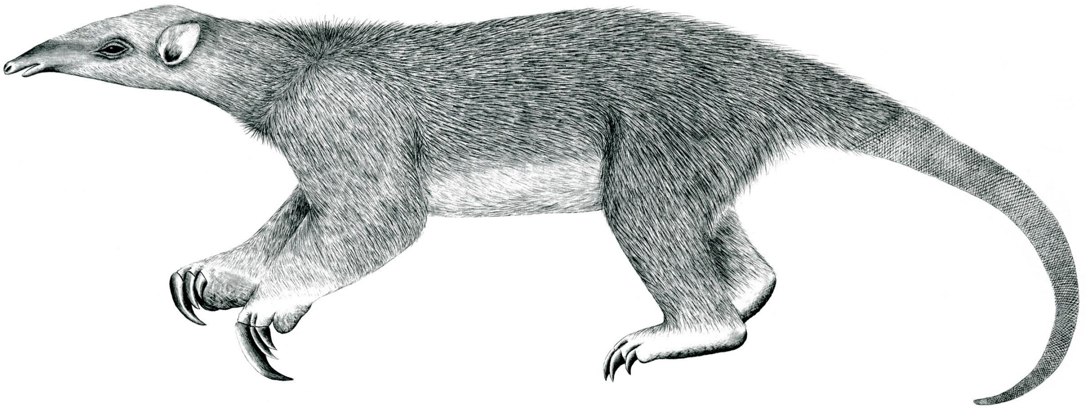
Tranalyzer2

nFrstPkts

Statistics Over the N First Packets



Tranalyzer Development Team

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1.1 Description

The nFrstPkts plugin supplies the Packet Length (PL) and Inter-Arrival Times (IAT) of the *N* first packets per flow as a column. The default value for *N* is 20. It complements the packet mode (`-s` option) with flow based view for the *N* first packets signal. The plugin supplies several configuration options of how the resulting packet length signal should be represented. Using the `fpsGplt` script files are generated readily post processable by any command line tool (AWK, Perl), Excel or Data mining suit, such as SPSS. As outlined in the configuration below, Signals can be produced with IAT, or relative/absolute time. Also the aggregation of bursts into a single pulse can be configured via `NFRST_MINIAT`. `NFRST_MINPLAVE` controls the meaning of the PL value in pulse aggregation mode. If 0 it corresponds to the BPP measure currently used in research for categorizing media content.

1.2 Configuration Flags

The following flags can be used to control the output of the plugin:

Name	Default	Description	Flags
`NFRST_IAT`	1	0: Time relative to flow start 1: Inter-arrival time 2: Absolute time	
`NFRST_BCORR`	0	0: A,B start at 0.0 1: B shift by flow start	`NFRST_MINIATS=0`
`NFRST_PKTCNT`	20	Number of packets to record	
`NFRST_HDRINFO`	0	add L3,L4 header length	
`NFRST_MINIATS`	0	0: Standard IAT sequence > 0: minimal packet IAT us/ns defining a pulse signal	
`NFRST_MINIATU`	0	0: Standard IAT sequence > 0: minimal packet IAT us/ns defining a pulse signal	
`NFRST_MINPLENFRC`	2	Minimal pulse length fraction	

`NFRST_PLAVE`	1	0: Sum PL (BPP)
		1: Average PL
			`NFRST_MINIATS>0||`
			`NFRST_MINIATU>0`

`NFRST_XMIN`	0	Min PL boundary	
`NFRST_XMAX`	`UINT16_MAX`	Max PL boundary	

For the rest of this document, `NFRST_MINIAT` is used to represent `(NFRST_MINIATS>0||NFRST_MINIATU>0).`

1.3 Flow File Output

The nFrstPkts plugin outputs the following columns:

Column	Type	Description	Flags
`nFpCnt`	U32	Number of signal samples	

`L2L3L4Pl_Iat`	R(U16_UT)	L2/L3/L4 or payload length and inter-arrival times for the N first packets	`NFRST_HDRINFO=0&&`
			`NFRST_MINIAT=0`

`L2L3L4Pl_Iat_nP`	R(U16_UT_UT)	L2/L3/L4 or payload length, inter-arrival times and pulse length for the N first packets	`NFRST_HDRINFO=0&&`
			`NFRST_MINIAT>0`

Column	Type	Description	Flags

HD3l_HD4l_L2L3L4Pl_Iat	R(U8_U8__U16_UT)	L3Hdr, L4Hdr, L2/L3/L4 or payload length and inter-arrival times for the N first packets	NFRST_HDRINFO=1&&
			NFRST_MINIAT=0

HD3l_HD4l_L2L3L4Pl_Iat_nP	R(U8_U8_U16_UT_UT)	L3Hdr, L4Hdr, L2/L3/L4 or payload length and inter-arrival times for the N first packets	NFRST_HDRINFO=1&& NFRST_MINIAT>0

1.4 Post-Processing

The fpsGplt script can be used to transform the packet signal from nFrstPkts to gnuplot or t2plot format. It produces several signal variants which can also be used for signal processing and AI applications. For more details, refer to the traffic mining tutorial at https://tranalyzer.com/tutorial/trafficmining.

```
>fpsGplt -h
Usage:
    fpsGplt [OPTION...] <FILE>

Optional arguments:

    -f               Flow index to extract, default: all flows
    -d               Flow Direction: 0, 1; default both
    -t               noTime: counts on x axis; default time on x axis
    -i               invert B Flow PL
    -s               time sorted

    -h, --help       Show this help, then exit
```