



# Shared Use of TCP Experimental Options

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**draft-touch-tcpm-experimental-  
options-00**  
**IETF 82**

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# Summary

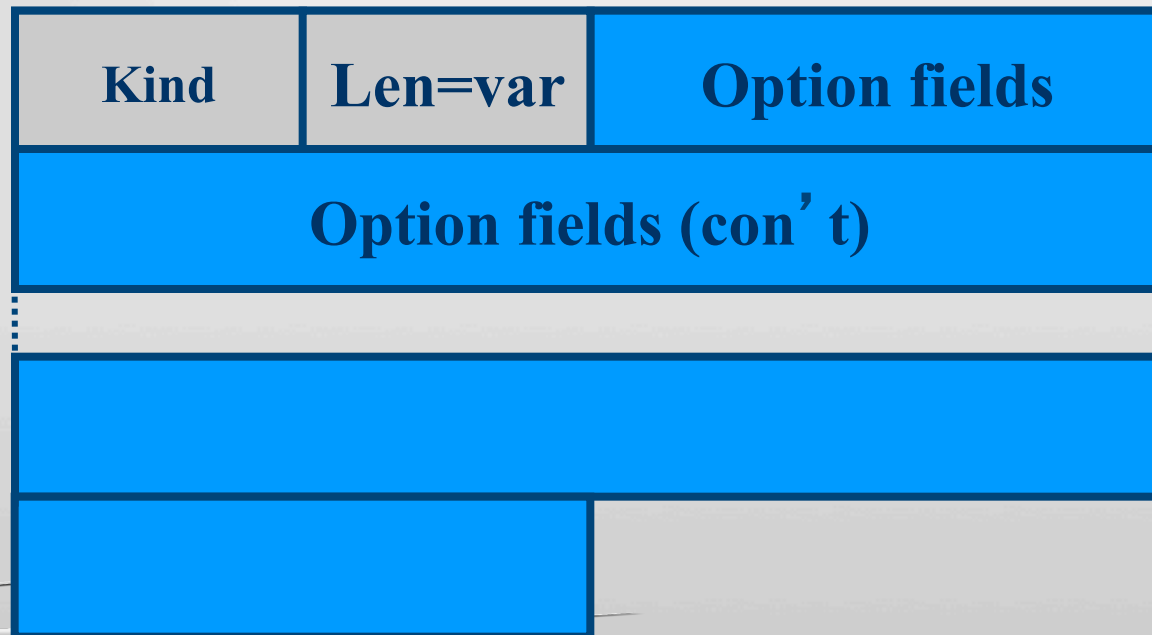
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- Current experimental options overloaded
  - Multiple concurrent uses cannot be distinguished
- Add nonce to EO format
  - Nonce used to differentiate concurrent uses
- Goal
  - Informational (or BCP?)

# TCP Exp. Options

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- Kind = 253 or 254 [RFC4727]



# TCP Experiments

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- Precursor to TCP AO (253, 254)
- TCP Cookie Transactions
  - As deployed (31, 32)
  - As spec' d (253)
- Tcpcrypt (76, 77, 78)
- Other commercial products (33, 76, 77, 78)

# Approaches to increased experiments

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- Relax IANA assignment hurdles
  - The pool is very small
  - The pool already has collisions
- Increase number of EOs from 2 to 18
  - Per draft-eddy-tcpm-addl-exp-options
  - Doesn't address existing collisions
  - Requires IANA oversight of new 16 values

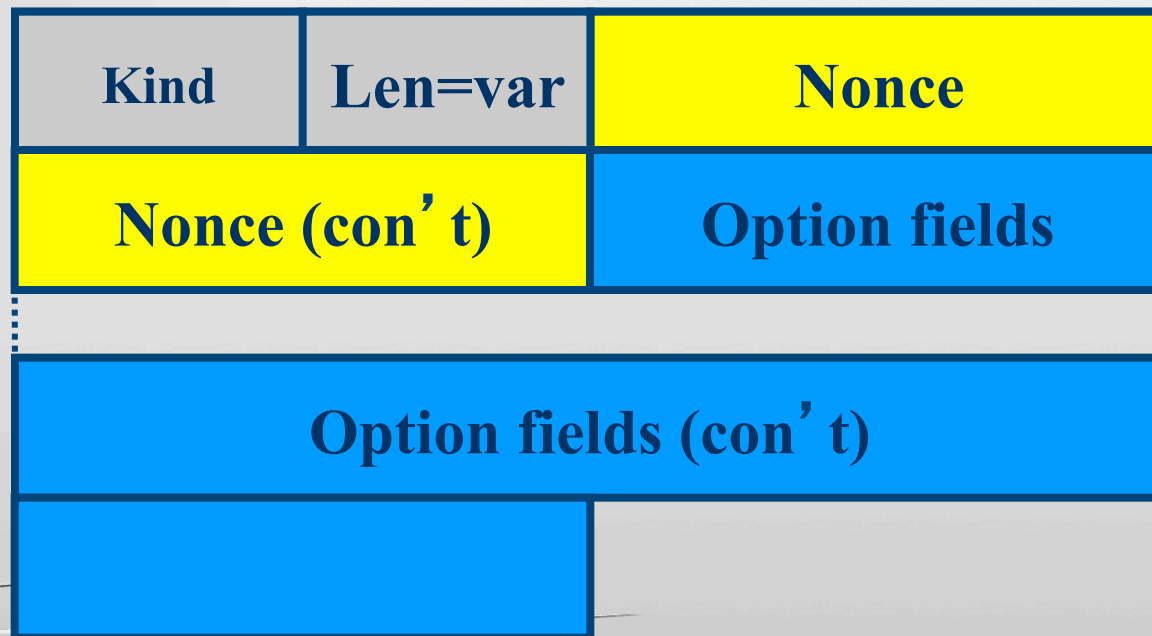
# Problems with existing approaches

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- Usage collision
  - Useful to avoid future collisions
  - Useful to mitigate existing collisions
- IANA oversight
  - Useful to avoid need for oversight
- Small codepoint space
  - 16 now; another 16, then another...

# Proposed Shared Use of TCP Exp. Options

- Kind = 253 or 254 [RFC4727]
- Nonce = arbitrary per-experiment value
  - Typ. 32-bits, e.g., Unix *time*



# Properties of this proposed solution

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- Helps avoid collisions
  - Unlikely nonce will overlay with misbehaving experiment option values
- Self-managed
  - Self-assigned
  - Can use any method, e.g., Unix *time*
- Large codepoint space
  - Consumes space, but experiments should leave room for future option use anyway



# Issues

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- Processing KIND=253/254
  - Check nonce FIRST
  - Process each nonce as a separate option kind
  - Ignore if nonce not known
  - Len = total option (including nonce)
- Nonce length
  - SHOULD be 32 bits
    - Alignment unaffected if Nonce is removed if permanent
  - MAY be 16 bits if desired
    - high half of Unix *time* is enough if experiments aren't created more than once every 20 hours

# Possible extensions

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- Nonce + checksum
  - Detects/avoids legacy collisions
  - Larger space, higher computation cost
- Use in other exp. codepoints
  - Notably TCP/UDP ports