Содержание

DDoS and BotNet Detector Configuration Based on QoE

1. QoE Update

On the QoE server.

Update QoE to the latest version, stopping the receivers beforehand. Before starting the receivers, patch ClickHouse:

```
dnf --refresh install clickhouse-patched
```

Start the receivers.

2. GUI Update

On the GUI server.

Update GUI to the latest version. Connect GUI to VAS Cloud if it is not already connected. Grant the **antiddos** license option.

In the file `/var/www/html/dpiui2/frontend/env.js`, add the following option:

```
AppEnv.DDoSAttack_isVisible = 1;
```

3. Detector Installation

On the QoE server.

Install the mitigator package `fastm_qoe` on all nodes:

```
dnf install fastm_qoe
```

Switch the Python version:

```
dnf install -y python39 python39-devel -y
sudo update-alternatives --install /usr/bin/python3 python3
/usr/bin/python3.6 60
sudo update-alternatives --install /usr/bin/python3 python3
/usr/bin/python3.9 70
sudo update-alternatives --config python3
```

Select version 3.9 and verify:

```
python3 --version
```

4. Detector Configuration

On the QoE server.

On all nodes, or on selected ones:

1. Edit the file `/var/fastm_qoe/etc/.env`.
   It should contain the following:

   ```
   ANALYZER=avg-based-z-score
   ANALYZER_RULES_KEY=avg-based-z-score-any

   IDLE_MODE=1
   FORCE_MODE=0
   DB_DROP_TABLES=1

   FM_ATTACKS_METRICS_BY_SUBS_FILTER="and has_attack = 0"
   FM_ATTACKS_METRICS_BY_SUBS_LIMIT=1
   FM_ATTACKS_METRICS_BY_SUBS_COLLAPSE=1
   FM_ATTACKS_METRICS_BY_SUBS_DAY='day_'
   ```

2. Update the database schema:

   ```
   fastm-db-scheme
   ```

3. Enable metrics collection.
   In the file `/var/qoestor/backend/.env`, add:

   ```
   FM_FULLFLOW_HOOK_ENABLE=1
   ```

   Collect metrics for several hours (preferably 24 hours).
   Then edit `/var/fastm_qoe/etc/.env` again and change two parameters:

   ```
   IDLE_MODE=0
   DB_DROP_TABLES=0
   ```

   This activates the detector.

5. Trigger Thresholds

In the file `/var/fastm_qoe/lib/rules/config.json`, edit the `avg-based-z-score-any` section as follows:

```
"avg-based-z-score-any": {
        "octets": { "th": 100, "weight": 0.1 },
```

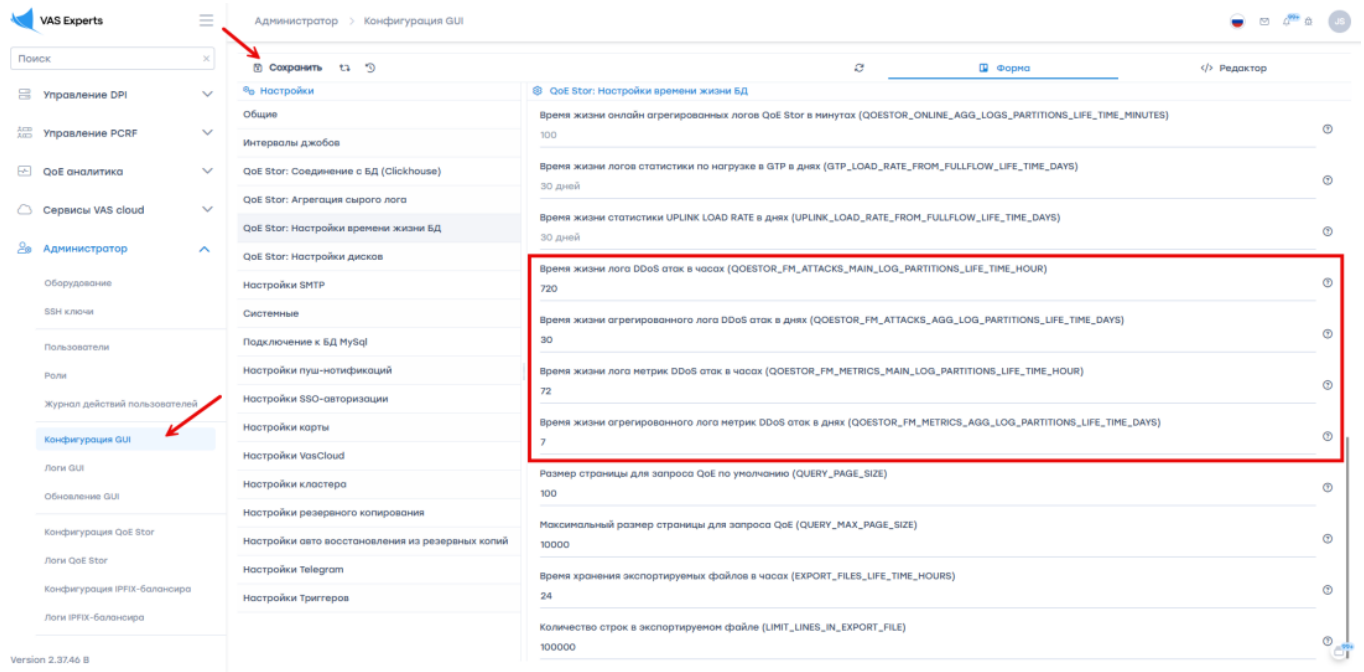
```
        "octets_dropped": { "th": 1000, "weight": 0.3 },
        "packets": { "th": 100, "weight": 0.3 },
        "packets_dropped": { "th": 1000, "weight": 0.3 },
        "flows": { "th": 100, "weight": 0.4 },
        "sessions": { "th": 100, "weight": 0.4 },
        "duration": { "th": 100, "weight": 0.01 },
        "host_ips": { "th": 100, "weight": 0.3 },
        "protos": { "th": 100, "weight": 0.3 },
        "bits_sec": { "th": 100, "weight": 0.05 },
        "bits_dropped_sec": { "th": 1000, "weight": 0.05 },
        "packets_sec": { "th": 100, "weight": 0.05 },
        "packets_dropped_sec": { "th": 1000, "weight": 0.05 }
    },
```

6. Metrics Storage (DDoS Attack Logs)

In the GUI web interface, configure storage for raw and aggregated metrics, as well as raw and aggregated attack logs.

In **Administrator → GUI Configuration → QoE Stor: Database Lifetime Settings**, set the following parameters:

- QOESTOR_FM_ATTACKS_MAIN_LOG_PARTITIONS_LIFE_TIME_HOUR = 720
- QOESTOR_FM_ATTACKS_AGG_LOG_PARTITIONS_LIFE_TIME_DAYS = 30
- QOESTOR_FM_METRICS_MAIN_LOG_PARTITIONS_LIFE_TIME_HOUR = 72
- QOESTOR_FM_METRICS_AGG_LOG_PARTITIONS_LIFE_TIME_DAYS = 7



7. Attack Analysis

Detected attacks can be analyzed in the **DDoS Attacks** section of QoE Analytics.

1. Start with the **“TOP Attacks”** section for the last 24 hours.
   Sort attacks by number of sessions and note several IPs with the highest session count.
   
2. Review the **“TOP Attacks by Protocols”** section.
   Also sort by number of sessions and note the relevant protocols.
3. Review the **“TOP Attacking IP Addresses”** section and record several IPs with the highest number of sessions.
   
4. Check the **Attack Log** section.
   Apply filters for the previously selected subscribers and protocols.
   This section provides detailed attack information to support decision-making.
   For example, in the screenshot below, it is clearly visible that UDP port scanning is being performed against the same address. In this case, it is sufficient to place the attacking IP into a separate AS and apply a drop action.

AS blocking is described in detail in the scenario Blocking IP by placing it into an Autonomous System