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|----- MODULE Firewall -----|
EXTENDS Naturals
CONSTANT AcceptList,
          RejectList,
          Protocols

VARIABLE forwarded packets forwarded on through the firewall
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Address  $\triangleq$  [ip : Nat, port : Nat] address has port and ip

A Packet has a source and destination address, and a protocol
Packet  $\triangleq$  [source : Address,
              dest : Address,
              protocol : Protocols]

Rule  $\triangleq$  [Packet  $\rightarrow$  BOOLEAN ] A Rule maps from packets to boolean values
|-----|

Init  $\triangleq$ 
   $\wedge$  forwarded = {}

Reject(p)  $\triangleq$ 
   $\exists$  rule  $\in$  AcceptList :
     $\wedge$  rule[p]
     $\wedge$  forwarded' = forwarded  $\cup$  {p}

Accept(p)  $\triangleq$ 
   $\exists$  rule  $\in$  RejectList :
     $\wedge$  rule[p]
     $\wedge$  UNCHANGED forwarded

Next  $\triangleq$ 
   $\exists$  packet  $\in$  Packet :
     $\vee$  Reject(packet)
     $\vee$  Accept(packet)
|-----|

\ * Modification History
\ * Last modified Tue Feb 16 12:22:12 GMT 2021 by alunm
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