

# draft-ietf-sml-structured-email-02

IETF 121, Dublin

# Status

- Scope: Main specification for structured email → allow to describe content of email messages in a machine-readable format
- Example implementation:  
<https://github.com/audriga/roundcube-structured-email>
- Updates since IETF 120
  - Published SML parsing and sending code for Jakarta Mail
  - Published IMAP account scanner
  - Published repository for structured email examples
  - Working on further implementations (Thunderbird Desktop and Mobile/K9)

# Thunderbird Mobile

Sushi place



Hans-Joerg ... 14:08  
to me



**Sticks N Sushiy**

Kingston, London  
(Open till 10am)

[CALL](#)

[NAV](#)

[REQUEST TABLE](#)

Hi,

find the sushi place enclosed!

# jakarta-structured-email

- Library to simplify using SML with Jakarta Mail
  - Parsing SML from messages
  - Creating messages including SML (in multiple ways)
  - <https://github.com/audriga/jakarta-structured-email>
- Includes example (SML) MIME messages (EML files) of different structures
  - <https://github.com/audriga/jakarta-structured-email/blob/main/docs/example-files.md>
  - Related “send me example” tool exists
- Includes IMAP account scanner
  - Can detect legacy structured email in an account (e.g., to obtain test data)
  - <https://github.com/audriga/jakarta-structured-email/blob/main/docs/scanner.md>

# schema-org-examples

- Repository of structured data for testing purposes
- Contains (anonymized) data obtained from real-world email messages
- <https://github.com/audriga/schema-org-examples>
- You may try the IMAP account scanner (or other ways) and donate additional examples if noteworthy

# Placement of structured data in messages (I)

- “Full representation case” (4.1.1)
  - multipart/alternative approach favoured over embedding in HTML email in discussion at Vancouver
- Open questions
  - Position of “application/ld+json” part within multipart/alternative
    - “Some email clients[1] will only render the last MIME part, so we recommend placing the text/x-amp-html MIME part before the text/html MIME part.”
    - Any experience; e.g. from IMIP?
  - Any (architectural) issues for clients to process structured data otherwise, if they will not render multipart/alternative SML for themselves?
- See <https://github.com/hhappel/draft-happel-structured-email/issues/3>

# Placement of structured data in messages (II)

- “Partial representation case” (4.1.2)
  - multipart approach shapes out to be favoured over embedding structured data in HTML; similar to the multipart/alternative case
- Open questions
  - So is multipart/related the way to go?
  - Use “Content-Disposition: inline;” ?
  - Add note for legacy case (structured data in HTML)?
    - E.g., “If a MUA can extract structured data from the text/html body part of a message, this MAY be treated as the partial representation case”
- See <https://github.com/hhappel/draft-happel-structured-email/issues/3>

# Placement of structured data in messages (III)

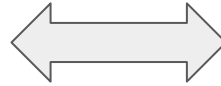
- “Non-representation case” (4.1.3)
- Open questions
  - multipart/related feels slightly wrong in this case
    - Really?
  - multipart/mixed
    - Possibility to “hide”?
- See <https://github.com/hhappel/draft-happel-structured-email/issues/3>



# Referencing structured data in text/html

and plump, tender shrimp, she pairs smoked paprika with lemon juice for a bright and earthy edge. She says it serves four but, let's be real, that's just a suggestion.

In the recipe notes for Kay Chun's [sheet-pan chopped salad with chicken](#) and a feta topping, you'll find a lively debate about whether to replace the zucchini with olives. Personally, I'd use both, but then I'm a known maximalist when it comes to [sheet-pan meals](#). Kay's



```
{
  "@context": "http://www.schema.org/",
  "@type": "Recipe",
  "@id": "https://cooking.nyt.com/
/sheet-pan-chopped-salad",
  "name": "Sheet-Pan Chopped Salad with
Chicken", (...)
}
```

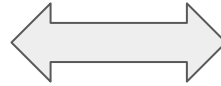
- Context: partial representation
  - MUA needs to render text/html
  - MUA might want to know about the relation of text/html and structured data (e.g. to offer contextual actions - use structured data to enhance text email experience)
- See also: <https://github.com/hhappel/draft-happel-structured-email/issues/5>

# Referencing structured data in text/html - MUA example

and plump, tender shrimp, she pairs smoked paprika with lemon juice for a bright and earthy edge. She says it serves four but, let's be real, that's just a suggestion.

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○



```
{
  "@context": "http://www.schema.org/",
  "@type": "Recipe",
  "@id": "https://cooking.nytimes.com/
  /sheet-pan-chopped-salad",
  "name": "Sheet-Pan Chopped Salad with
  Chicken", (...)
}
```



In the recipe notes for Kay Chun's [sheet-pan chopped salad with chicken](#) and a feta topping, you'll find a lively debate about

whether  
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are brie  
dressing  
ingredie

Recipe 11



### Sheet-Pan Chopped Salad With Chicken

A vibrant mix of vegetables roast alongside chicken in this recipe, transforming into a warm chopped salad. Quickly marinated chicken breast pieces stay juicy and moist during cooking, emerging with the texture of chicken that has been gently poached. Zucchini and bell peppers release flavorful juices as they cook; the resulting liquid gets transformed into a tangy vinaigrette that comes together in the pan. Leftovers are great

[View Recipe](#)

# Referencing structured data in text/html - Options (I)

- Backward reference (Structured data → text/html)

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```
{
  "@context": "http://www.schema.org/",
  "@type": "Recipe",
  "@id": "https://cooking.nyt.com/
/sheet-pan-chopped-salad",
  "name": "Sheet-Pan Chopped Salad wit
Chicken",
  "htmlref": "#element123",
  (...)
}
```



- Pro: everything contained in just structured data
- Con: Complicates authoring; might pollute structured data

# Referencing structured data in text/html - Options (II)

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```
{
  "@context": "http://www.schema.org",
  "@type": "Recipe",
  "@id": "https://cooking.nytimes.com/recipes/1017817/sheet-pan-chopped-salad",
  "name": "Sheet-Pan Chopped Salad with Chicken", (... )
}
```

- Forward reference (text/html → Structured data)
  - Embedding structured data (JSON-LD Microdata serialization)
  - Referencing structured data
    - HTML id → need to be unique
    - HTML “data-id” property?
      - `<a data-id="https://cooking.nytimes.com/recipes/1017817/sheet-pan-chopped-salad" href="...">sheet-pan chopped salad with chicken</a>`
      - HTML sanitization issue in MUAs?

# Referencing structured data in text/html - Display type (I)

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**Sheet-Pan Chopped Salad With Chicken**  
**By Kay Chun**  
45 minutes  
Makes 4 servings

James Ransom for The New York Times. Food Stylist: Maggie Ruggiero.

- Continuum of displaying entities in HTML
  - Mere reference (left side)
  - Detailed presentation (right side)
- Knowledge of display type can help clients to know how to add context/value with structured data

# Referencing structured data in text/html - Display type (II)

- Problem: adding context in a generic way (here: popup) may turn out ugly when ignoring the HTML display type

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Recipe 📖



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[View Recipe](#)



James R

## Sheet-Pan Chopped Salad With Chicken

By Kay Chun

Recipe 📖



### Sheet-Pan Chopped Salad With Chicken

A vibrant mix of vegetables roast alongside chicken in this recipe, transforming into a warm chopped salad. Quickly marinated chicken breast pieces stay juicy and moist during cooking, emerging with the texture of chicken that has been gently poached. Zucchini and bell peppers release flavorful juices as they cook; the resulting liquid gets transformed into a tangy vinaigrette that comes together in the pan. Leftovers are great

[View Recipe](#)

- Example: allow to specify hint on display type in HTML
  - `<a data-id="https://cooking..." data-presentation="reference" href="...">`
  - `<a data-id="https://cooking..." data-presentation="detailed" href="...">`

# Structured data across email messages: need more eyeballs

- Forwarding
- Replies
- Error replies
- Updates

# Next steps

- Progress decisions on core representation issues
  - Conclude on core placement aspects
  - Use example data to check (current) client behaviour
  - Clarify further aspects in the document
- Further aspects
  - Provenance?
- Further co-authors?



Backup

# Structured data across email messages: Forwarding

- Treatment of structured data on (manual) forwarding
  - Keeping might be desired in many use cases (e.g., “share by email”)
  - Stripping might be desired in certain use cases
    - E.g. privacy issues in “on-representation” cases, where structured data is not obvious from HTML content (e.g., preemptive vacation notice)
  - No way to change behaviour of legacy email clients
- Any relation to automatic forwarding?
- See also <https://github.com/hhappel/draft-happel-structured-email/issues/6>

# Structured data across email messages: Replies

- Structured email sent in response to a structured email
  - Based on “potentialAction”
- Capturing reply status
  - “\Answered” flag defined for conventional replies (RFC 9051)
  - Proposal: Adding \$AnsweredStructured
- See also: <https://github.com/hhappel/draft-happel-structured-email/issues/7>

# Structured data across email messages: Error replies

- An original sender may not assume that a structured email has been processed by a recipient
- But: if a recipient answers with a structured email response, she may want to be informed if this response is invalid for some reason (in order to **avoid the false assumption of a proper reply**)
- Options
  - Define error based on DSN/MDN
  - Define structured data error type
- See also <https://github.com/hhappel/draft-happel-structured-email/issues/8>

# Structured data across email messages: Updates

- Human readable messages can be recalled/corrected by a follow-up human readable message
- How to recall/update structured information in a machine-readable way?
- Options
  - Use SUPERSEDES header (RFC4021)?
- Potential side issues (answered? forwarded? ...)
- See also <https://github.com/hhappel/draft-happel-structured-email/issues/9>