

Understanding the Prepended Header During a Packet Mirroring Session

During a packet mirroring session, the router prepends a special UDP/IP header to each mirrored packet that is sent to the analyzer interface. This prepended header is created by the policy-mirroring action, and is used for demultiplexing at the analyzer to sort through the multiple mirrored streams that arrive from different sources.

All mirrored L2TP session packets are prepended with a UDP/IP header. However, for IP traffic mirroring, the prepend header is optional; the header is added if the mirroring-related VSAs (VSAs 26-59 and 26-61) are both included in the RADIUS message. For CLI-based mirroring, the **analyzer-udp-port** keyword of the **mirror analyzer-ip-address** command creates the same information contained in the two VSAs. If you do not include the VSAs or the **analyzer-udp-port** keyword, an IP mirroring action is indicated, and the prepend header is not used.



NOTE: For IP mirroring, you must include both VSA 26-59 and VSA 26-61, or you must omit both of these VSAs. If you use only one of these VSAs, the configuration fails.

Figure 1 on page 1 shows the structure of the prepended header. The values in parentheses indicate the fixed value for individual fields. For fields that do not have a fixed value listed, the value is dynamically created for each mirrored packet. Table 1 on page 2 lists the fields in the prepended header and indicates the values and field length.

Figure 1: Prepended Header

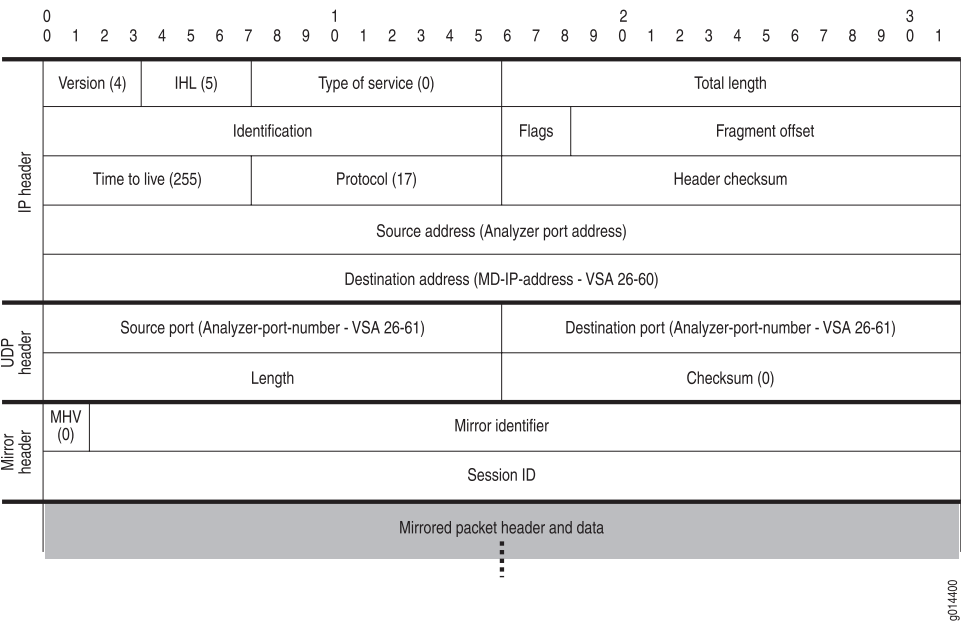


Table 1: Prepend Header Field Descriptions

Field	Value	Length (Bits)
IP Header		
Version	4	4
IHL	5	4
Type of Service	0	8
Total Length	Dynamically computed	16
Identification	Dynamically computed	16
Flags	Dynamically computed	3
Fragment Offset	Dynamically computed	13
Time to Live	255	8
Protocol	17	8
Header Checksum	Dynamically computed	16
Source Address	Analyzer interface IP address	32
Destination Address	VSA 26-60	32
UDP Header		
Source Port	VSA 26-61	16
Destination Port	VSA 26-61	16
Length	Dynamically computed	16
Checksum	0	16
Mirror Header		
MHV (mirror header value)	0	2
Mirror Identifier	See “Format of the Mirror Header Attributes” on page 2 for details	30
Session-ID	See “Format of the Mirror Header Attributes” on page 2 for details	32

Format of the Mirror Header Attributes

The mirror header values are determined by the value that you configure in VSA 26-59. VSA 26-59 is declared as a hexadecimal string that can be either 8 bytes or

4 bytes long. The 8-byte format enables you to further specify the value that is used for the Session-ID field. If you use the 4-byte format, the router automatically determines the Session-ID field. The value in the 2-bit version field specifies the format that is used—0 indicates the 8-byte format, and 1 indicates the 4-byte format.

8-Byte Format

The 8-byte format of VSA 26-59 enables you to manually specify the Session-ID value in addition to the Mirror Identifier value. To use the 8-byte format, you configure the first two most significant bits of the first word of the VSA to a value of 0, which indicates two words in the VSA. The remaining 30 bits of the first word form the Mirror Identifier value, and the second word is the Session-ID field. You cannot change the order of these two words.

For example, a value of 00000300000000090 in VSA 26-59 configures the following fields in the mirror header, as shown in Figure 2 on page 3:

- MHV = 0
- Mirror Identifier = 0x300
- Session-ID = 0x90

Figure 2: 8-Byte Format of VSA 26-59



4-Byte Format

To use the 4-byte format of VSA 26-59, you configure the first two most significant bits of the VSA to a value of 1, which indicates a single word in the VSA. The remaining 30 bits of the word form the Mirror Identifier value. The router then creates the Session-ID value based on the least significant 32 bits of the Acct-Session-ID (RADIUS attribute 44).

For example, a value of 40000010 for VSA 26-59 configures the following fields in the mirror header, as shown in Figure 3 on page 3:

- MHV = 1
- Mirror Identifier = 0x10

Figure 3: 4-Byte Format of VSA 26-59

