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Snoop Version 2 Packet Capture File Format

Status of this Memo

This memo provides information for the Internet community. This memo does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

Abstract

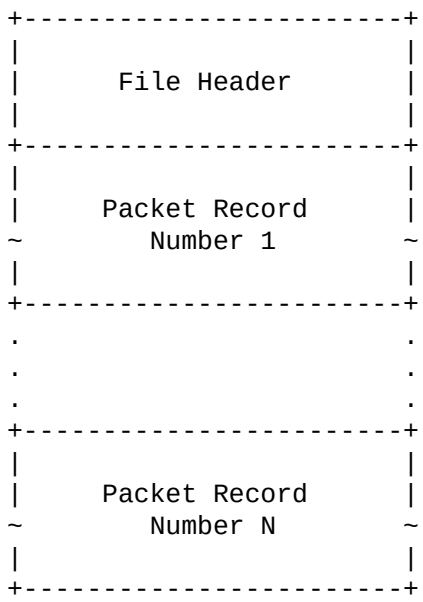
This paper describes the file format used by "snoop", a packet monitoring and capture program developed by Sun. This paper is provided so that people can write compatible programs to generate and interpret snoop packet capture files.

1. Introduction

The availability of tools to capture, display and interpret packets traversing a network has proven extremely useful in debugging networking problems. The ability to capture packets and store them for later analysis allows one to de-couple the tasks of collecting information about a network problem and analysing that information. The "snoop" program, developed by Sun, has the ability to capture packets and store them in a file, and can interpret the packets stored in capture files. This RFC describes the file format that the snoop program uses to store captured packets. This paper was written so that others may write programs to interpret the capture files generated by snoop, or create capture files that can be interpreted by snoop.

2. File Format

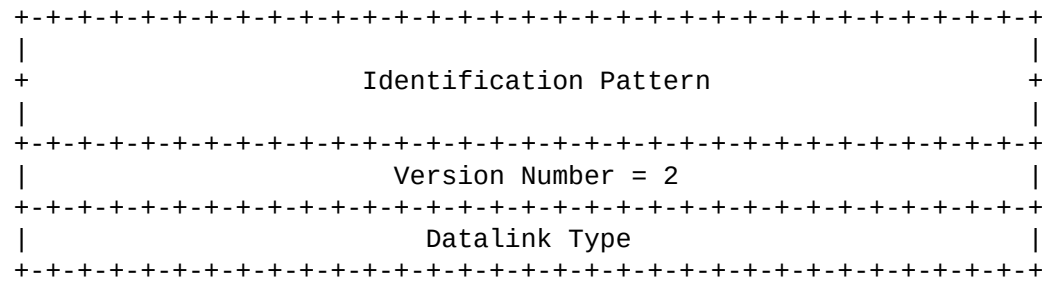
The snoop packet capture file is an array of octets structured as follows:



The File Header is a fixed-length field containing general information about the packet file and the format of the packet records it contains. One or more variable-length Packet Record fields follow the File Header field. Each Packet Record field holds the data of one captured packet.

3. File Header

The structure of the File Header is as follows:



Identification Pattern:

A 64-bit (8 octet) pattern used to identify the file as a snoop packet capture file. The Identification Pattern consists of the 8 hexadecimal octets:

73 6E 6F 6F 70 00 00 00

This is the ASCII string "snoop" followed by three null octets.

Version Number:

A 32-bit (4 octet) unsigned integer value representing the version of the packet capture file being used. This document describes version number 2. (Version number 1 was used in early implementations and is now obsolete.)

Datalink Type:

A 32-bit (4 octet) field identifying the type of datalink header used in the packet records that follow. The datalink type codes are listed in the table below:

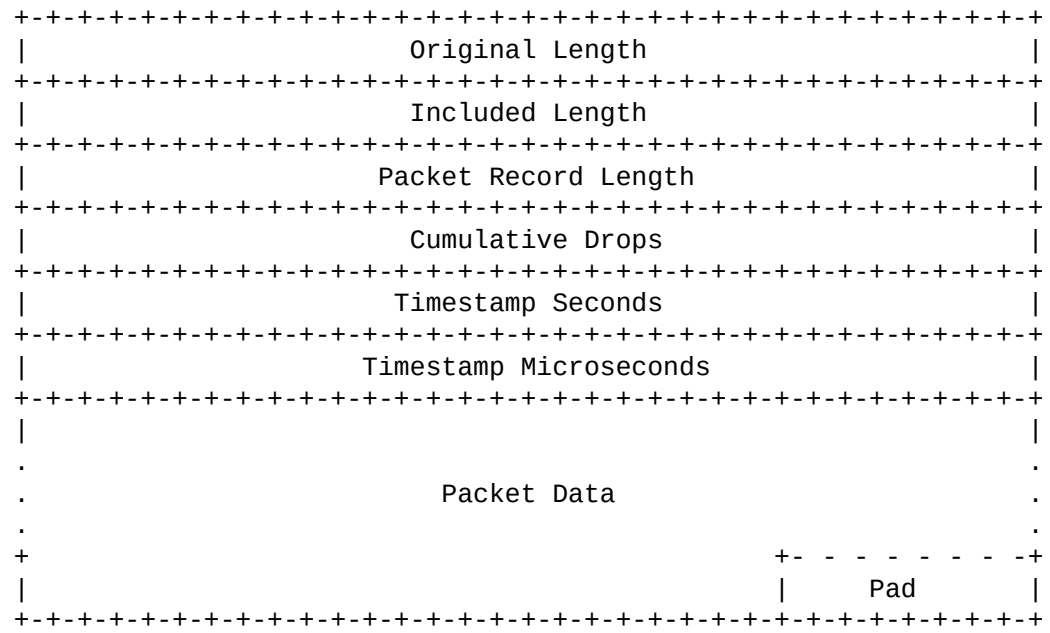
Datalink Type	Code
IEEE 802.3	0
IEEE 802.4 Token Bus	1
IEEE 802.5 Token Ring	2
IEEE 802.6 Metro Net	3
Ethernet	4
HDLC	5
Character Synchronous	6
IBM Channel-to-Channel	7
FDDI	8
Other	9
Unassigned	10 - 4294967295

4. Packet Record Format

Each packet record holds a partial or complete copy of one packet as well as some descriptive information about that packet. The packet may be truncated in order to limit the amount of data to be stored in the packet file. In addition, the packet record may be padded in order for it to align on a convenient machine-dependent boundary. Each packet record holds 24 octets of descriptive information about the packet, followed by the packet data, which is variable-length, and an optional pad field. The descriptive information is structured

as six 32-bit (4-octet) integer values.

The structure of the packet record is as follows:



Original Length

32-bit unsigned integer representing the length in octets of the captured packet as received via a network.

Included Length

32-bit unsigned integer representing the length of the Packet Data field. This is the number of octets of the captured packet that are included in this packet record. If the received packet was truncated, the Included Length field will be less than the Original Length field.

Packet Record Length

32-bit unsigned integer representing the total length of this packet record in octets. This includes the 24 octets of descriptive information, the length of the Packet Data field, and the length of the Pad field.

Cumulative Drops

32-bit unsigned integer representing the number of packets that were lost by the system that created the packet file between the first packet record in the file and this one. Packets may be lost because of insufficient resources in the capturing system, or for other reasons. Note: some implementations lack the ability to count dropped packets. Those implementations may set the cumulative drops value to zero.

Timestamp Seconds

32-bit unsigned integer representing the time, in seconds since January 1, 1970, when the packet arrived.

Timestamp Microseconds

32-bit unsigned integer representing microsecond resolution of packet arrival time.

Packet Data

Variable-length field holding the packet that was captured, beginning with its datalink header. The Datalink Type field of the file header can be used to determine how to decode the datalink header. The length of the Packet Data field is given in the Included Length field.

Pad

Variable-length field holding zero or more octets that pads the packet record out to a convenient boundary.

5. Data Format

All integer values are stored in "big-endian" order, with the high-order bits first.

6. Security Considerations

Security issues are not discussed in this memo.

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