Содержание

FastDPI monitoring and logs

System logs are presented as text files that are located in the /var/log/dpi directory for DPI and PCRF modules. Types of messages in the log:

1. [CRITICAL] - critical error, system operation is impossible without troubleshooting
2. [WARNING] - warning, the system does not stop, but it is worth eliminating this malfunction
3. [TRACE] - messages when the diagnostic trace mode is enabled
4. [INFO] - notification of system actions
5. [ERROR] - error when connecting services and policies, incorrect configuration

The FastDPI process by default logs all system actions to the following debug and statistics log files:

1. /var/log/dpi/fastdpi_slave.log - a log of traffic processing processes[1)]
2. /var/log/dpi/fastdpi_stat.log - traffic processing statistics log
3. /var/log/dpi/fastdpi_alert.log - common fastDPI functions log

Blocking counters that are saved in the statistics log

Log file rotation

File rotation provides a daily backup of the daily log. By default, this process is performed during the hours with the lowest system load. The log storage depth is defined in the configuration of `/etc/logrotate.d/fastdpi` by the parameter `maxage`, the value is specified **in days**.

Monitoring via SNMP agent (Zabbix-agent)

We offer you the following set of parameters that can be taken from the SSG DPI:

- Errors in fastDPI process log `/var/log/dpi/fastdpi_alert.log`
- Errors in the `/var/log/messages` system log
- Losses (Drop) on dna interfaces
- Traffic volume on interfaces
- Availability of control interfaces
- Number of HTTP and HTTPS requests processed
- Number of blocked resources by HTTP, HTTPS, IP
- Number of PPPoE sessions

You can use Zabbix Agent for monitoring.
Current and final supported version of agent and server is 6.0, Zabbix agent 1 should be used. For newer versions of Zabbix, monitoring will be done via SNMP.

Agent Setup

1. Install Zabbix agent 1 on the DPI server according to the instructions on the Zabbix website.

In the first step, select the following values:
    - Zabbix Packages
    - Zabbix version: 6.0+
    - OS distribution: CentOS
    - OS version: 8 STREAM
    - Zabbix component: AGENT
2. Edit the configuration file `/etc/zabbix/zabbix_agentd.conf`: change the parameters `Server=` and `ServerActive=` to your server address, `hostname=` to the server hostname.
3. Change the context of the `/var/log/dpi/fastdpi_stat.log` file:

```
chcon unconfined_u:object_r:zabbix_log_t:s0
/var/log/dpi/fastdpi_stat.log
```

4. Open tcp/udp ports 10050 and 10051 in firewall
5. Upload the

ssg_userparams.conf

file to the `/etc/zabbix/zabbix_agent.d/` directory
6. Edit the `ssg_userparams.conf` file by replacing the interface number in `UserParameter`
`02-00.0` should be replaced with the interface names of your server!
The name must match the DPI config. If you have more than 2 interfaces in use, you must add a line similar to the existing parameters.

```
UserParameter=dpi.02-00.0.drops,tac /var/log/dpi/fastdpi_stat.log | sed
/'IF 02-00.0'/q | tac | sed -e 1,/'Actual   Stats'/d | sed '6!D' | awk
'{print $1}' | sed 's/^.//'
```

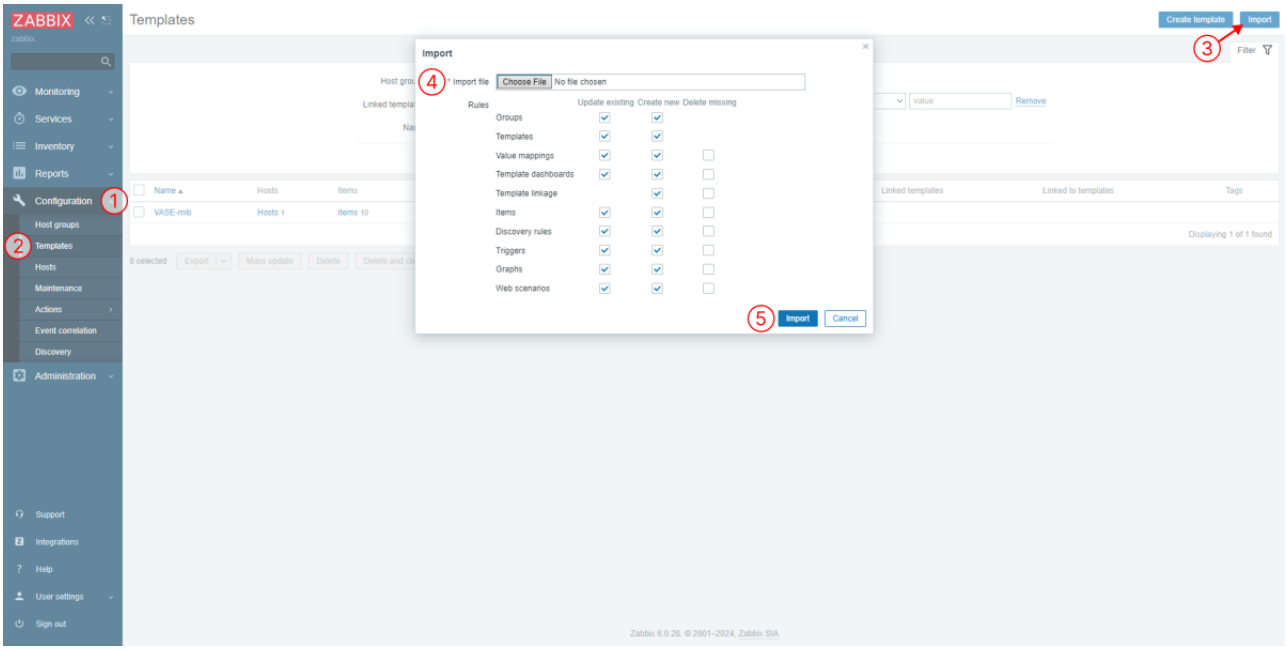
7. Restart the agent: `systemctl restart Zabbix-agent`

Server setup

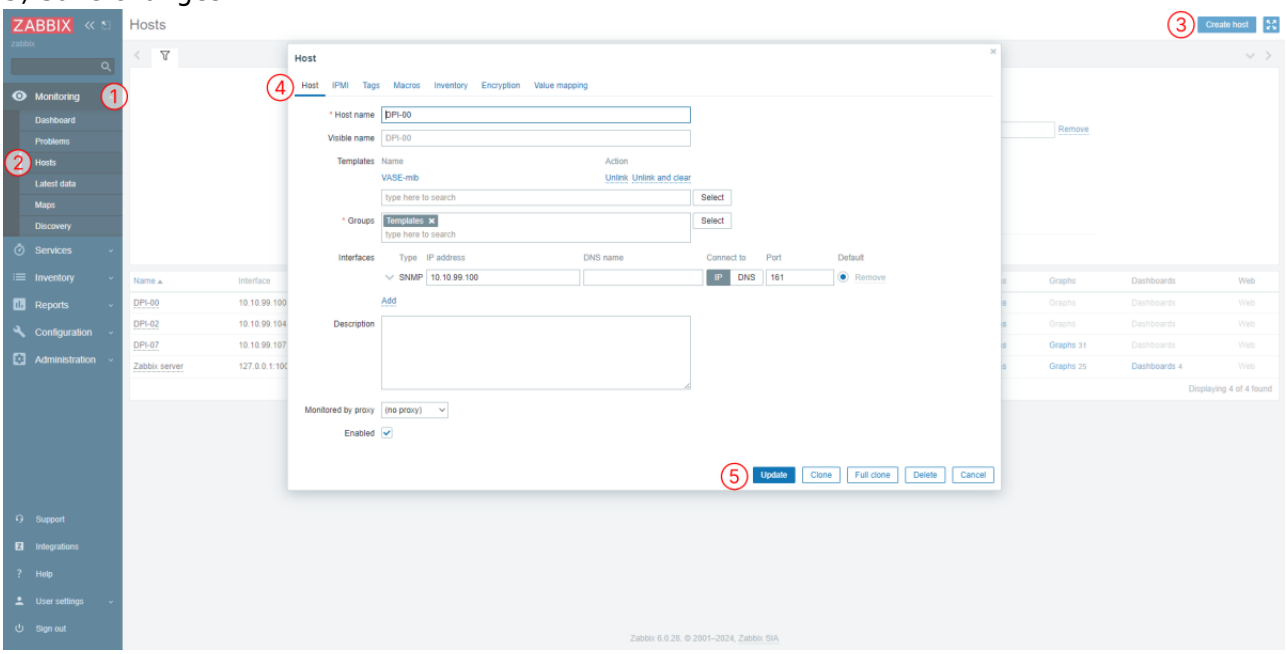
1. Install and configure Zabbix servers according to the instructions on the official website.
2. Add template

zbx_export_templates.xml

1) Go to Configuration section
2) Templates section
3) Click “Import”
4) Import template file
5) Save changes



3. Add a DPI server as a host
   1) Go to Monitoring section
   2) Hosts section
   3) Click “Create host”
   4) Set the required parameters, hostname, group and the previously added template
   5) Save changes



4. Edit the template: change the names of the interfaces and keys so that they match the `UserParameter`.

Monitoring traffic distribution by class

SSG allows traffic distribution by class to be monitored.

1. Enable traffic prioritization. For the example, we will use the following prioritization rules:

```
dns cs0
```

```
http cs0
https cs0
Bittorrent cs7
ICMP cs0
TCP Unknown cs7
GOOGLEVIDEO cs1
default cs2
```

2. In the `/etc/dpi/fastdpi.conf` configuration, set the parameter:

```
dbg_log_mask=0x4
```

3. Enable common channel polysync (the example shown is polysync with full channel width restriction):

```
htb_inbound_root=rate 1300mbit
htb_inbound_class0=rate 8bit ceil 1300mbit
htb_inbound_class1=rate 8bit ceil 1300mbit
htb_inbound_class2=rate 8bit ceil 1300mbit
htb_inbound_class3=rate 8bit ceil 1300mbit
htb_inbound_class4=rate 8bit ceil 1300mbit
htb_inbound_class5=rate 8bit ceil 1300mbit
htb_inbound_class6=rate 8bit  ceil 1300mbit
htb_inbound_class7=rate 8bit  ceil 1300mbit
htb_root=rate 1300mbit
htb_class0=rate 8bit ceil 1300mbit
htb_class1=rate 8bit ceil 1300mbit
htb_class2=rate 8bit ceil 1300mbit
htb_class3=rate 8bit ceil 1300mbit
htb_class4=rate 8bit ceil 1300mbit
htb_class5=rate 8bit ceil 1300mbit
htb_class6=rate 8bit  ceil 1300mbit
htb_class7=rate 8bit  ceil 1300mbit
```

4. Update the configuration:

```
service fastdpi reload
```

If polyscing for a shared channel is applied for the first time, you must restart the service:

```
service fastdpi restart
```

5. Use the following custom settings for the zabbix agent installed on the SSG:

ssg_userparams.conf

6. Import the template to the Zabbix server as described in the section "Monitoring via SNMP agent":

If necessary, change the interface names in the template and in the custom parameter file

View flow and protocol statistics

By flow

1. IPv4/IPv6
2. protocol type: 0 - IPv4, 1 - IPv6
3. total allocated records
4. a queue with a short lifespan:
    1. occupied records
    2. reusable
    3. difference 3.1 - 3.2 (number of active flows)
5. also for the long line
6. also total

Example:

```
fdpi_ctrl stat --flow
IPv4 0 6784000 834 814 20 0 0 0 834 814 20
```

By protocols

1. internal index of protocol statistics
2. protocol name
3. protocol port number
   direction subs –> inet
4. number of packages
5. volume in bytes ip total
6. dropped packages
7. dropped byte
   direction inet –> subs number of packages etc.

Example:

```
fdpi_ctrl stat --proto
Autodetected fastdpi params : dev='em1', port=29001
connecting 94.140.198.68:29001 ...

================================
94 'ntp' 123 0 0 0 0 91 23569 0 0
4081 'sip' 5060 0 0 0 0 2479 1170579 0 0
5812 'Bittorrent' 49165 0 0 0 0 0 0 3 495
```

```
5866 'ICMP' 65025 0 0 0 0 225 18900 0 0
5871 'TCP Unknown' 65030 0 0 0 0 41034 3448836 0 0
5880 'UDP Unknown' 65041 3900 4227600 0 0 277 24825 0 0
6000 'ARP' 65282 30 2520 0 0 30 2520 0 0
6056 'CHAMELEON' 49236 0 0 0 0 589 72475 0 0
```

1)

For each handler, its own fastdpi_slave log is created, other log files are created in a single copy.