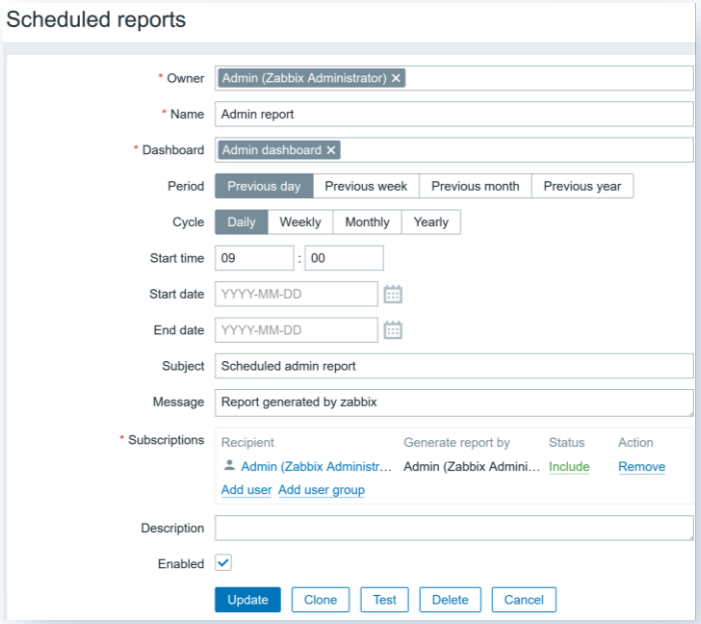


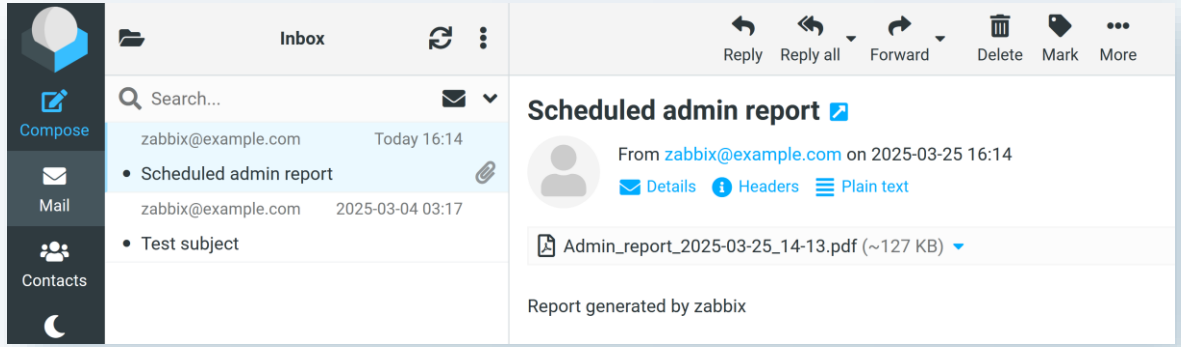
- Frontend URL in Administration/General/Other section

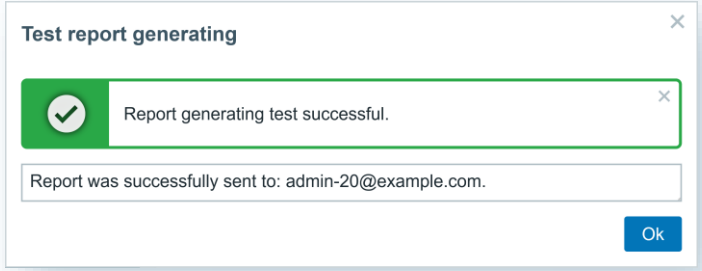


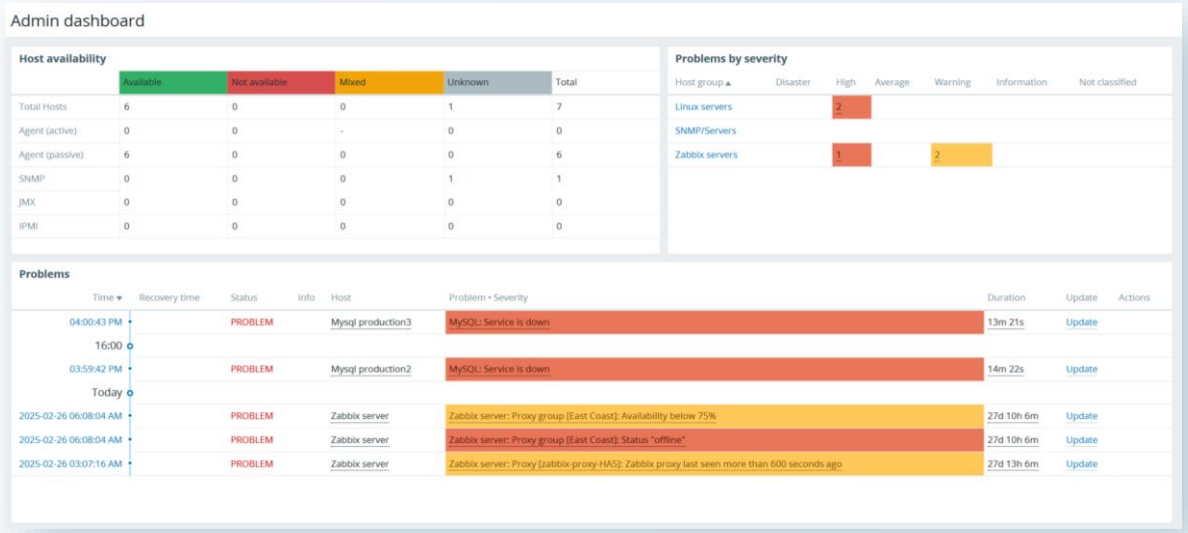


EASY TO MAKE SCHEDULED REPORTS









DOCKER CONTAINER MONITORING

- Install zabbix-agent2 on the docker host system
  - In zabbix-agent2 config, add server address or range in Option: Server
  - Specify ListenPort or use default: 10050

```
Server=127.0.0.1,172.20.240.0/24
ListenPort=10050
```

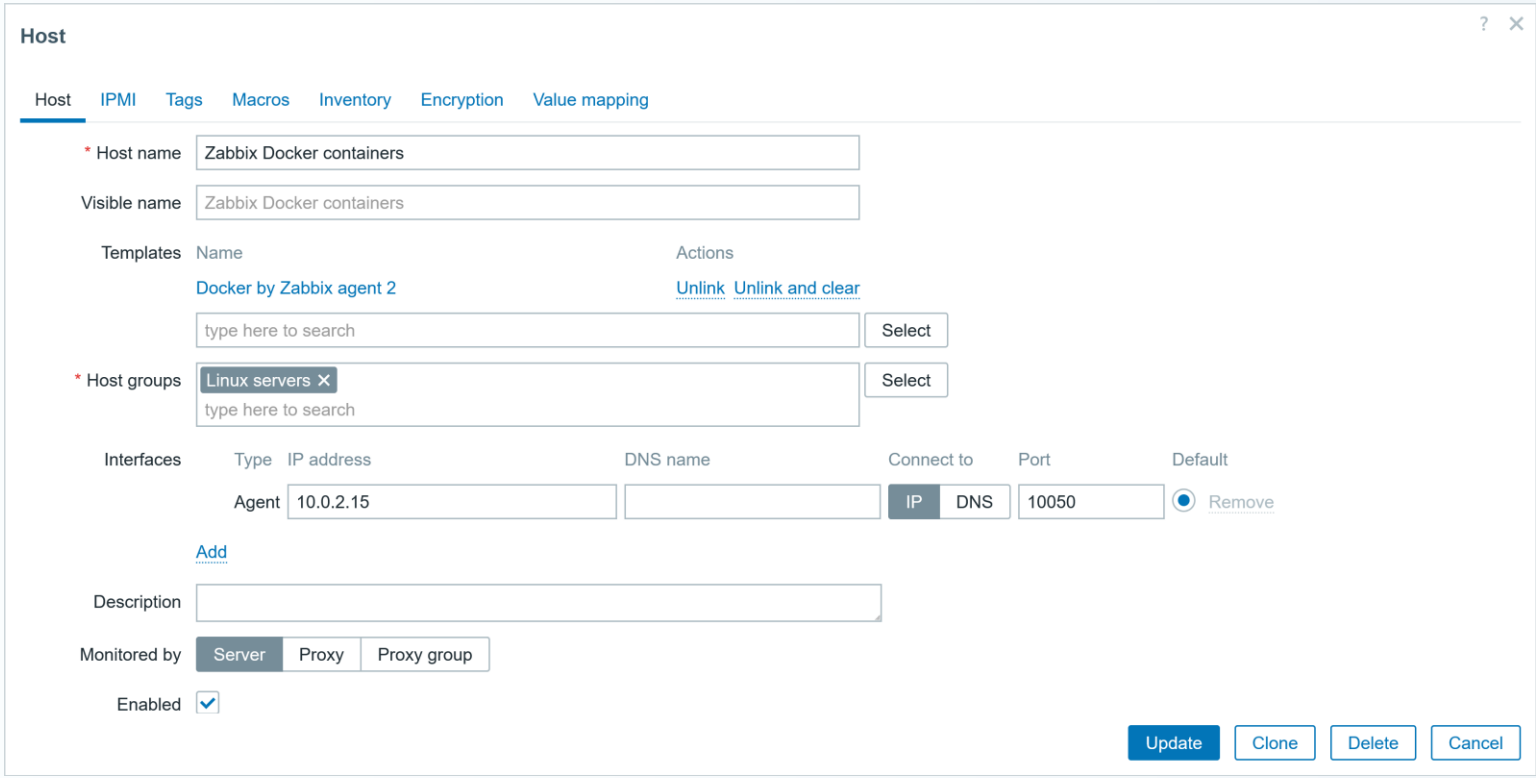
- Add user zabbix to group docker

```
# usermod -aG docker zabbix
```

- Start zabbix-agent2

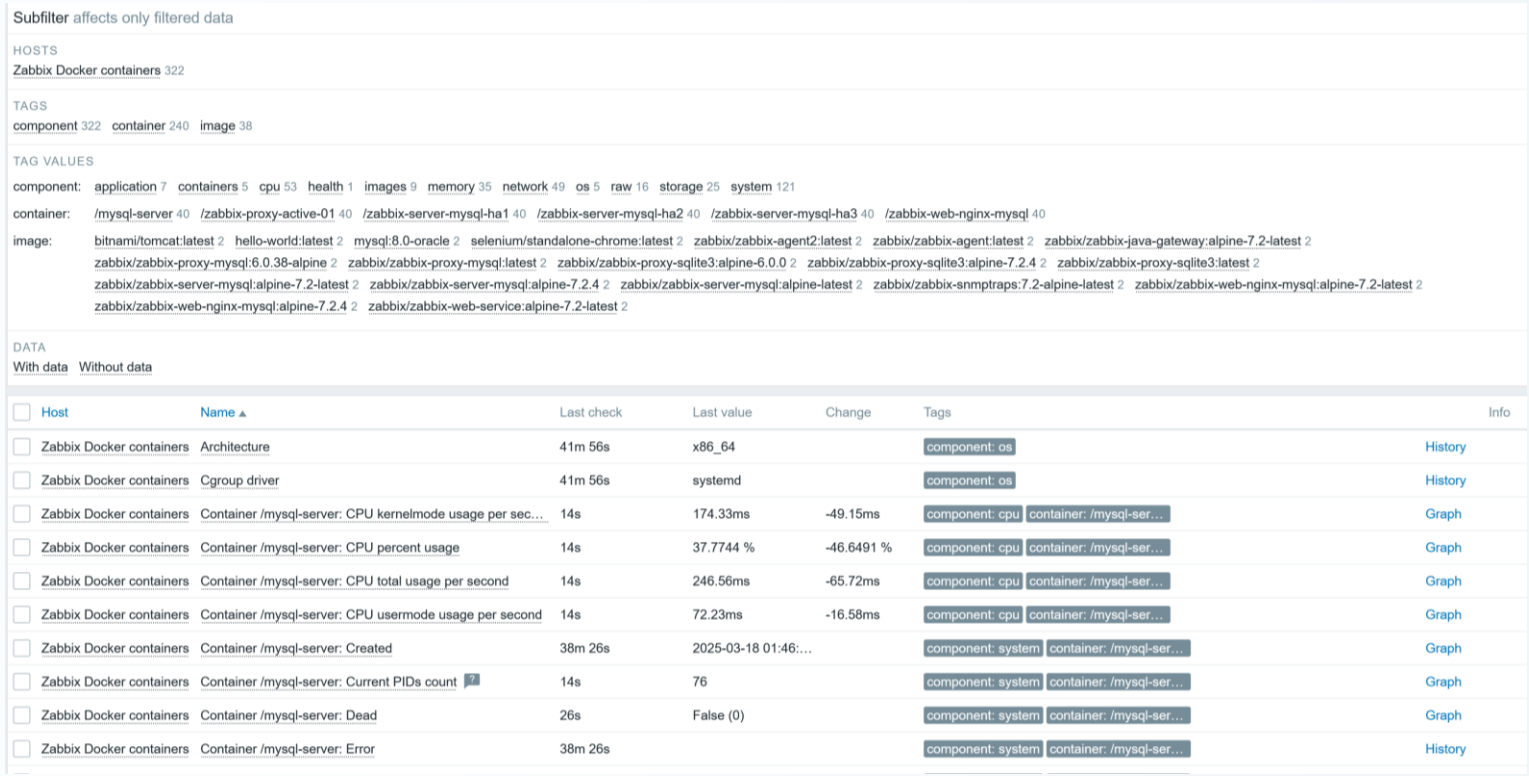
DOCKER CONTAINER MONITORING

- Create Host on the frontend:
  - Add to host group
  - Link template: Docker by Zabbix agent 2



DOCKER CONTAINER MONITORING

- Let Zabbix notify you if something is not working!

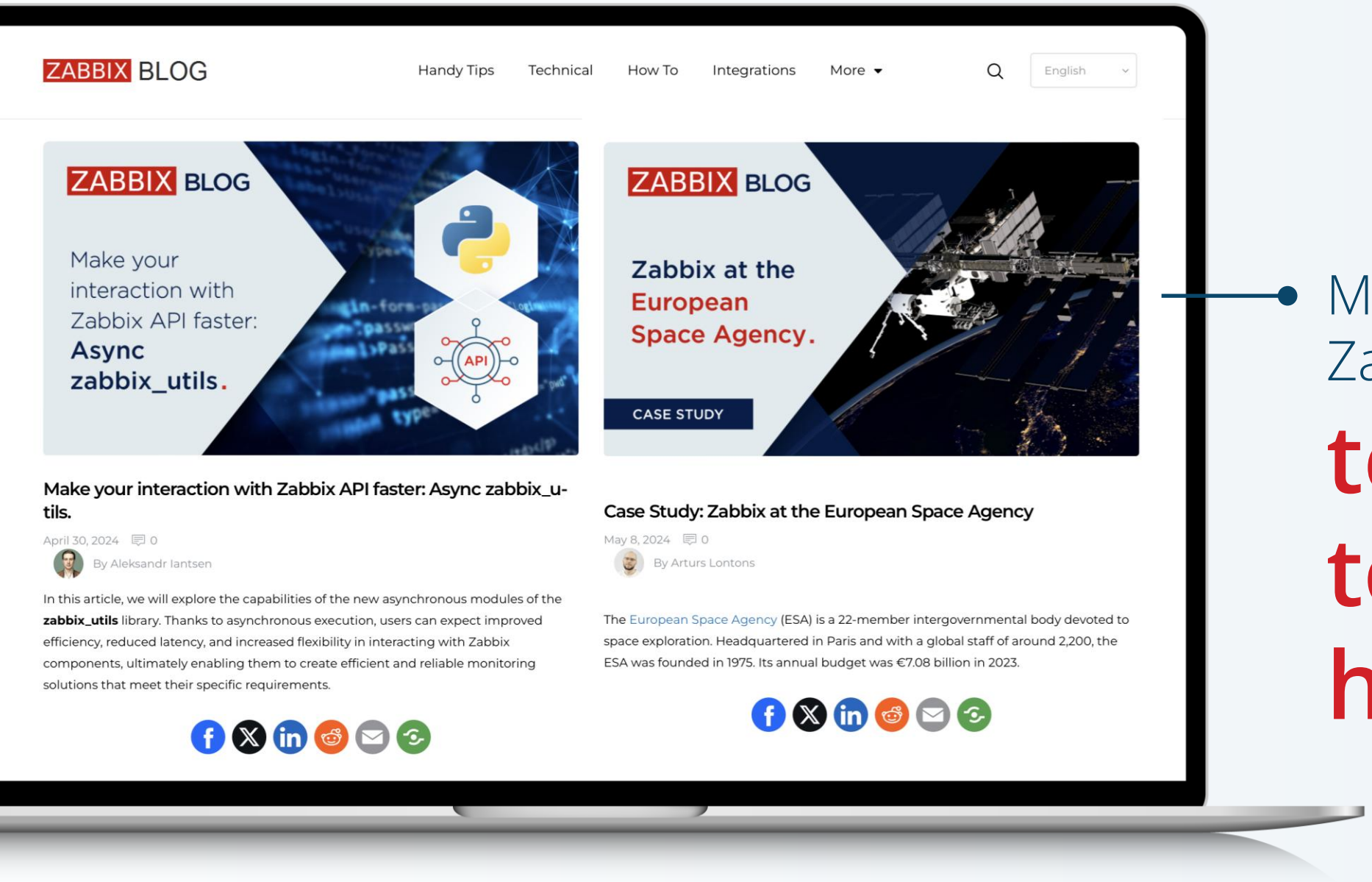


ZABBIX 20 YEARS

Thank you for attention !

JANIS EIDAKS

Zabbix trainer - Course content creator



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technical topics and how-tos

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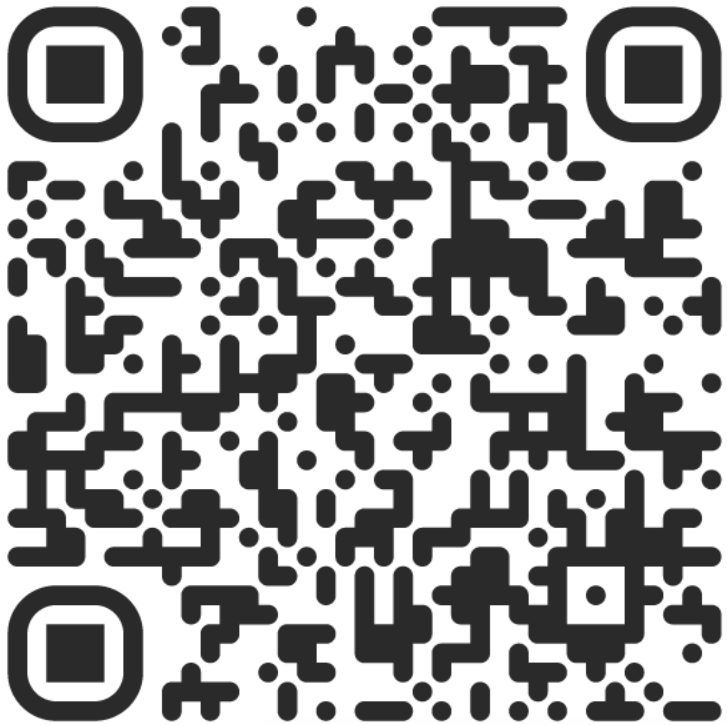
ZABBIX SUMMIT

Riga

October 8 - 10 ▪ 2025



Save the date!

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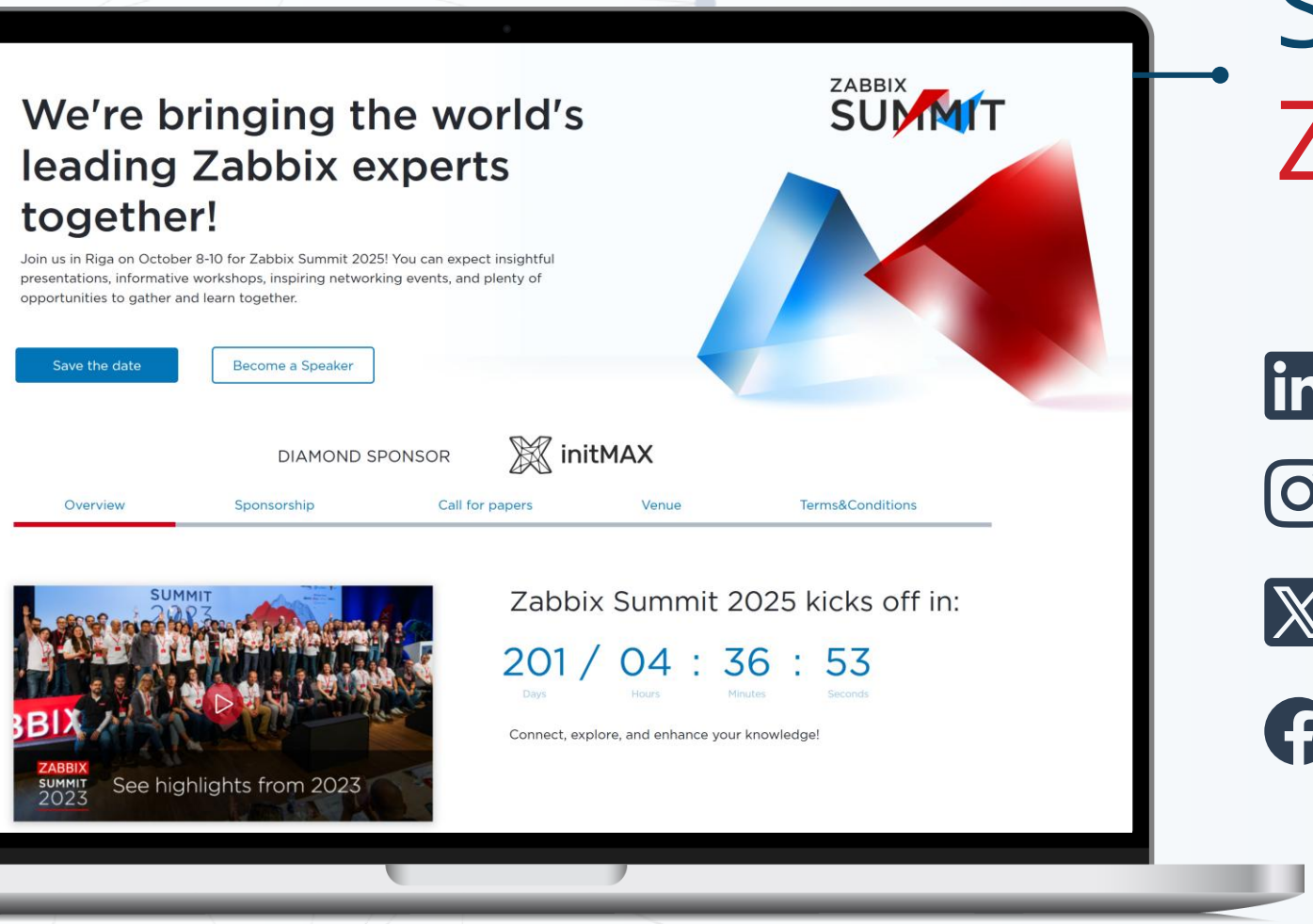
ZABBIX



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