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## Binary Traffic Selectors for FB draft-ietf-mext-binary-ts-00.txt

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## Abstract

This document defines binary format for IPv4 and IPv6 traffic selectors to be used in conjunction with flow bindings for Mobile IPv6.

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## 1. Requirements notation

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The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\] \(Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," March 1997.\)](#).

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## 2. Introduction

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This document defines binary formats for IPv4 and IPv6 Traffic Selector sub-options as defined in [\[I-D.ietf-mext-flow-binding\] \(Soliman, H., Montavont, N., and K. Kuladinithi, "Flow Bindings in Mobile IPv6 and NEMO Basic Support," July 2009.\)](#).

The binary traffic selector sub-options defined here, allow efficient identification of flow(s) based on well known fields in IPv4, IPv6, and transport layer headers.

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### 3. Traffic Selector Sub-Options

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[I-D.ietf-mext-flow-binding] (Soliman, H., Montavont, N., and K. Kuladinithi, "Flow Bindings in Mobile IPv6 and NEMO Basic Support," July 2009.) defines the format for the traffic selector sub-option. The following values of the sub-option Type field, are reserved in this specification for binary traffic selectors

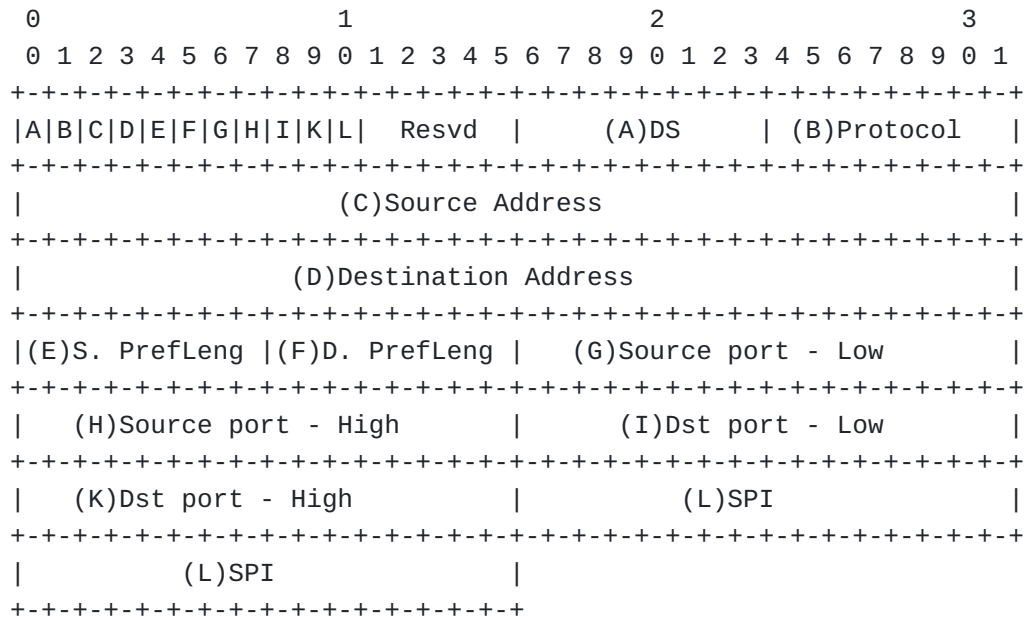
TBD IPv4 binary traffic selector

TBD IPv6 binary traffic selector

#### 3.1. IPv4 binary traffic selector

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If the Type field of the traffic selector sub-option indicates "IPv4 binary traffic selector", then the traffic selector is formatted as follows:



**Figure 1: IPv4 binary traffic selector**

Flags (A-L)

Each flag indicates whether the corresponding field is present in the message

#### (A)DS - Differential Services

The Differential Services (DS) field in the data packet as seen by the home agent. Note that this is called Type of Service field in [\[RFC0791\] \(Postel, J., "Internet Protocol," September 1981.\)](#). [\[RFC3260\] \(Grossman, D., "New Terminology and Clarifications for Diffserv," April 2002.\)](#) then clarified that the field has been redefined as 6 bits DS field and 2 bits reserved, later claimed by Explicit Congestion Notification (ECN) [\[RFC3168\] \(Ramakrishnan, K., Floyd, S., and D. Black, "The Addition of Explicit Congestion Notification \(ECN\) to IP," September 2001.\)](#). For the purpose of this specification the DS field is 8bit long, where the 6 most significant bits indicating the DS field to be matched and the 2 least significant bits MUST be set to 0 by the sender and ignored by the receiver.

#### (B)Protocol

An 8-bit unsigned integer representing the value of the transport protocol number associated with the port numbers in data packets.

#### (C)Source Address

This field identifies the source address of data packets as seen by the home agent that is, the 32-bit IPv4 address of the correspondent node.

#### (D)Destination Address

This field identifies the destination address of data packets as seen by the home agent. When included this field must be one of the registered home addresses of the mobile node. It is a 32-bit IPv4 address.

#### (E)Source Prefix Length

This field includes the prefix length for the source address. This field can only be included if the Source Address field is included. When this field is included the receiver will match all of the addresses in the subnet identified by this field.

#### (F)Destination Prefix Length

This field includes the prefix length for the destination address. If the Destination Address field is included then it refers to that field. When this field is included the receiver will match all of the addresses in the subnet identified by this field.

(G)Source Port - Low

This field identifies the lowest source port number within a range of port numbers that will be used in data packets, as seen by the home agent.

(H)Source Port - High

This field identifies the highest source port number within a range of port numbers that will be used in data packets, as seen by the home agent. This field MUST NOT be included if the Source Port - Low field is not included. If a single port is indicated then this field MUST NOT be included. When it is included it MUST be set to the value larger than that of Source Port - Low field.

(I)Destination Port - Low

This field identifies the lowest destination port number within a range of port numbers that will be used in data packets as seen by the home agent.

(K)Destination Port - High

This field identifies the highest destination port number within a range of port numbers that will be used in data packets, as seen by the home agent. This field MUST NOT be included if the Destination Port - Low field is not included. If a single port is indicated then this field MUST NOT be included. When it is included it MUST be set to the value larger than that of Destination Port - Low field.

(L)SPI - Security Parameter Index

The SPI field in the data packet as seen by the home agent.

Reserved

Reserved for future use. These bits MUST be set to zero by the sender and ignored by the receiver.

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### 3.2. IPv6 binary traffic selector

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If the Type field of the traffic selector sub-option indicates "IPv6 binary traffic selector", then the traffic selector is formatted as follows:

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clarified that the field has been redefined as 6 bits DS field and 2 bits reserved, later claimed by Explicit Congestion Notification (ECN) in [\[RFC3168\] \(Ramakrishnan, K., Floyd, S., and D. Black, "The Addition of Explicit Congestion Notification \(ECN\) to IP," September 2001.\)](#). For the purpose of this specification the DS field is 8bit long, were the 6 most significant bits indicating the DS field to be matched and the 2 list significant bits MUST be set to 0 by the sender and ignored by the receiver.

(B)Protocol

An 8-bit unsigned integer representing value of the transport protocol number associated with the port numbers in data packets.

(C)Source Address

This field identifies the source address of data packets as seen by the home agent. That is, the address of the correspondent node and it is a 128-bit IPv6 address.

(D)Destination Address

This field identifies the destination address of the data packet as seen by the home agent. When included this field must be set to either one of the registered home addresses of the mobile node or to an address that falls under one of the mobile's home network prefixes. The value of this field is 128-bit IPv6 address.

(E)Source Prefix Length

This field includes the prefix for the source address. This field MUST NOT be included if the Source Address field is not included. When this field is included the receiver will match all of the addresses in the subnet identified by this field.

(F)Destination Prefix Length

This field includes the prefix for the destination address. This field MUST NOT be included if the Source Address field is not included. When this field is included the receiver will match all of the addresses in the subnet identified by this field.

(G)Source Port - Low

This field identifies the lowest source port number within a range of port numbers that will be used in data packets, as seen by the home agent.

(H)Source Port - High

This field identifies the highest source port number within a range of port numbers that will be used in data packets, as seen by the home agent. This field MUST NOT be included if the Source Port - Low field is not included. If a single port is indicated then this field MUST NOT be included. When it is included it MUST be set to the value larger than that of Source Port - Low field.

(I)Destination Port - Low

This field identifies the lowest destination port number within a range of port numbers that will be used in data packets as seen by the home agent.

(K)Destination Port - High

This field identifies the highest destination port number within a range of port numbers that will be used in data packets, as seen by the home agent. This field MUST NOT be included if the Destination Port - Low field is not included. If a single port is indicated then this field MUST NOT be included. When it is included it MUST be set to the value larger than that of Destination Port - Low field.

(L)SPI - Security Parameter Index

The SPI field in the data packet as seen by the home agent.

(M)Flow Label

The Flow Label field in the data packet as seen by the home agent.

Reserved

Reserved for future use.

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#### 4. Flow Identification Status codes

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#### 5. Security Considerations

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This draft defines the format of traffic selector sub-options defined in the flow bindings [\[I-D.ietf-mext-flow-binding\] \(Soliman, H., Montavont, N., and K. Kuladinithi, "Flow Bindings in Mobile IPv6 and NEMO Basic Support," July 2009.\)](#). The authors have not identified any



security concerns pertaining to this draft beyond what is already identified in [\[I-D.ietf-mext-flow-binding\]](#) (Soliman, H., Montavont, N., and K. Kuladinithi, "Flow Bindings in Mobile IPv6 and NEMO Basic Support," July 2009.).

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## 6. IANA Considerations

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## 7. Acknowledgements

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## 8. References

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### 8.1. Normative References

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[I-D.ietf-mext-flow-binding]	Soliman, H., Montavont, N., and K. Kuladinithi, " <a href="#">Flow Bindings in Mobile IPv6 and NEMO Basic Support</a> ," draft-ietf-mext-flow-binding-03 (work in progress), July 2009 ( <a href="#">TXT</a> ).
[RFC0791]	Postel, J., " <a href="#">Internet Protocol</a> ," STD 5, RFC 791, September 1981 ( <a href="#">TXT</a> ).
[RFC2119]	<a href="#">Bradner, S.</a> , " <a href="#">Key words for use in RFCs to Indicate Requirement Levels</a> ," BCP 14, RFC 2119, March 1997 ( <a href="#">TXT</a> , <a href="#">HTML</a> , <a href="#">XML</a> ).
[RFC2460]	<a href="#">Deering, S.</a> and <a href="#">R. Hinden</a> , " <a href="#">Internet Protocol, Version 6 (IPv6) Specification</a> ," RFC 2460, December 1998 ( <a href="#">TXT</a> , <a href="#">HTML</a> , <a href="#">XML</a> ).
[RFC3168]	Ramakrishnan, K., Floyd, S., and D. Black, " <a href="#">The Addition of Explicit Congestion Notification (ECN) to IP</a> ," RFC 3168, September 2001 ( <a href="#">TXT</a> ).

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### 8.2. Informative References

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[RFC3260]	
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Grossman, D., "[New Terminology and Clarifications for Diffserv](#)," RFC 3260, April 2002 ([TXT](#)).

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