Stream metrics storage in Influx DB

Influx is open source time series DB.

Influx DB installation

To install Influx DB on CentOS 7, do the following:

1.Create file /etc/yum.repos.d/influxdb.repo:

```
[influxdb]
name = InfluxDB Repository - RHEL $releasever
baseurl = https://repos.influxdata.com/rhel/$releasever/$basearch/stable
enabled = 1
gpgcheck = 1
gpgkey = https://repos.influxdata.com/influxdb.key
```

2. Execute the command

```
yum install influxdb -y
```

3. Enable UDP connection in /etc/influxdb/influxdb.conf file:

```
[[udp]]
  enabled = true
  bind-address = ":8089"
  database = "wcs_oam"
  retention-policy = "default"
```

4. Start Influx DB

```
systemctl start influxdb
```

The installation procedure for Influx DB on Debian / Ubuntu differs only in the method of adding the necessary repository.

Influx DB can be installed to the same server with monitoring backend server. By default, TCP port 8086 or UDP port 8089 is used to connect to Influx DB.

Influx DB setup

To configure Influx DBfor metric storage do the following:

1. Set the following parameter in wcsoam.properties file

```
metric_store=influx
```

2. Set metrics retention policy in init_tsdb.properties file

```
influx_retention_interval=48h0m0s
```

By default, metrics are stored for 2 days (48 hours).

3. Launch DB setup script

```
./init_tsdb.sh
```

DB structure

The database to store metric values as time series contains fields with the following keys:

```
VIDEO_HEIGHT
VIDEO_WIDTH
VIDEO_RATE
VIDEO_SYNC
VIDEO_FPS
VIDEO_NACK
VIDEO_PLI
VIDEO_CODEC
AUDIO_SYNC
AUDIO_RATE
AUDIO_LOST
AUDIO_CODEC
```

Examples of data selection from Influx DB

Data can be selected from Influx DB for a stream, for which node and media session identifiers are known:

1. Enter Influx DB command line interface

```
influx
```

2. Connect to wcs_oam database

```
use wcs_oam
```

3. The command

```
show measurements
```

will show time series list, every of which corresponds to stream published to certain node in certain media session, for example

```
name: measurements
name
----
3-7ecbd270-123e-11e9-bb40-b96debd59887
3-93412000-123b-11e9-8357-3d4423e30d73
```

4. Select video bitrate values for stream on node 3 in media session 7ecbd270-123e-11e9-bb40-b96debd59887

```
select VIDEO_RATE from "3-7ecbd270-123e-11e9-bb40-b96debd59887"
```

Video bitrate values with timestamps will be shown

```
name: 3-7ecbd270-123e-11e9-bb40-b96debd59887
time                VIDEO_RATE
----                ----------
1546839525823000000 28424000
1546839525960000000 1002914
1546839526169000000 727679
1546839526358000000 662007
1546839526575000000 645467
1546839526770000000 633490
1546839526967000000 583736
1546839527162000000 622472
1546839527365000000 593104
1546839527563000000 666688
1546839527796000000 638784
1546839527999000000 637000
1546839528192000000 647208
1546839528772000000 421640
1546839528775000000 587632
1546839528805000000 740064
1546839529031000000 753504
1546839529232000000 767672
1546839529431000000 931088
1546839529643000000 1090696
1546839529840000000 772440
1546839530028000000 755744
1546839530242000000 812624
1546839530429000000 867240
1546839530630000000 878008
1546839530833000000 873528
1546839531031000000
850352
...
```