

ZABBIX '25

CONFERENCE

BENELUX

Automating Zabbix component deployment with Docker - overview and use cases



Janis Eidaks

Trainer
Zabbix



ZABBIX DEPLOYMENT

Want to test new Zabbix features before production upgrade?

Tired of making and configuring VM?

Need a lightweight solution?

Want to spin up/down systems fast?

Don't want to have complicated setup?

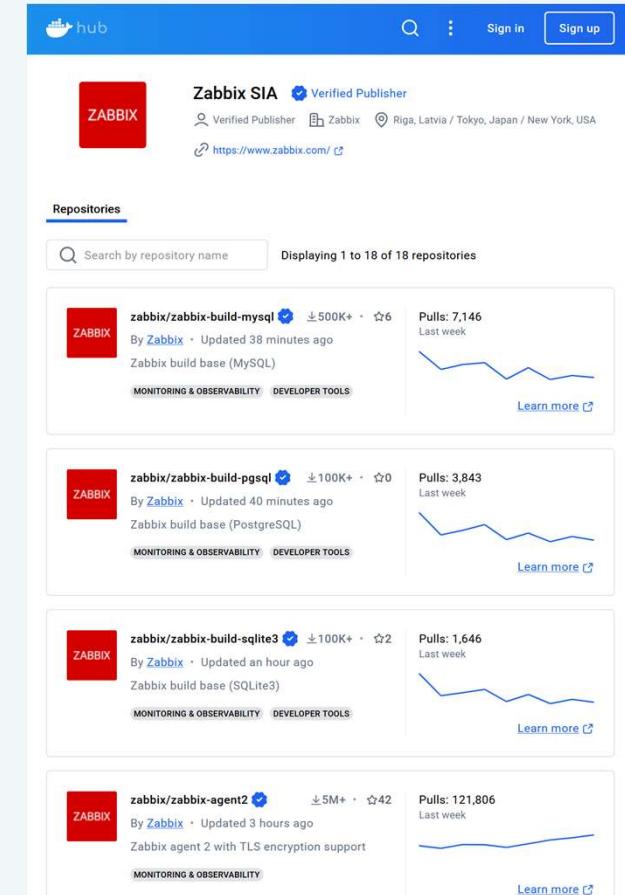


ZABBIX CONTAINERS IN DOCKERHUB

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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 CONTAINER 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

The image with **latest** tag is based on Alpine Linux



DOCKER CONTAINER 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



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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

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- ▶ 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. By 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_DATESENDERFREQUENCY=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

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For container management:

- ▶ **docker container run**
- ▶ **docker container start**
- ▶ **docker container stop**
- ▶ **docker container rm**
- ▶ **docker container ls**
- ▶ **docker container inspect**
- ▶ **docker container restart**
- ▶ **docker container logs**

- Create and run a new container from an image
- Start one or more stopped containers
- Stop one or more running containers
- Remove one or more containers
- List containers
- Display detailed information on one or more containers
- Restart one or more containers
- Fetch the logs of a container

USEFUL DOCKER COMMANDS

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

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

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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 or until (**--until**) timestamp or relative time

```
# docker logs --since 2025-02-19T06:00:00.00000000Z container
```

Show the log in real time

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

In some 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 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
```

- ▶ The agent is monitored by proxy, but connections are allowed only from the 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"
^Context 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

Can use:

- ▶ The default bridge network, set automatically by Docker
- ▶ User-defined custom networks

Containers can communicate with each other using:

- ▶ container IP addresses
- ▶ container names

Create a network dedicated for the Zabbix component containers

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

DOCKER RUN

Create using:

► Docker run

- Can set any environment variable in the container by using one or more -e flags
- Can mount directories

```
# docker run --name zabbix-proxy-ha4 \
-e ZBX_HOSTNAME="zabbix-proxy-HA4" \
-e ZBX_SERVER_HOST="zabbix.server.ha1;zabbix.server.ha2;zabbix.server.ha3" \
-e ZBX_PROXYMODE="0" \
-e ZBX_STARTPOLLERS="2" \
--network=zabbix-net \
-e ZBX_LISTENPORT=10104 \
-p 10104:10104 \
--ip 172.20.240.34 \
-v /etc/hosts:/etc/hosts \
--restart unless-stopped \
--init -d zabbix/zabbix-proxy-sqlite3:alpine-7.2-latest
```



DOCKER COMPOSE FILES

`docker_compose_v3_proxy.yaml`

```
services:
  zabbix-proxy-sqlite3:
    extends:
      file: compose_zabbix_components.yaml
      service: proxy-sqlite3
    image:
      "${ZABBIX_PROXY_SQLITE3_IMAGE}:${ZABBIX_ALPINE_IMAGE_TAG}${ZABBIX_IMAGE_TAG_POSTFIX}"
    volumes:
      - /etc/localtime:/etc/localtime:ro
      - /etc/hosts:/etc/hosts:ro
    labels:
      com.zabbix.os: "${ALPINE_OS_TAG}"

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

`./env_vars/.env_prx_sqlite3`

```
ZBX_HOSTNAME=zabbix-proxy-HA5
ZBX_SERVER_HOST="zabbix.server"
```

`compose_zabbix_components.yaml`

```
services:
  proxy-sqlite3:
    ports:
      - name: zabbix-trapper
        target: 10051
        published: "${ZABBIX_PROXY_SQLITE3_PORT}"
        protocol: tcp
        app_protocol: zabbix-trapper
    env_file:
      - path: ${ENV_VARS_DIRECTORY}/.env_prx_sqlite3
        required: true
    volumes:
      - /var/lib/zabbix/db_data:/var/lib/zabbix/db_data:rw
    networks:
      backend:
        ipv4_address: 172.20.240.35
```

`.env`

```
ZABBIX_PROXY_SQLITE3_IMAGE=zabbix/zabbix-proxy-sqlite3
ZABBIX_ALPINE_IMAGE_TAG=alpine-7.2
ZABBIX_IMAGE_TAG_POSTFIX=-latest
ALPINE_OS_TAG=Alpine
ZABBIX_PROXY_SQLITE3_PORT=10061
ENV_VARS_DIRECTORY=../env_vars
RESTART_POLICY=unless-stopped
```

DOCKER COMPOSE

Create using:

- ▶ Docker compose (-d = detach)

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

```
[root@zabbix docker-proxy]# docker compose -f ./docker_compose_v3_proxy.yaml up -d
[+] Running 1/1
✓ Container docker-proxy-zabbix-proxy-sqlite3-1 Started 3.8s
[root@zabbix docker-proxy]# docker compose ls
NAME                  STATUS        CONFIG FILES
docker-proxy           running(1)   /root/docker-proxy/docker_compose_v3_proxy.yaml
[root@zabbix docker-proxy]#
```

- ▶ Make use of ready-made compose files from GitHub for quick evaluation:

<https://github.com/zabbix/zabbix-docker.git>

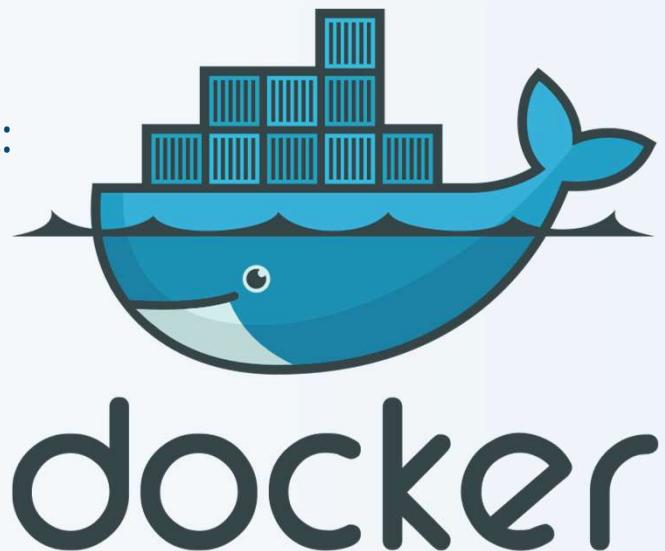


DOCKER CONTAINERS

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Prospects:

- ▶ Create redundant Zabbix services:
 - HA Zabbix-server nodes
 - Multiple proxies
 - Multiple agents
- ▶ Rapidly create Zabbix testing environment:
 - Try out new features



DEPLOYING REDUNDANT SERVERS

Add configuration parameters to the 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_JAVAGATEWAY="zabbix-java-gateway" \
    -e ZBX_HANODENAME="zabbix-server-HA1" \
    -e ZBX_NODEADDRESS="172.20.240.21:10051" \
    -v /etc/hosts:/etc/hosts \
    --network=zabbix-net \
    -p 10151:10051 \
    --ip 172.20.240.21 \
    --restart unless-stopped \
    -d zabbix/zabbix-server-mysql:alpine-7.2-latest
```



DEPLOYING REDUNDANT SERVERS

Remove configuration parameters from frontend container:

- ▶ ZBX_SERVER_HOST
- ▶ ZBX_SERVER_PORT

```
docker run --name zabbix-web-nginx-mysql1 -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 \
    --ip 172.20.240.10 \
    --restart unless-stopped \
    -d zabbix/zabbix-web-nginx-mysql:alpine-7.2-latest
```



DEPLOYING REDUNDANT SERVERS

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.	cm7kfccv3500010wpt75oi8d8u	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.	cm7kfccv3500010wpt75oi8d8u	zabbix-server-HA3	172.20.240.23:10051	standby	2s
3.	cm7kfcw4d00010ulj8vztavoy	zabbix-server-HA1	172.20.240.21:10051	active	2s

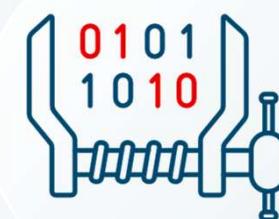
```
f77345ddcbab:~$
```



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

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For Active mode proxies:

- ▶ ZBX_PROXYMODE=0
 - ▶ List of semicolon delimited IP addresses, or DNS names of Zabbix server:
 - ZBX SERVER HOST="server.ha1;server.ha2;server.ha3"

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

For passive mode proxies:

- ▶ ZBX_PROXYMODE=1
 - ▶ List of comma-delimited IP addresses, or DNS names of Zabbix server:
 - ZBX SERVER HOST="server.ha1,server.ha2,server.ha3"

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
6405a8a526ab	zabbix/zabbix-proxy-sqlite3:latest	/usr/bin/docker-entrypoint.sh	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-entrypoint.sh	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-entrypoint.sh	2 minutes ago	Up 2 minutes	10051/tcp, 0.0.0.0:10101->10101/tcp, :::10101->10101/tcp	zabbix-proxy-ha3
05aeccc2bbf21	zabbix/zabbix-proxy-sqlite3:latest	/usr/bin/docker-entrypoint.sh	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-entrypoint.sh	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-HA6.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

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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

New proxy group

* Name	Proxy HA
* Failover period	1m
* Minimum number of proxies	2
Description	Proxy group in HA mode

Add Cancel

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

Proxy

Proxy Encryption Timeouts

* Proxy name	zabbix-proxy-HA2
Proxy group	Proxy HA
* Address for active agents	Address: zabbix.proxy.ha2 Port: 10251
Proxy mode	Active Passive
Proxy address	
Description	

Update Refresh configuration Clone Delete Cancel



PROXY GROUPS

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

The screenshot shows the Zabbix host configuration interface. A new host is being added with the following details:

- Interfaces:** Type: Agent, IP address: 172.20.240.52, DNS name: (empty), Connect to: IP, Port: 10050, Default: Remove.
- Description:** Zabbix agent monitored by proxy.
- Monitored by:** Server, Proxy, Proxy group (selected).
- Proxy HA:** zabbix-proxy-HA2 (selected).
- Enabled:** checked.

Assigned proxy: zabbix-proxy-HA2

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

<input type="checkbox"/> Name ▲	Mode	Encryption	State	Version	Last seen (age)	Item count	Required vps	Hosts
<input type="checkbox"/> Proxy HA: zabbix-proxy-HA1	Active	None	Online	7.2.3	7s	0	0	
<input type="checkbox"/> Proxy HA: zabbix-proxy-HA2	Active	None	Online	7.2.3	6s	80	1.09	1 zabbix-agent-02
<input type="checkbox"/> Proxy HA: zabbix-proxy-HA3	Active	None	Online	7.2.3	7s	80	1.09	1 linux production
<input type="checkbox"/> Proxy HA: zabbix-proxy-HA4	Active	None	Online	7.2.3	7s	0	0	

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.example.com
- ▶ 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=java.gateway.proxy.com
- ▶ ZBX_JAVAGATEWAYPORT=10052
- ▶ ZBX_STARTJAVAPOLLERS=5



Can make an 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-mysql1 -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 80:80 \
--ip 172.20.240.13 \
--restart unless-stopped \
-d zabbix/zabbix-web-nginx-mysql:alpine-7.2.4

docker run --name zabbix-web-nginx-mysql2 -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 81:8080 \
--ip 172.20.240.13 \
--restart unless-stopped \
-d zabbix/zabbix-web-nginx-mysql:alpine-7.2.4

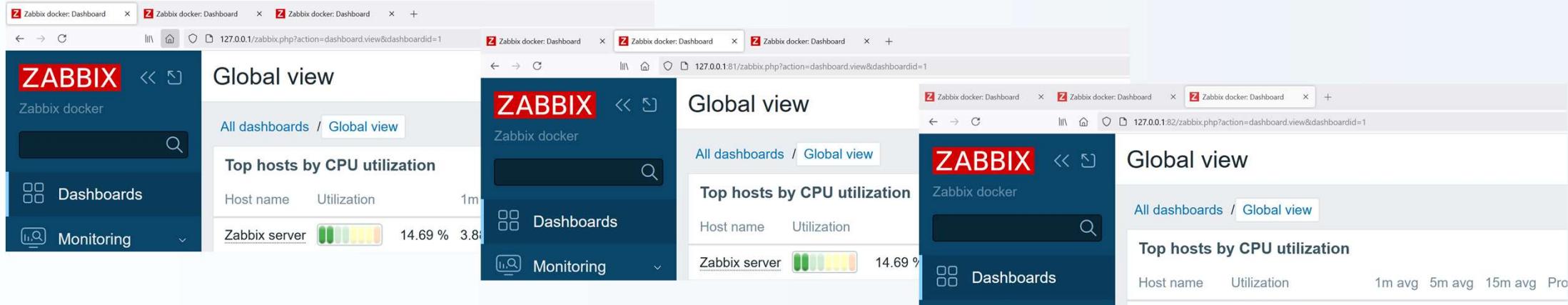
docker run --name zabbix-web-nginx-mysql3 -t \
-e DB_SERVER_HOST="mysql-server" \
-e MYSQL_DATABASE="zabbix" \
-e MYSQL_USER="zabbix" \
-e MYSQL_PASSWORD="zabbix_pwd" \
-e MYSQL_ROOT_PASSWORD="root_pwd" \
--network=zabbix-net \
-p 82:8080 \
--ip 172.20.240.13 \
--restart unless-stopped \
-d zabbix/zabbix-web-nginx-mysql:alpine-7.2.4
```



LAUCH MULTIPLE FRONTENDS

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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
4a0da4e64245 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-mysq2

[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-mysq3
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-mysq3
```

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 \
...
```



Host IPMI Tags Macros 1 Inventory Encryption Value mapping

* Host name Website by Browser monitoring

Visible name Website by Browser monitoring

Templates Website by Browser X
type here to search

* Host groups Websites (new) X
type here to search

Interfaces No interfaces are defined.

Item history

Name	Value
Website by Browser monitoring: Website zabbix.com Screenshot	





SNMP TRAPS

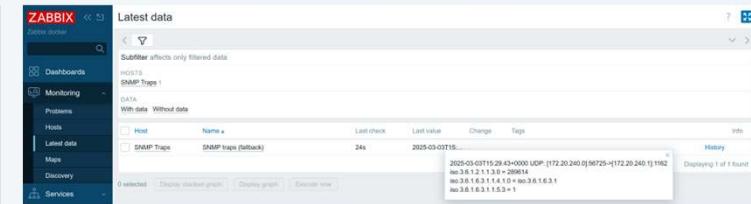
Required configuration parameter in zabbix-server container:

- ▶ 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

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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.com:10053/report



EASY TO MAKE SCHEDULED REPORTS

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Do not forget to enable and configure:

- ▶ The media type

Name	Type	Status	Used in actions
Admin mail	Email	Enabled	4 Report not supported items, Report not supported low level discovery rules, Report problems to Zabbix administrators, Report unknown triggers

- ▶ User media for sending scheduled reports!

User	Media 1	Permissions														
	<table border="1"><thead><tr><th>Media</th><th>Type</th><th>Send to</th><th>When active</th><th>Use if severity</th><th>Status</th><th>Actions</th></tr></thead><tbody><tr><td>Admin mail</td><td>admin-mail</td><td>admin-20@example.com</td><td>1-7,00:00-24:00</td><td>N I W A H D</td><td>Enabled</td><td>Edit Remove</td></tr></tbody></table>	Media	Type	Send to	When active	Use if severity	Status	Actions	Admin mail	admin-mail	admin-20@example.com	1-7,00:00-24:00	N I W A H D	Enabled	Edit Remove	
Media	Type	Send to	When active	Use if severity	Status	Actions										
Admin mail	admin-mail	admin-20@example.com	1-7,00:00-24:00	N I W A H D	Enabled	Edit Remove										

- ▶ Frontend URL in Administration/General/Other section

Frontend URL	http://172.20.240.11:8080
--------------	---------------------------

The screenshot shows the Zabbix configuration interface for media types. A modal window titled "Test media type 'Admin mail'" displays a success message: "Media type test successful.". Below it, the "Inbox" section shows an incoming email from "zabbix@example.com" with the subject "Test subject" and the message body "The test works !!!". The Zabbix navigation bar at the top includes "Administration", "Monitoring", "Reporting", "Configuration", "Logs", and "Media".



EASY TO MAKE SCHEDULED REPORTS

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Scheduled reports

* Owner Admin (Zabbix Administrator)

* Name Admin report

* Dashboard Admin dashboard

Period Previous day Previous week Previous month Previous year

Cycle Daily Weekly Monthly Yearly

Start time 09 : 00

Start date YYYY-MM-DD

End date YYYY-MM-DD

Subject Scheduled admin report

Message Report generated by zabbix

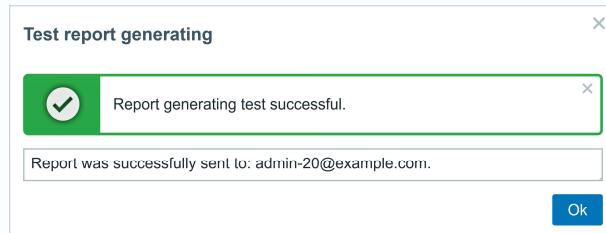
* Subscriptions Recipient Generate report by Status Action

Admin (Zabbix Administrator) Admin (Zabbix Administrator) Include Remove

Add user Add user group

Description

Enabled



Inbox

Search...

zabbix@example.com Today 11:59

• Scheduled admin report

zabbix@example.com Today 11:56

• Test subject

Reply Reply all Forward Delete Mark More

Scheduled admin report

From zabbix@example.com To admin-20@example.com Date Today 11:59

Summary Headers Plain text

Admin_report_2025-03-03_09-58.pdf (~136 KB)

Report generated by zabbix

1 of 1 Automatic Zoom

Admin dashboard

Host availability	Available	Not available	Mixed	Unknown	Total
Total hosts	6	0	0	0	6
Agent (active)	6	0	1	0	6
Agent (passive)	6	0	0	0	6
SNMP	6	0	0	0	6
JMX	6	0	0	0	6
IPMI	6	0	0	0	6

Problems by severity

Host group	Disaster	High	Average	Warning	Information	Not classified
Linux servers	1	2	2	1	0	0

Problems

Time	Recovery time	Status	Info	Host	Problem - Severity	Duration	Update	Actions
11:58:29 AM		PROBLEM		MySQL production	MySQL: Buffer pool utilization is too low (less than 50% for 3m)	41s	<input type="button" value="Update"/>	
2025-02-26 11:31:31 AM	11:58:31 AM	RESOLVED		MySQL production	MySQL: Service is down	5d 4h 47m	<input type="button" value="Update"/>	
2025-02-26 06:08:04 AM		PROBLEM		Zabbix server	Zabbix server: Proxy group [East Coast] Availability below 75%	5d 5h 51m	<input type="button" value="Update"/>	
2025-02-26 06:08:04 AM		PROBLEM		Zabbix server	Zabbix server: Proxy group [East Coast] Status 'offline'	5d 5h 51m	<input type="button" value="Update"/>	
2025-02-26 03:07:16 AM		PROBLEM		Zabbix server	Zabbix server: Proxy [Zabbix proxy-HA]: Zabbix proxy last seen more than 600 seconds ago	5d 8h 52m	<input type="button" value="Update"/>	



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Thank you for
attention !



Janis Eidaks

Trainer Zabbix



Main title

Title V1

Title V2

SUBTITLE

SUBTITLE

First level

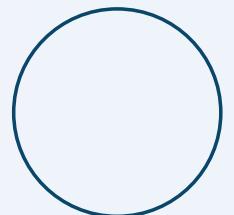
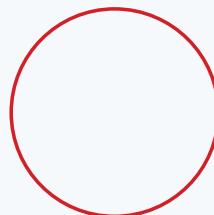
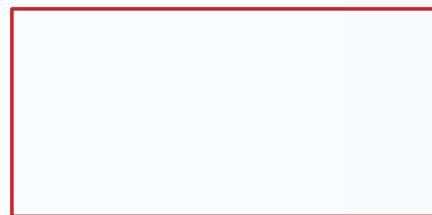
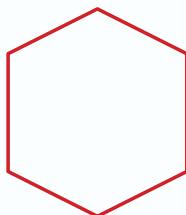
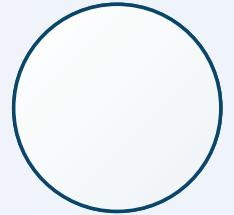
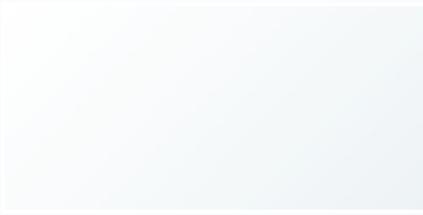
- ▶ Second level
 - Third level

Text

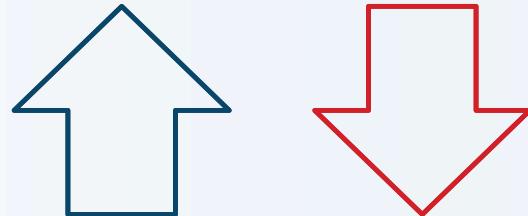
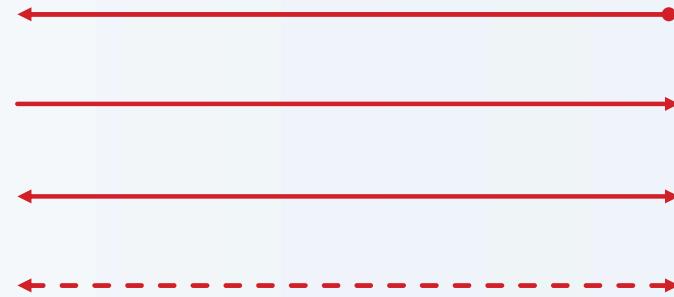
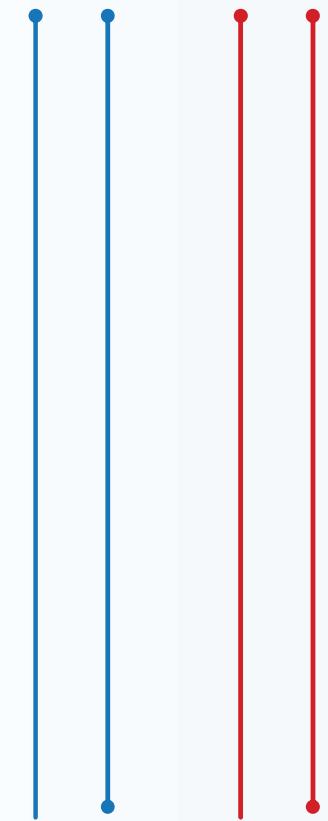
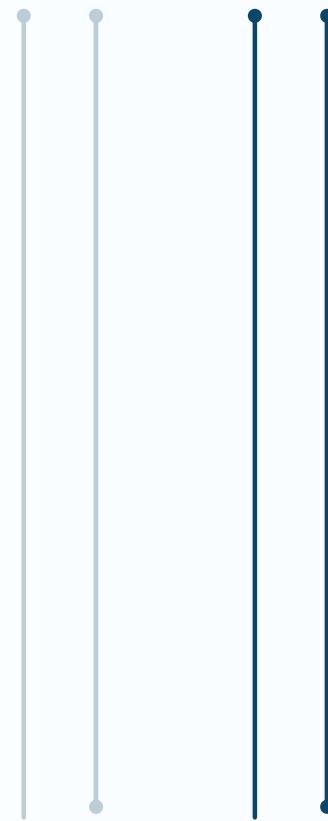
Text

Elements

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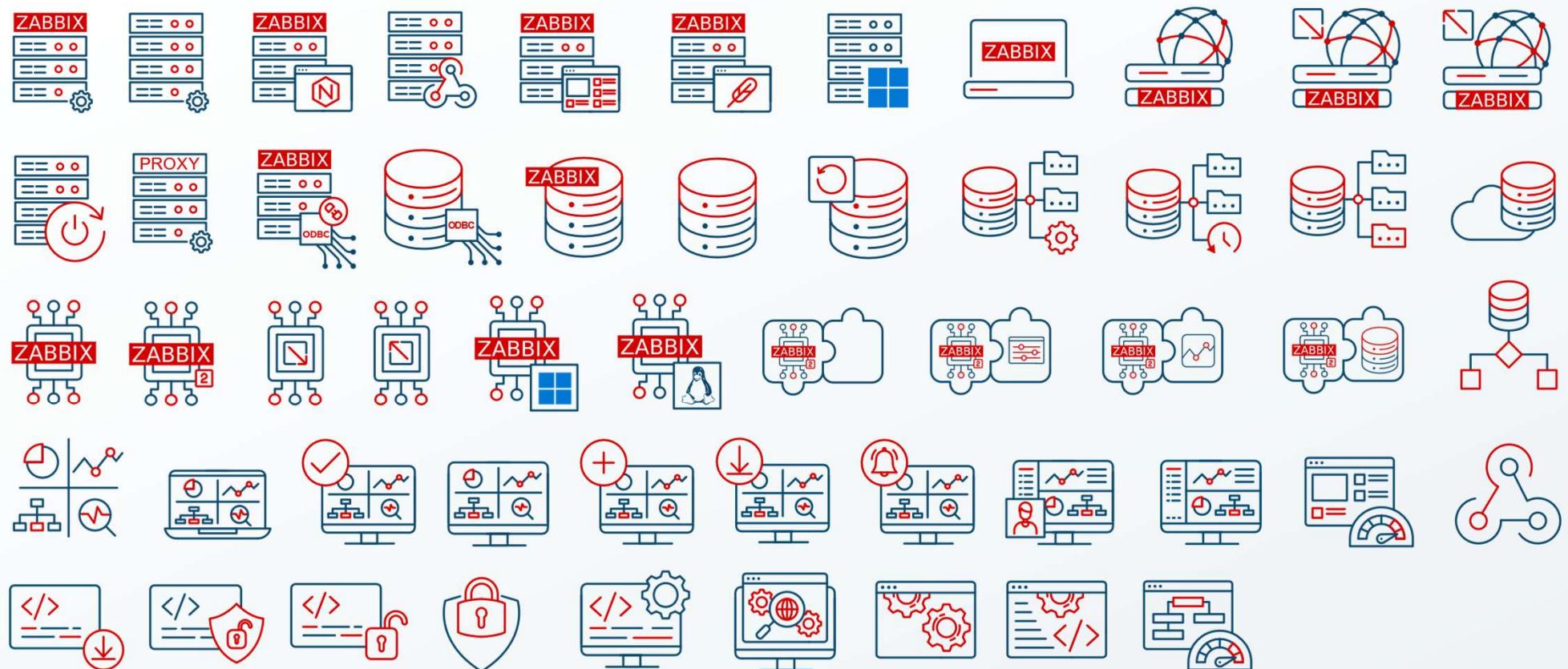


Elements



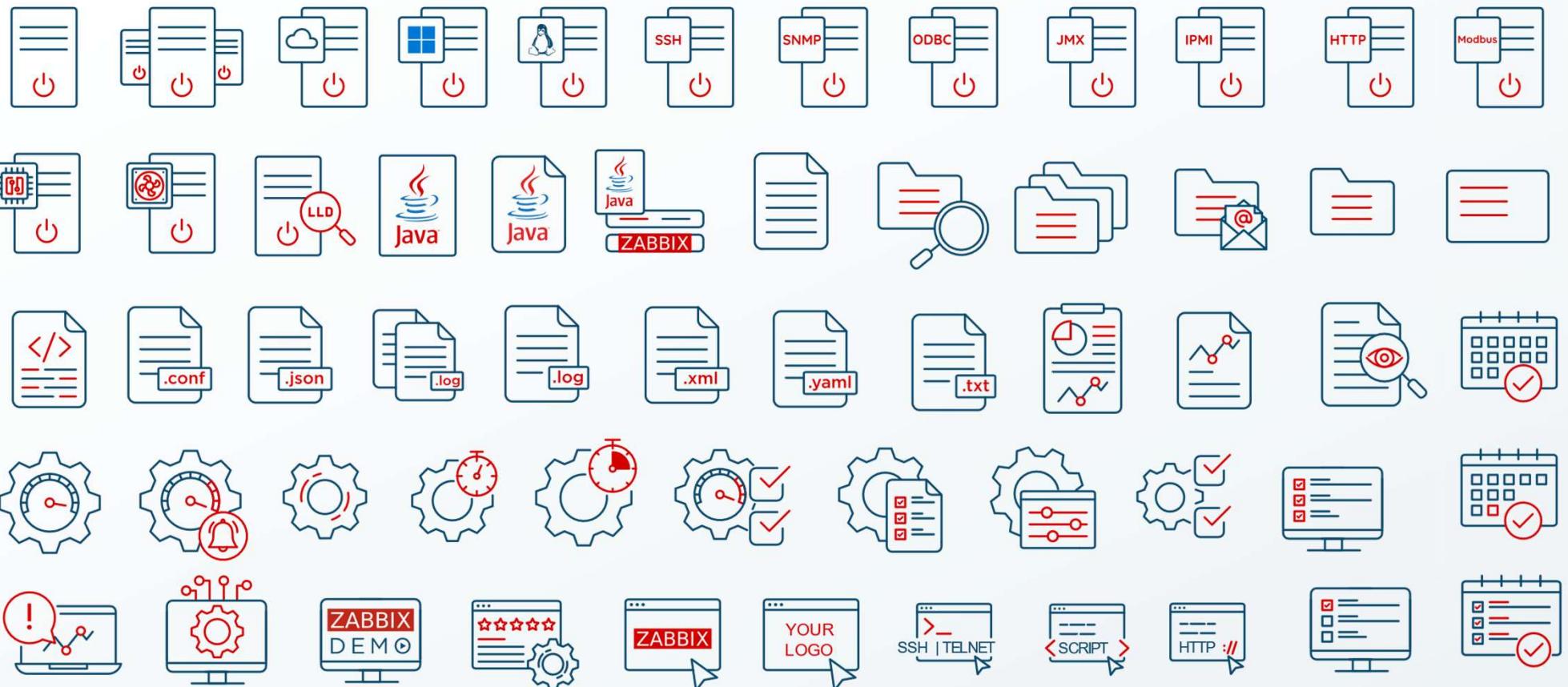
Custom-made Zabbix icons

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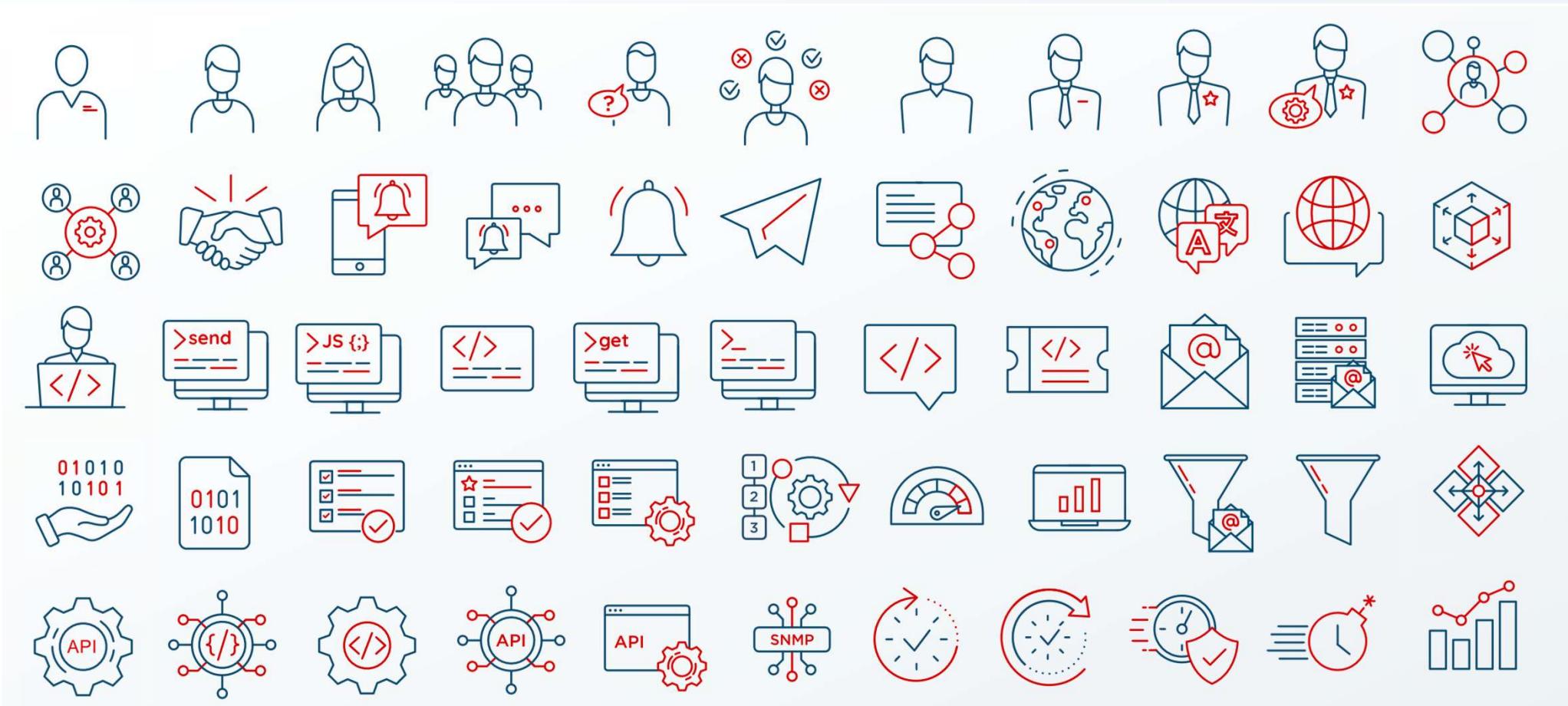
Custom-made Zabbix icons

ZABBIX '25
CONFERENCE
BENELUX



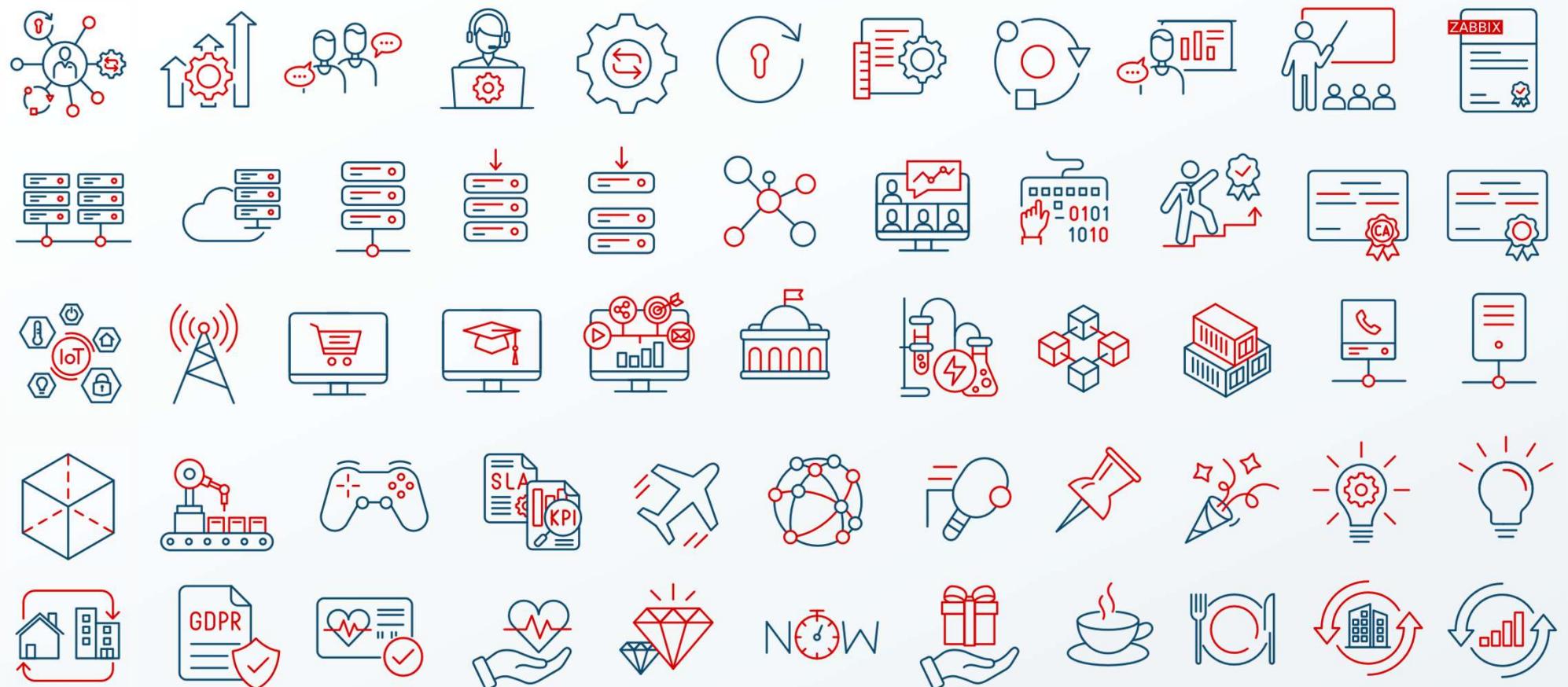
Custom-made Zabbix icons

ZABBIX '25
CONFERENCE
BENELUX



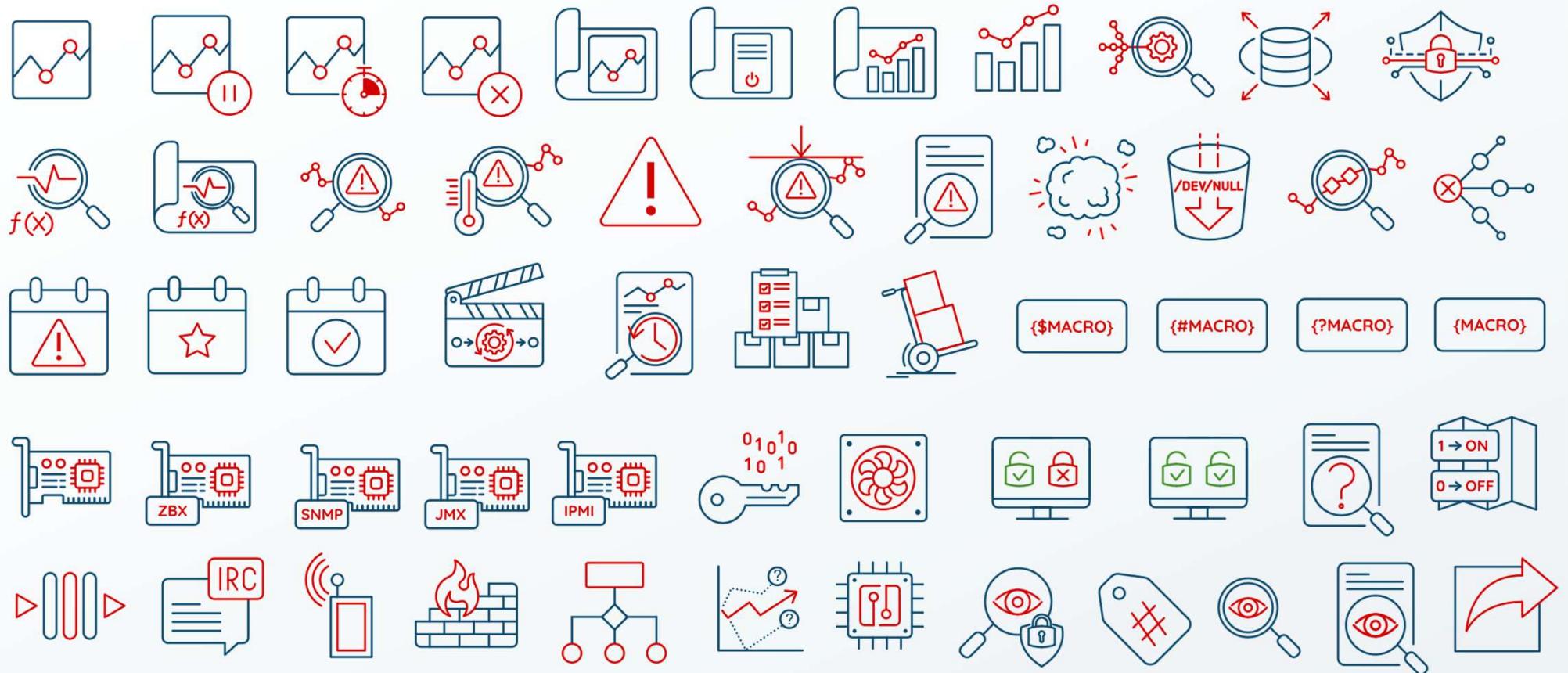
Custom-made Zabbix icons

ZABBIX '25
CONFERENCE
BENELUX



Custom-made Zabbix icons

ZABBIX '25
CONFERENCE
BENELUX



Custom-made Zabbix icons

ZABBIX '25
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