



# Updated Specification of the IPv4 ID

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**IETF 79**

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# Quick review

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- ID *already* isn't unique within 2MSL
  - Recognize existing practice
- Limit IPv4 ID use to fragmentation
  - Update 791, 1122, 2003 accordingly
  - Remind users of the impact of using fragmentation

# Changes 00 -> 01

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- Lots of rewriting for clarity
  - 40% of lines changed
- Removed SHOULD send only atomic datagrams (DF=1, not source fragmented)
  - Now conditional (and consistent with DNS use):
    - If atomic, can reuse IP ID (i.e., *not* rate limited)
    - If not atomic, reminder that IP ID MUST be unique within MSL (existing requirement, i.e., rate limited)
- Added SHOULD verify integrity
  - To protect against ID reuse in fragments

# Other changes

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- Removed incremental deployment plan
  - Not beneficial
- Removed “reordering interval”
  - Proven irrelevant; overall, the limit is based on how long the receiver holds onto fragments, and there’s no control on that

# Current protocol req'ts

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- Frag only:
  - MUST NOT use ID except for frag/reassy
  - Source MAY set ID to any value if atomic
  - Transit/dest MUST ignore ID if atomic
- Safe use:
  - Non-atomic rexmits MUST NOT reuse ID
  - Overlapping fragments MUST be ignored
  - Non-atomic or protected ATOMIC ID MUST NOT change in transit
  - NATs MUST honor rules as if a source

# Current user req'ts

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- Non-atomic sources **MUST** rate limit to honor ID non-reuse (existing req'd)
- Higher-layer protocols **SHOULD** verify integrity
  - Some transits ignore DF=1, and many reuse IDs too quickly; this is just good practice
- Non-atomic sources with strong integrity checks **MAY** reuse IDs (and thus exceed rate limit)

# Reminder req'ts

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- Non-atomic IDs **MUST NOT** repeat within one MSL within src/dst/proto triple
- DF=1 **MUST NOT** be fragmented
- Transits **MUST NOT** modify DF=1 bit

(none of these are new,  
but are included in this doc  
in 2119 language)