



# FRAME FORMATS

## AN APPROACH BASED ON MINIMAL CHANGES

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### *The Emphasis*

- The emphasis was on changing the functionality as little as possible.
  - » Defer that to another paper (94/171)
  - » Lots of history behind fields
    - Don't want to break something by accident
    - look at each functionality change, one by one
  - » Focus on field order
    - How to PARSE the frame
  - » Better definition for some Elements

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## ■■■ *The First Byte*

- Version Field
  - » Reduce it to two bits
  - » Provide two reserved bits
- Type Field
  - » There are only 9 types currently defined
  - » do not need the distinction for data, management etc.
  - » 4 bit field

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## ■■■ *Second Byte*

- The Control Bits
  - » To AP, From AP ( no change)
    - History
  - » Elements Present, More (no change)
  - » Power Management Bits (no change)
  - » Contention Free
    - Not gone yet, two bits
- Retry
  - » Redundant, but....
  - » Vote to put back if CF goes.

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## ■■■ Network ID, Sequence #

- Put NID here for consistency
  - » Needed in nearly every frame type
- Sequence #
  - » MSDU-ID is a poor choice of name
  - » Only need to have a “negligible” rate of packet duplication
    - A count is easier and good enough
    - What was the HASH algorithm

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## ■■■ Elements

- Could go in any frame TYPE
  - » Needed for PHY specific needs
    - Microcells for DS PHY
  - » Backward compatibility
- Every frame is handled the same way
  - » Elements are handled consistently
  - » Always in the same place
  - » Refer to flow chart for parse
  - » Placed before any TYPE dependant fields
- Many undefined elements

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## Version Field and Elements

- How does the version field work?

- » VERSION 1 device will:

- Reject higher version frames
- Backward compatibility
  - Table driven?

- Elements

- » VERSION 1 device will:

- Ignore Elements it doesn't understand
  - It can PARSE them but ignore contents
- Added only when needed

## TYPE Dependant Fields

- Duration there etc.

- Minor change

- » Beacon timestamp, now a fixed field

## ■ ■ ■ CRC

- Is the CRC 8 really OK?
  - NO
    - PHY work suggests CRC 16 OK for very short fields
  - MAC should standardize on one CRC
    - » IEEE 32 CRC

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## ■ ■ ■ Frame Lengths

No significant change in frame lengths

Frame Type	Old	New
RTS	17	16
CTS	8	12
POLL	20	18
DATA (fragmented)	27(min)	25(min)
ACK (fragmented)	9	13

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## ■■■■ *Parsing the Frame*

- Consistent for every frame type
  - » Simple state machine or code
- Remember that the frame might be bad
  - » May need to back everything out if CRC bad
  - » Need 'temporary' storage anyway

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## ■■■■ *94/171 - Fixing the Fields*

- PHY Specific Elements
- Time Stamp in Beacon
- Removing Asynchronous Contention Free
- Fragmentation Field only when needed
- New LOAD Element
- Restore 'RETRY' bit

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