



Measurement and Architecture for a Middleboxed Internet

User Guide for mmb 0.1

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1 mmb

mmb (modular middlebox) is a vpp plugin that performs various middlebox behaviors.

2 mmb CLI guide

2.1 add/remove policies

```
mmb <action> <match> [<match> ...] <target> [<target> ...]
```

- **<action>**
SYNTAX : add|del
 This parameter determines the action applied on the policy list.
 Allowed values:
 - add : add a policy to mmb
 - del : remove a policy from mmb
- **<match>**
SYNTAX : <field> [[<cond>] <value>]
 This parameter is a constraint that determines the packets on which the policy will operate.
- **<target>**
SYNTAX : mod [...] | strip [...] | drop
 This parameter determines the action to apply on matched packets.
 - mod [<field>] [<value>] : modify a field on a packet
 - strip [<field>] : strip a field from a packet (applicable only to options)
 - drop : drop a packet

2.1.1 <cond>

The condition applied on a <value> from a <field> to form a constraint.

Available conditions: ==, !=, <=, >=, <, >.

2.1.2 <field>

Available fields:

- protocols¹: ip, tcp, udp, icmp
- IPv4 fields: ip-ver, ip-ihl, ip-dscp, ip-ecn, ip-non-ect², ip-ect0², ip-ect1², ip-ce², ip-len, ip-id, ip-flags, ip-res, ip-df, ip-mf, ip-frag-offset, ip-ttl, ip-proto, ip-checksum, ip-saddr³, ip-daddr³, (ip-opt).
- ICMPv4 fields: icmp-type, icmp-code, icmp-checksum, icmp-payload.

¹applicable only to <match>

²not followed by <value>

³ the following <value> can include a subnet mask, the == condition will become subnet matching

- UDP fields: `udp-sport`, `udp-dport`, `udp-len`, `udp-checksum`, `udp-payload`.
- TCP fields: `tcp-sport`, `tcp-dport`, `tcp-seq-num`, `tcp-ack-num`, `tcp-offset`, `tcp-res`, `tcp-cwr`, `tcp-ece`, `tcp-urg`, `tcp-ack`, `tcp-push`, `tcp-res`, `tcp-syn`, `tcp-fin`, `tcp-flags`, `tcp-win`, `tcp-checksum`, `tcp-urg-ptr`, `tcp-payload`, `tcp-opt-mss`, `tcp-opt-wscale`, `tcp-opt-sackp`, `tcp-opt-sack`, `tcp-opt-timestamp`, `tcp-opt-fast-open`, `tcp-opt-fast-open`.
- custom TCP options: `tcp-opt <kind>`

2.1.3 <value>

The value of a field in decimal or in hexadecimal if preceeded by `0x`.

2.2 stateful polices