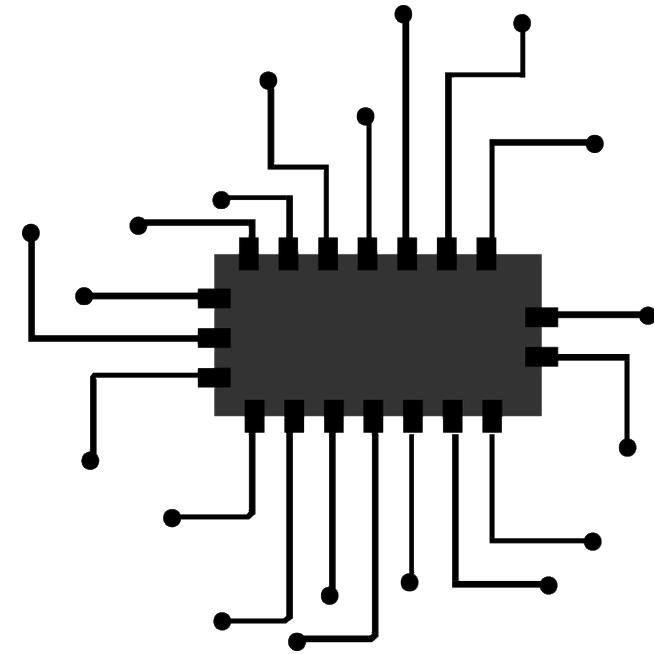


Reliably Backing Up your Zabbix Instance





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Zabbix trainer / Consultant



OpenSource ICT Solutions

Your Zabbix partner in:

- The Netherlands
- United Kingdom
- United States





Opensource ICT Solutions



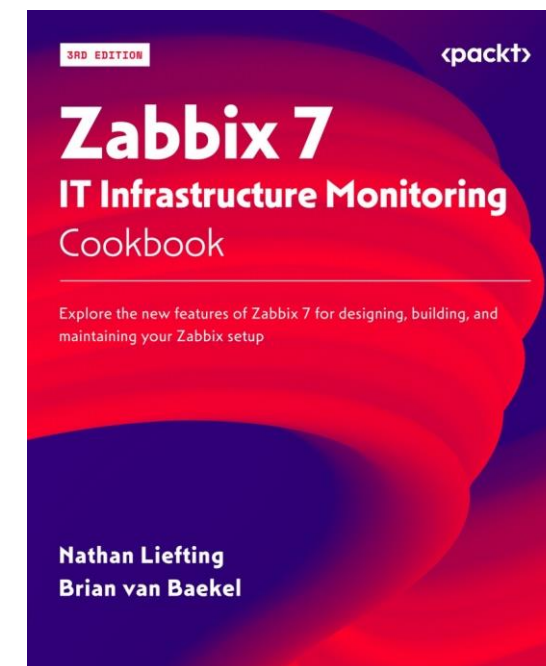
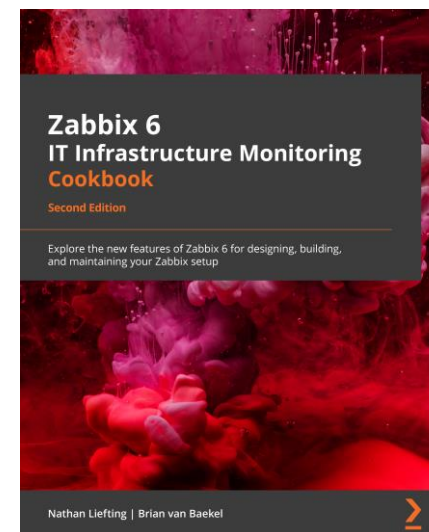
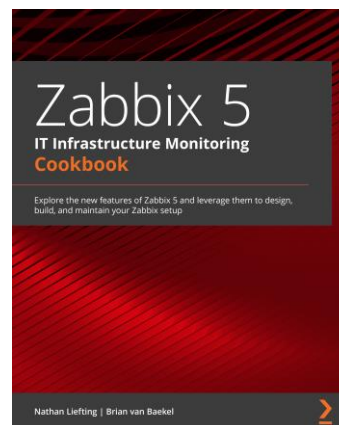
ZABBIX
PREMIUM PARTNER



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CERTIFIED TRAINER



- Zabbix support
- Zabbix training
- Zabbix consultancy
- And more...



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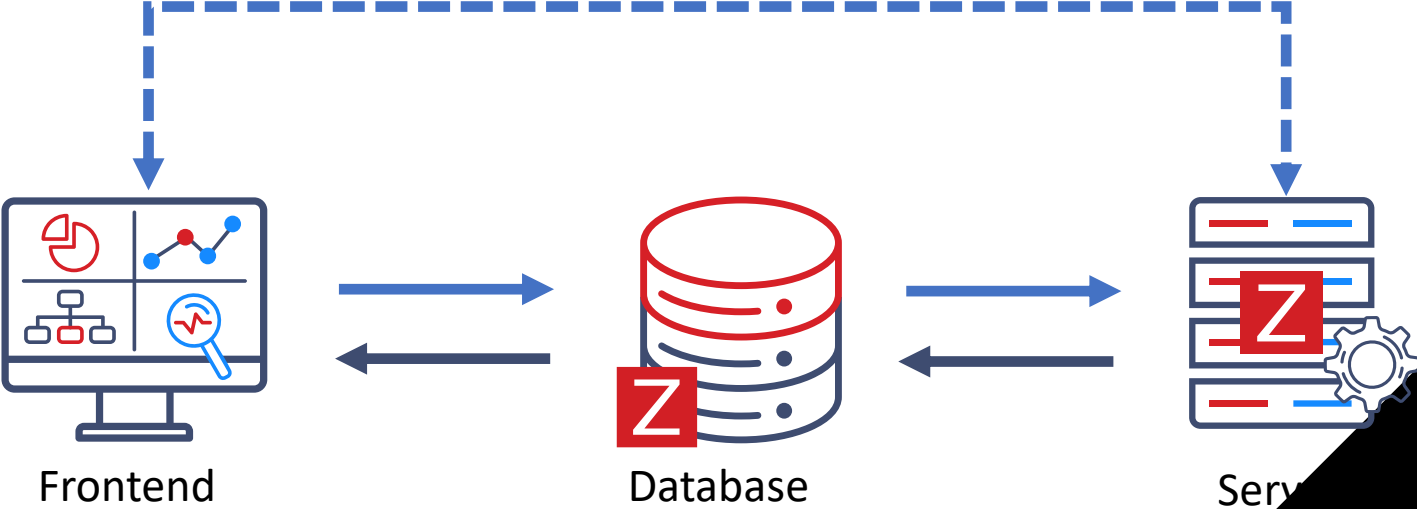
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Components

- 📶 Zabbix server
- 📶 Zabbix database
- 📶 Zabbix frontend



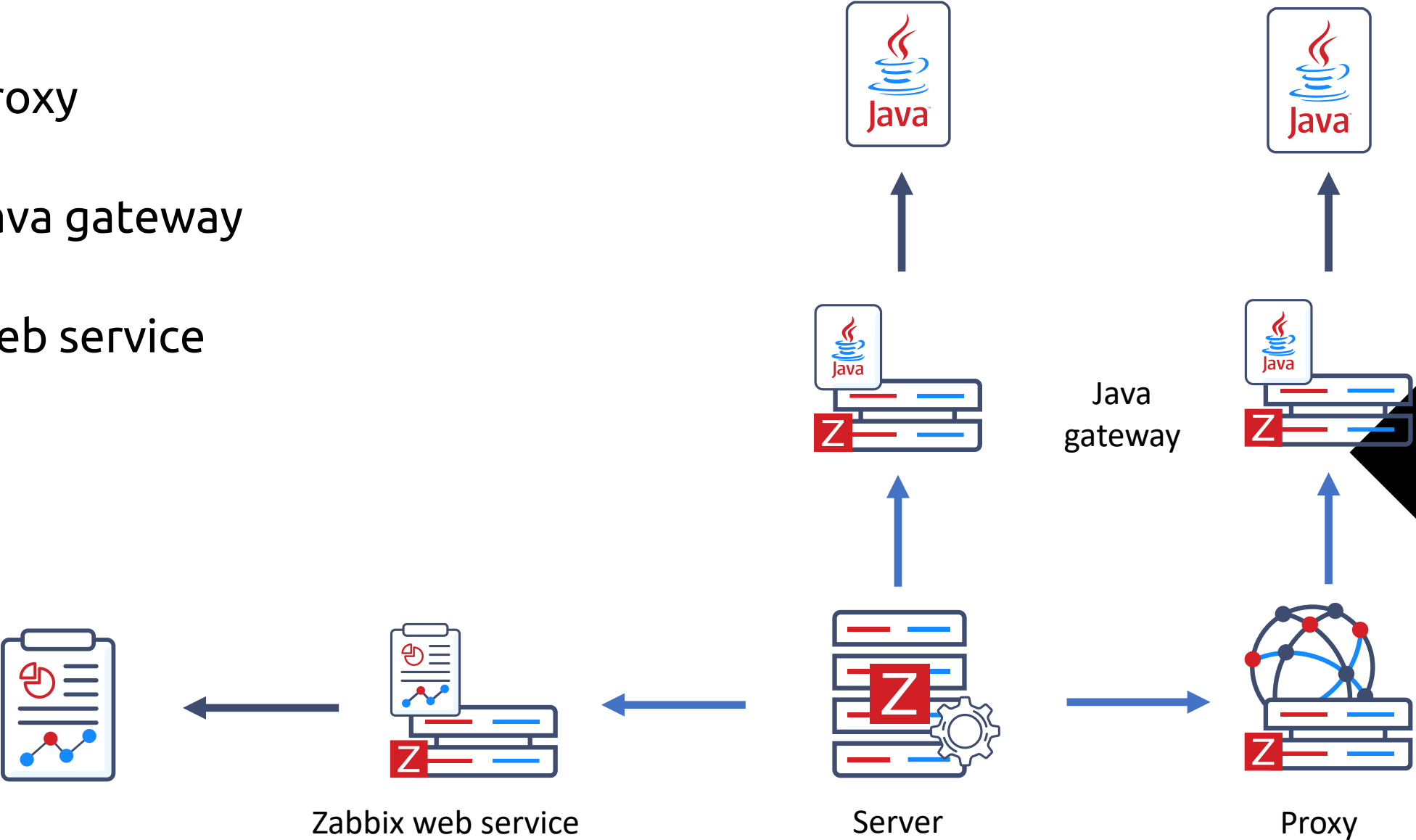
- ➡ Configuration
- ← Collected metrics
- ↔ Internal communications

Components

📶 Zabbix proxy

📶 Zabbix Java gateway

📶 Zabbix web service



Backups overview

⚡ Zabbix core components

- ⚡ Server
- ⚡ Database
- ⚡ Frontend

⚡ Additional components

- ⚡ Proxy
- ⚡ Java gateway
- ⚡ Web service

- ⚡ Config files and scripts
- ⚡ Full/config database backups
- ⚡ Config files and certificates

- ⚡ Config files, no database
- ⚡ Config files
- ⚡ Config files



Database

- xtrabackup/mariadbbbackup (full physical backup)
- xtrabackup/mariadbbbackup (full physical backup)
- xtrabackup/mariadbbbackup (incremental physical backup)
- mysqldump (logical backup)
- binary logging
- Replication

The mysqldump is the most popular MySQL backup method.

- safe, but slow (e.g. 100GB/1 hour)
- may cause performance degradation

Xtra/mariadb backup has more recovery options and better performance.

TABLE
history
history_uint
history_text
history_str
history_log
trends
trends_uint
events



Database full backup

MySQL (MariaDB/Percona)

Making the backup:

```
[root@summit-zbx-01 ~]# mysqldump --single-transaction -p --tab /mnt/backup zabbix  
Enter password: █
```

Restoring the backup:

```
[root@summit-zbx-01 ~]# cat /mnt/backup/*.sql | mysql -p zabbix
```

Or use mysqlimport

```
[root@summit-zbx-01 ~]# mysqlimport -p --use-threads=4 zabbix /mnt/backup/*.sql  
Enter password: █
```



Database full backup

PostgreSQL

Making the backup:

```
[root@summit-zbx-01 ~]# pg_dump zabbix > zabbix_db
```

Restoring the backup:

```
[root@summit-zbx-01 ~]# psql zabbix < zabbix_db
```



Database config backup

```
mysqldump ' + database + ' \  
--ignore-table='+ database +'.events \  
--ignore-table='+ database +'.history \  
--ignore-table='+ database +'.history_log \  
--ignore-table='+ database +'.history_str \  
--ignore-table='+ database +'.history_text \  
--ignore-table='+ database +'.history_uint \  
--ignore-table='+ database +'.trends \  
--ignore-table='+ database +'.trends_uint \  
--ignore-table='+ database +'.event_recovery \  
--ignore-table='+ database +'.etc.etc.etc.etc \  
.....  
-u' + username + ' \  
-p' + password + '
```

TABLE

history
history_uint
history_text
history_str
history_log
trends
trends_uint
events



Database cloud storage

So in the cloud, where to store the backup file?

- Extra disk on the MySQL database?
- S3 buckets:

The screenshot shows the Amazon S3 console interface for a bucket named 'full-backups/'. At the top right, there is a 'Copy S3 URI' button. Below the bucket name, there are two tabs: 'Objects' (selected) and 'Properties'. A toolbar contains several action buttons: a refresh icon, 'Copy S3 URI', 'Copy URL', 'Download', 'Open', 'Delete', 'Actions', 'Create folder', and 'Upload'. Below the toolbar is a search bar with the placeholder text 'Find objects by prefix'. A table lists five objects, each with a checkbox, a name, a type, a last modified date, a size, and a storage class.

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	zabbix-db_full-backup-2024-04-26-00:00.sql.lz4	lz4	April 26, 2024, 00:00:06 (UTC+02:00)	64.0 GB	Standard
<input type="checkbox"/>	zabbix-db_full-backup-2024-05-03-00:00.sql.lz4	lz4	May 3, 2024, 00:00:05 (UTC+02:00)	64.9 GB	Standard
<input type="checkbox"/>	zabbix-db_full-backup-2024-05-10-00:00.sql.lz4	lz4	May 10, 2024, 00:00:04 (UTC+02:00)	64.8 GB	Standard
<input type="checkbox"/>	zabbix-db_full-backup-2024-05-17-00:00.sql.lz4	lz4	May 17, 2024, 00:00:06 (UTC+02:00)	65.2 GB	Standard
<input type="checkbox"/>	zabbix-db_full-backup-2024-05-24-00:00.sql.lz4	lz4	May 24, 2024, 00:00:07 (UTC+02:00)	31.8 GB	Standard

Database cloud storage

S3 bucket pricing:

- **Standard Storage:**
 - First 50 TB/month: \$0.023 per GB
 - Next 450 TB/month: \$0.022 per GB
 - Over 500 TB/month: \$0.021 per GB

EC 2 storage

- **General Purpose SSD (gp3):**
 - \$0.08 per GB-month
- **Provisioned IOPS SSD (io2):**
 - \$0.125 per GB-month
 - \$0.065 per provisioned IOPS-month



Database cloud storage

```
mysqldump zabbix | /usr/local/bin/aws s3 cp - s3://customer-zbx-backup/full-backups/zabbix-db_full.sql
```



Database backup compression

```
mysqldump zabbix | lz4 > zabbix-db_full.sql.lz4
```



Server/Frontend: Files

Server:

🔌 /etc/zabbix/*

🔌 All Zabbix configuration files

🔌 /usr/lib/zabbix/*

🔌 Best-practice location for Zabbix custom scripts

Frontend:

🔌 /etc/nginx/*

🔌 /etc/httpd/*

🔌 /etc/apache2/*

```
0 0 * * 0 sudo find /mnt/backup/config_files/ -mtime +180 -type f -delete
0 0 * * 1-7 cd /mnt/backup/config_files/ && cp -r /usr/lib/zabbix/*
0 0 * * 1-7 cd /mnt/backup/config_files/ && cp -r /etc/zabbix/*
0 0 * * 1-7 cd /mnt/backup/config_files/ && cp -r /etc/nginx/*
```



Extra component: Files

Possibly on a different device:

⚡ /etc/zabbix/*

⚡ Proxy, Java gateway and Web service config file location

⚡ /usr/lib/zabbix/*

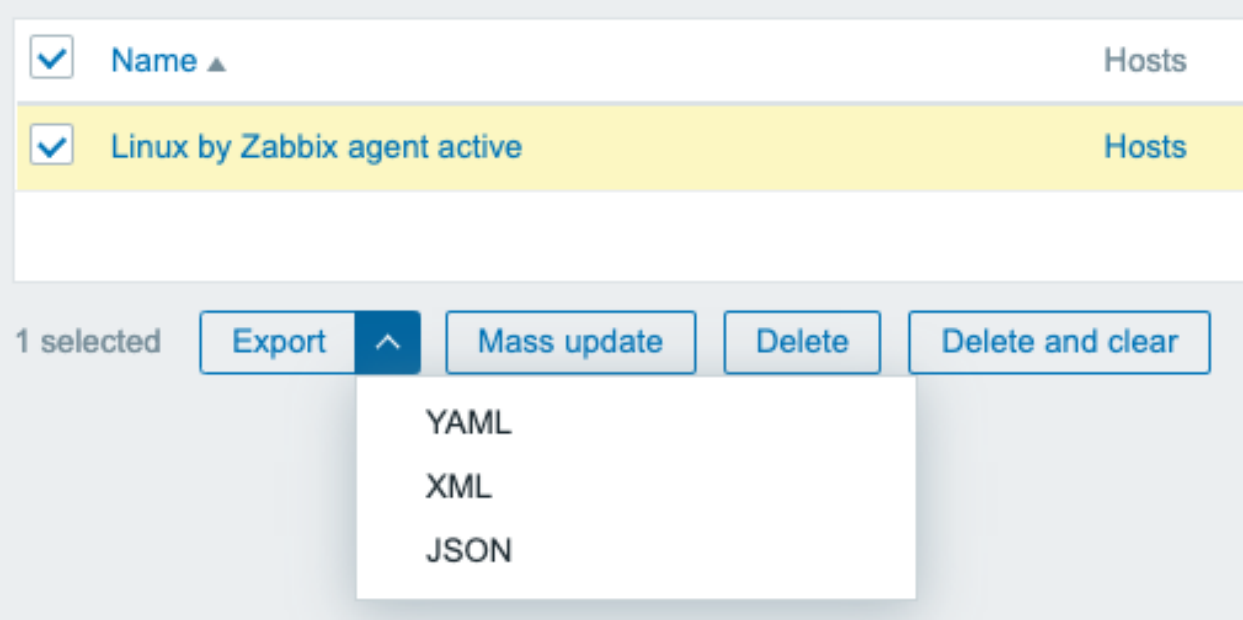
⚡ Best-practice location for Zabbix proxy custom scripts

```
0 0 * * 0 sudo find /mnt/backup/config_files/ -mtime +180 -type f -delete
0 0 * * 1-7 cd /mnt/backup/config_files/ && cp -r /usr/lib/zabbix/*
0 0 * * 1-7 cd /mnt/backup/config_files/ && cp -r /etc/zabbix/*
```



Configuration exports

Database backups are slow to make, but also slow to import back. Frontend backup imports are nearly instant!



📶 Templates

📶 Hosts

📶 Media types

📶 Maps

📶 Images (through maps)

Configuration exports

Import

? X

* Import file zbx_export_templates (12).yaml

Rules	Update existing	Create new	Delete missing
Template groups	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Host groups	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Templates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Value mappings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Template dashboards	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Template linkage		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Items	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Discovery rules	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Triggers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Graphs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Web scenarios	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Import

Cancel



Configuration exports

Templates

- ▼ Updated
 - ▼ Templates
 - Linux by Zabbix agent active
 - ▼ Items
 - Active agent availabilit

```
macro: '{$VFS.FS.FSTYPE.NOT_MATCHES}'  
value: ^\s$  
description: 'This macro is used in filesystems discovery. Can be overridden on the host or linked template level'  
-  
macro: '{$VFS.FS.INODE.PFREE.MIN.CRIT}'  
value: '10'  
-  
macro: '{$VFS.FS.INODE.PFREE.MIN.WARN}'  
value: '20'  
-  
macro: '{$VFS.FS.PUSED.MAX.CRIT}'  
value: '90'  
-  
macro: '{$VFS.FS.PUSED.MAX.WARN}'  
value: '80'  
items:  
-  
name: 'Active agent availabilit'  
+ name: 'Active agent availability'  
type: INTERNAL  
key: 'zabbix[host,active_agent,available]'  
history: 7d  
description: "Availability of active checks on the host. The value of this item corresponds to availability icons in  
valuemap:  
  name: zabbix.host.active_agent.available  
tags:  
  -  
    tag: component  
    value: health  
  -  
    tag: component  
    value: network
```

Import Cancel



Configuration exports: API

Possible on everything like in the frontend:

- Hosts
- Templates
- Media types
- Maps
- images

And more...

- Host groups
- Template groups (6.2)



Configuration exports: API

Request body:

```
1  {
2  |  .... "jsonrpc": "2.0",
3  |  .... "method": "configuration.export",
4  |  .... "params": {
5  |  |  .... "options": {
6  |  |  |  .... "hosts": [
7  |  |  |  |  .... "10161"
8  |  |  |  ]
9  |  |  }
10 |  |  .... "format": "yaml"
11 |  |  },
12 |  |  .... "auth": "038e1d7b1735c6a5436ee9eae095879e",
13 |  |  .... "id": 1
14 |  }
```



Configuration exports: API

Response body:

```
1 |  
2 | "jsonrpc": "2.0",  
3 | "result": "zabbix_export:\n version: '6.2'\n date: '2022-09-19T14:47:45Z'\n host_groups:\n   -\n     uuid: e0dc612216ab4f74917fd04aa38eb8\n     name: Servers/OS/Windows\n     hosts:\n   -\n     host: 'BUF mssql01'\n     name: 'BUF mssql01'\n     proxy:\n     name:\n     customer1-proxy-1\n     groups:\n     -\n     name: Servers/OS/Windows\n     inventory_mode: DISABLED\n",  
4 | "id": 1  
5 |
```



What else?

- ⚡ Snapshots
- ⚡ Use external network locations
- ⚡ Not a backup but.... Think about High-availability



Questions?

