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# GTP IPFIX Export

SSG is able to export processed GTP events via IPFIX protocol. GTP event is request + response.



Only those requests/responses that are processed by SSG are sent to IPFIX. Requests unknown to SSG do not reach IPFIX. SSG processes only the following requests/responses:

- creation and deletion of a subscriber session;
- changing the TEID of the session (switching to another SGW/PGW, switching 3G ↔ LTE);
- changing the ULI (user location info) of the subscriber



GTP IPFIX is generated only when GTP-C processing mode is enabled: parameter `bras_gtp_mode` must be set to nonzero in `fastdpi.conf`

Export of GTP events is configured with the following parameters in `fastdpi.conf`:

```
ipfix_dev=em1
ipfix_gtp_udp_collectors=1.2.3.4:1533,1.2.3.5:1533
ipfix_gtp_tcp_collectors=1.2.3.6:9418
```

here:

- `em1` - the network interface name for export
- `ipfix_gtp_udp_collectors` - UDP collectors' addresses
- `ipfix_gtp_tcp_collectors` - TCP collectors' addresses

GTP event export IPFIX template format

| Nº   | Bytes | Data type | IANA  | Description | Note                                                                                                                           |
|------|-------|-----------|-------|-------------|--------------------------------------------------------------------------------------------------------------------------------|
| 1001 | 4     | int32     | 43823 | TIMESTAMP   | Request arrival time                                                                                                           |
| 3300 | 1     | int8      | 43823 | VERSION     | GTP-C version: 1 or 2                                                                                                          |
| 3301 | 1     | int8      | 43823 | REQUEST     | Request id (depends on GTP-C version)                                                                                          |
| 3302 | 1     | int8      | 43823 | RESPONSE    | Response id (depends on GTP-C version)                                                                                         |
| 3303 | 1     | int8      | 43823 | IE_CAUSE    | Result code (depends on GTP-C version)                                                                                         |
| 3304 | 1     | int8      | 43823 | RESULT      | Result: 1 - success, 0 - failure. Version-independent success sign of the request is calculated by SSG using the IE_CAUSE code |
| 3305 | 8     | int64     | 43823 | SESSION_ID  | Internal unique id of subscriber session; in this field you can select all messages for the session; 0 - session unknown       |
| 3306 | 4     | ipv4      | 43823 | SGW_CP_IP   | SGW control plane IP                                                                                                           |
| 3307 | 4     | int32     | 43823 | SGW_CP_TEID | SGW control plane TEID                                                                                                         |
| 3308 | 4     | ipv4      | 43823 | SGW_DP_IP   | SGW data plane IP                                                                                                              |

| <b>№</b> | <b>Bytes</b> | <b>Data type</b> | <b>IANA</b> | <b>Description</b> | <b>Note</b>                                                                  |
|----------|--------------|------------------|-------------|--------------------|------------------------------------------------------------------------------|
| 3309     | 4            | int32            | 43823       | SGW_DP_TEID        | SGW data plane TEID                                                          |
| 3310     | 4            | ipv4             | 43823       | PGW_CP_IP          | PGW control plane IP                                                         |
| 3311     | 4            | int32            | 43823       | PGW_CP_TEID        | PGW control plane TEID                                                       |
| 3312     | 4            | ipv4             | 43823       | PGW_DP_IP          | PGW data plane IP                                                            |
| 3313     | 4            | int32            | 43823       | PGW_DP_TEID        | PGW data plane TEID                                                          |
| 3314     | 4            | ipv4             | 43823       | USER_IP            | subscriber's IPv4-address                                                    |
| 3315     | 16           | ipv6             | 43823       | USER_IP6           | subscriber's IPv6-address                                                    |
| 3316     | 8            | int64            | 43823       | IMSI               | SIM-card number                                                              |
| 3317     | 8            | int64            | 43823       | MSISDN             | telephone number                                                             |
| 3318     | 8            | int64            | 43823       | IMEI               |                                                                              |
| 3319     | -            | string           | 43823       | APN                |                                                                              |
| 3320     | 2            | int16            | 43823       | ULI_MCC            | MCC (3GPP country code)                                                      |
| 3321     | 2            | int16            | 43823       | ULI_MNC            | MNC (3GPP country operator code)                                             |
| 3322     | 4            | int32            | 43823       | ULI_TAC            | Service area code (version 1); Tracking area code (version 2) inside MCC/MNC |
| 3323     | 4            | int32            | 43823       | ULI_ECI            | In fact, the cell tower code inside the TAC                                  |
| 3324     | 4            | int32            | 43823       | ULI_TIMESTAMP      | ULI update time                                                              |
| 3325     | 1            | int8             | 43823       | NSAPI              |                                                                              |
| 3326     | 1            | int8             | 43823       | RAT                |                                                                              |

Notes:

SESSION\_ID - this is the internal ID of the GTP session. It is not related the session\_id from Fullflow.

To link records from GTP IPFIX and Fullflow, you can use the subscriber's login: the login field in Fullflow is IMSI or MSISDN, depending on the .conf parameter bras\_gtp\_login. It also should be taken into account that the sessions of a GTP-subscriber get into Fullflow only if GTP tunnels parsing is enabled.