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Configuring Full NetFlow Export in IPFIX Format

The `netflow_full_collector_type` parameter defines the export format for full NetFlow.
Possible values:

- **0** - export in NetFlow5 format (default value).
- **1** - export IPFIX to a UDP collector.
- **2** - export IPFIX to a TCP collector.

The `netflow_tos_format` parameter defines the format of the TOS field data in IPFIX. Possible values:

- **0** - 3 bits are transmitted (default value).
- **1** - 6 bits are transmitted (full DSCP).

The `netflow_plc_stat` parameter defines the set of transmitted statistics data for dropped packets according to policing or drop rules. The parameter is a bitmask.
By default, the mask has the value **0x07** — statistics for dropped data of session + subscriber + virtual channel policing are transmitted.
Affects the formation of the DROPPED_BYTES and DROPPED_PACKETS counters.
Values that make up the mask:

- **0xff** - any drop is transmitted
- **0** - do not count
- **1** - count for session policing
- **2** - count for subscriber policing
- **4** - count for virtual channel policing
- **8** - count when packets are dropped (drop) by protocol
- **16** - count in all other cases

The `ipfix_mtu_limit` parameter sets the maximum UDP packet size when sending IPFIX. By default, it equals the minimum MTU of the interfaces used for sending.

IPFIX/Netflow parameters can be changed without restarting fastDPI.
The configuration parameter `ipfix_reserved` allows reserving the necessary memory to enable/change IPFIX/Netflow parameters.
If IPFIX/Netflow parameters are set in the configuration file, memory reservation for IPFIX/Netflow is automatically enabled, and IPFIX/Netflow parameters and new exporter types can be changed without restarting fastDPI.

For receiving, processing, and storing IPFIX, it is recommended to use the QoE Store software for statistics collection and the DPIUI2 Graphical Interface.

For collecting information in IPFIX format, any universal IPFIX collector that understands templates, or the IPFIX Receiver utility, is suitable.

Export Template in IPFIX Format (Netflow v10) for IPv4 Protocol

Export Template for IPv4						
№	**Bytes**	**Data Type**	**IANA**	**Description**	**Notes**	**Used in QoEStor**
1	8	int64	0	OCTET_DELTA_COUNT	Analog in NetFlow v9 IN_BYTES	Used
2	8	int64	0	PACKET_DELTA_COUNT	Analog in NetFlow v9 IN_PKTS	Used
4	1	int8	0	PROTOCOL_IDENTIFIER	Analog in NetFlow v9 PROTOCOL	Used
5	1	int8	0	IP_CLASS_OF_SERVICE	Analog in NetFlow v9 TOS	Used
7	2	int16	0	SOURCE_TRANSPORT_PORT	Analog in NetFlow v9 L4_SRC_PORT	Used
8	4	int32	0	SOURCE_IPV4_ADDRESS	Analog in NetFlow v9 IPV4_SRC_ADDR	Used
11	2	int16	0	DESTINATION_TRANSPORT_PORT	Analog in NetFlow v9 L4_DST_PORT	Used
12	4	int32	0	DESTINATION_IPV4_ADDRESS	Analog in NetFlow v9 IPV4_DST_ADDR	Used
16	4	int32	0	BGP_SOURCE_AS_NUMBER	Analog in NetFlow v9 SRC_AS	Used
17	4	int32	0	BGP_DESTINATION_AS_NUMBER	Analog in NetFlow v9 DST_AS	Used
152	8	int64	0	FLOW_START_MILLISECOND		Used
153	8	int64	0	FLOW_END_MILLISECOND		Used
10	2	int16	0	INPUT_SNMP	Analog in NetFlow v9 IngressInterface	Used
14	2	int16	0	OUTPUT_SNMP	Analog in NetFlow v9 EgressInterface	Used
60	1	int8	0	IP_VERSION	Analog in NetFlow v9 IP_PROTOCOL_VERSION	Used
2000	8	int64	43823	SESSION_ID		Used
2001	-	string	43823	HTTP_HOST or CN_HTTPS		Used
2002	2	int16	43823	DPI_PROTOCOL		Used
2003	-	string	43823	LOGIN	Analog in Radius User-Name	Used
225	4	int32	0	POST_NAT_SOURCE_IPV4_ADDRESS		Used
227	2	int16	0	POST_NAPT_SOURCE_TRANSPORT_PORT		Used
2010	2	int16	43823	FRGMT_DELTA_PACKS	Delta of fragmented packets.	Used
2011	2	int16	43823	REPEAT_DELTA_PACK	Delta of retransmissions.	Used
2012	4	int32	43823	PACKET_DELIVER_TIME	Delay (RTT/2) in ms (RTT=round-trip time).	Used

Export Template for IPv4						
№	**Bytes**	**Data Type**	**IANA**	**Description**	**Notes**	**Used in QoEStor**
2016	2	int16	43823	BRIDGE_CHANNEL_NUM	Channel number (vchannel) or bridge. If vchannels are configured in DPI, the channel number will be transmitted, otherwise the bridge number.	Used
6	2	int16	0	TCP_FLAGS	TCP control bits	Used
58	2	int16	0	SRC_VLAN	VLAN ID	Used
59	2	int16	0	DST_VLAN	Post VLAN ID	Used
56	6	mac_address	0	SRC_MAC	Source MAC address	Used
57	6	mac_address	0	DST_MAC	Destination MAC address	Used
2017	-	raw	43823	MPLS Lables		Used
132	8	int64	0	DROPPED_BYTES	Delta count of dropped octets. *For example: data is dumped at minute T1 and T2. The delta will show the difference in the number of octets between minute T1 and T2.*	Used
133	8	int64	0	DROPPED_PACKETS	Delta count of dropped packets. *For example: data is dumped at minute T1 and T2. The delta will show the difference in the number of packets between minute T1 and T2.*	Used
2019	1	int8	43823	originalTOS	Original TOS value from IP header	Used
2021	1	int8	43823	TTL_SUBS2INET	TTL of packets in the subs2inet direction	
2022	1	int8	43823	TTL_INET2SUBS	TTL of packets towards inet2subs	
2020	2	int16	43823	RATING_GROUP	Rating group number	

Export Template in IPFIX Format (Netflow v10) for IPv6 Protocol

The template is similar to IPv4 except that the following fields are absent: ***SOURCE_IPV4_ADDRESS***, ***DESTINATION_IPV4_ADDRESSs***, ***POST_NAT_SOURCE_IPV4_ADDRESS***, ***POST_NAT_SOURCE_TRANSPORT_PORT***, – and the following are present:

Export Template for IPv6					
№	**Bytes**	**Data Type**	**IANA**	**Description**	**Notes**
27	16	int128	0	SOURCE_IPV6_ADDRESS	Analog in NetFlow v9 IPV6_SRC_ADDR
28	16	int128	0	DESTINATION_IPV6_ADDRESS	Analog in NetFlow v9 IPV6_DST_ADDR