



The Standards Based Integration Company

Systems Integration Specialists Company, Inc.

Messaging For Distribution: Overview and Philosophy

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Introduction

- Message Organization
 - Message Envelopes
 - Message Payload
 - Verbs
 - Nouns
- Message Enumerations and Message Examples



Message Organization

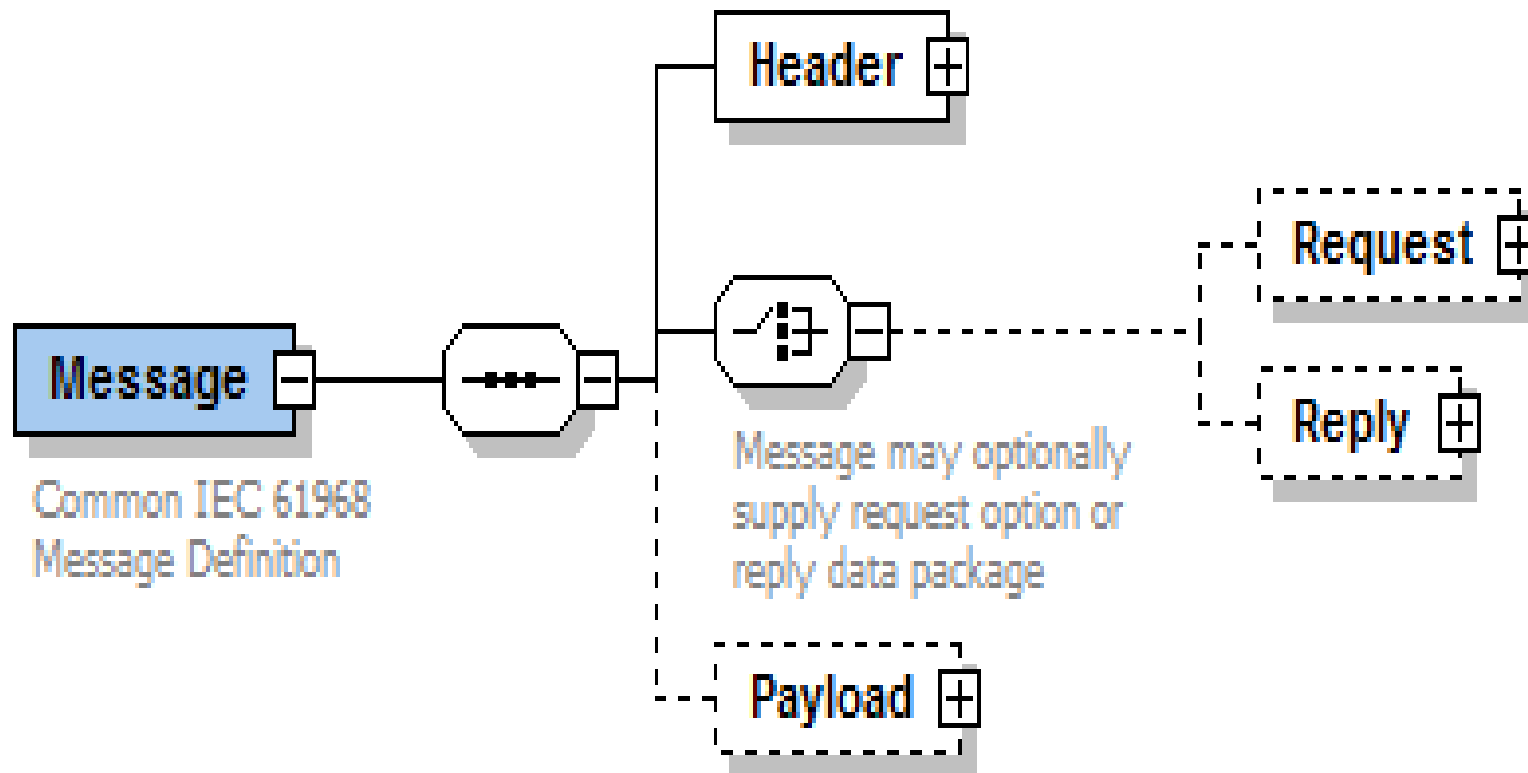
- In all cases messages are defined in XML Schemas:
 - Are used to define the structure of the message envelopes
 - Are used to define the structure of the message payloads



Message Organization – Message Envelopes

- Message envelopes are used to convey 61968 messages
- Key contents are: verb, noun, payload
- Verb identifies if the message is a query request, transaction or an event that may be the consequence of a transaction
- Noun identifies the contents of the payload
- Message Structure:
 - **Header:** Required for all messages (except for fault response messages), using a common structure for all service interfaces
 - **Request:** optional, defining parameters needed to qualify request messages
 - **Reply:** Required only for response messages to indicate success, failure and error details
 - **Payload:** Sometimes required, used to convey message information as a consequence of the 'verb' and 'noun' in the message Header

Message Organization – Message Envelope Structure





Message Organization – Message Envelope Header

- **Verb:** Identifies a specific action to be taken by the message.
- **Noun:** to identify the subject of the action and/or the type of the if a payload is provided.
- **Source:** identifying the source of the message, which should be the ID of the system or organization.
- **Revision:** To indicate the revision of the message definition. This should be '1' by default.



Message Organization – Message Envelope Header - Continued

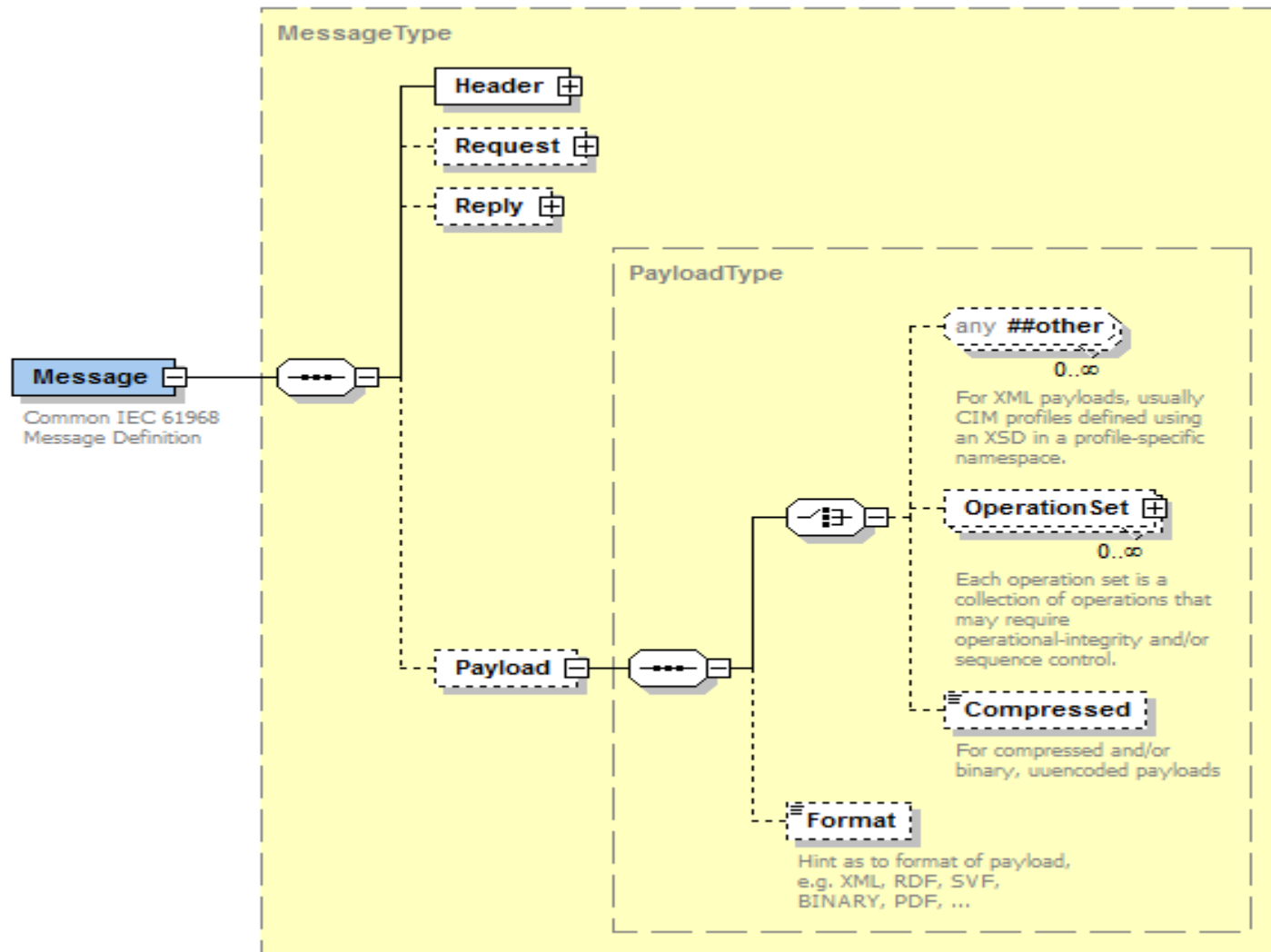
- **Created:** A timestamp to indicate when the message was created. This value and the Nonce are used to protect against replay attacks. This is defined by WS-Security.
- **User:** A complex structure that identifies the user and associated organization. Should be supplied as it may be required for some interfaces, depending upon underlying implementations.



Message Organization – Payload

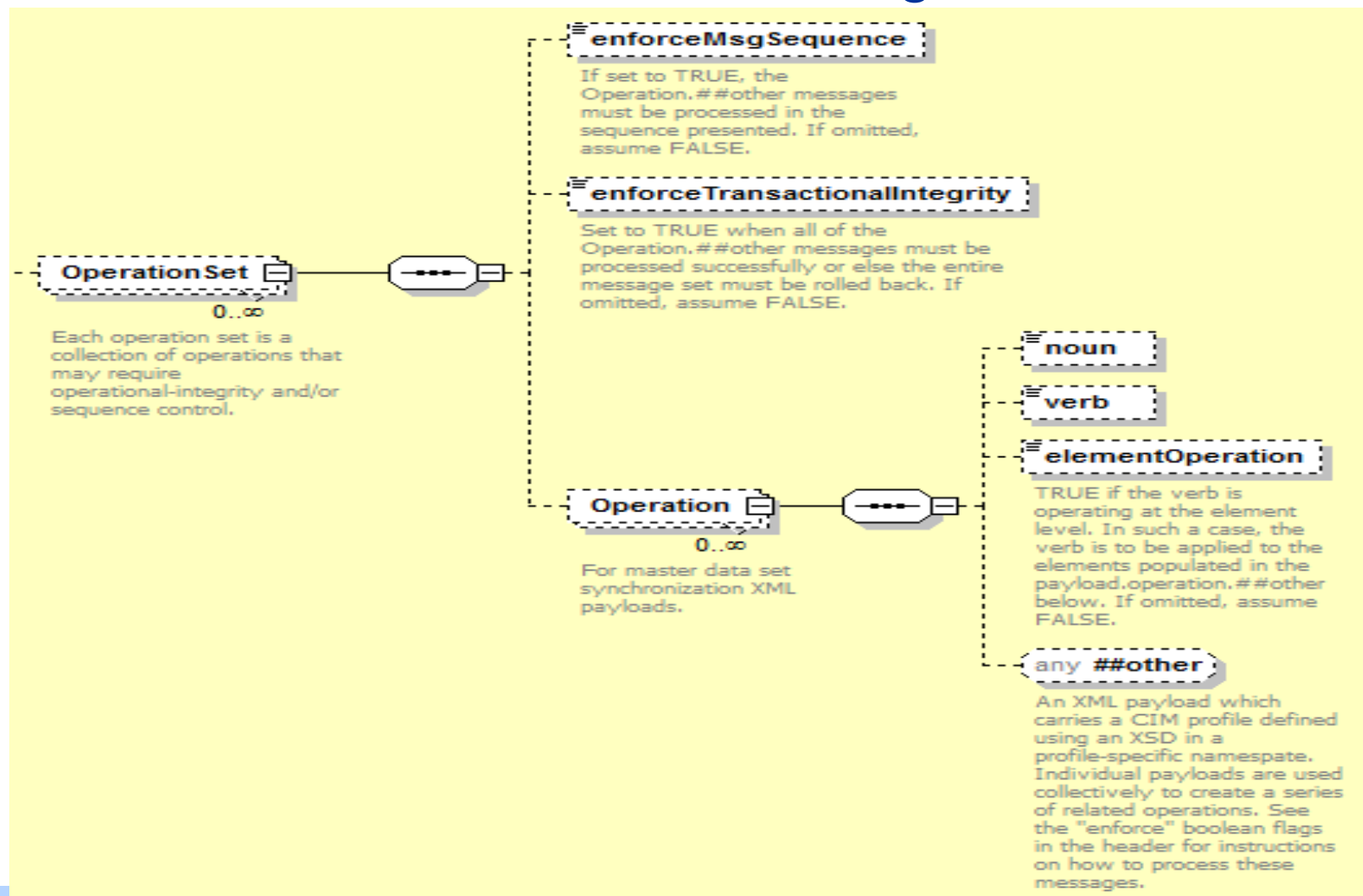
- The structure of a payload is typically defined as a Profile from a UML model
- A payload may or may not be required in a message
- A message payload is required for a Create, Change Request or in a Reply for a successful Get Request

Message Organization – Payload Contents



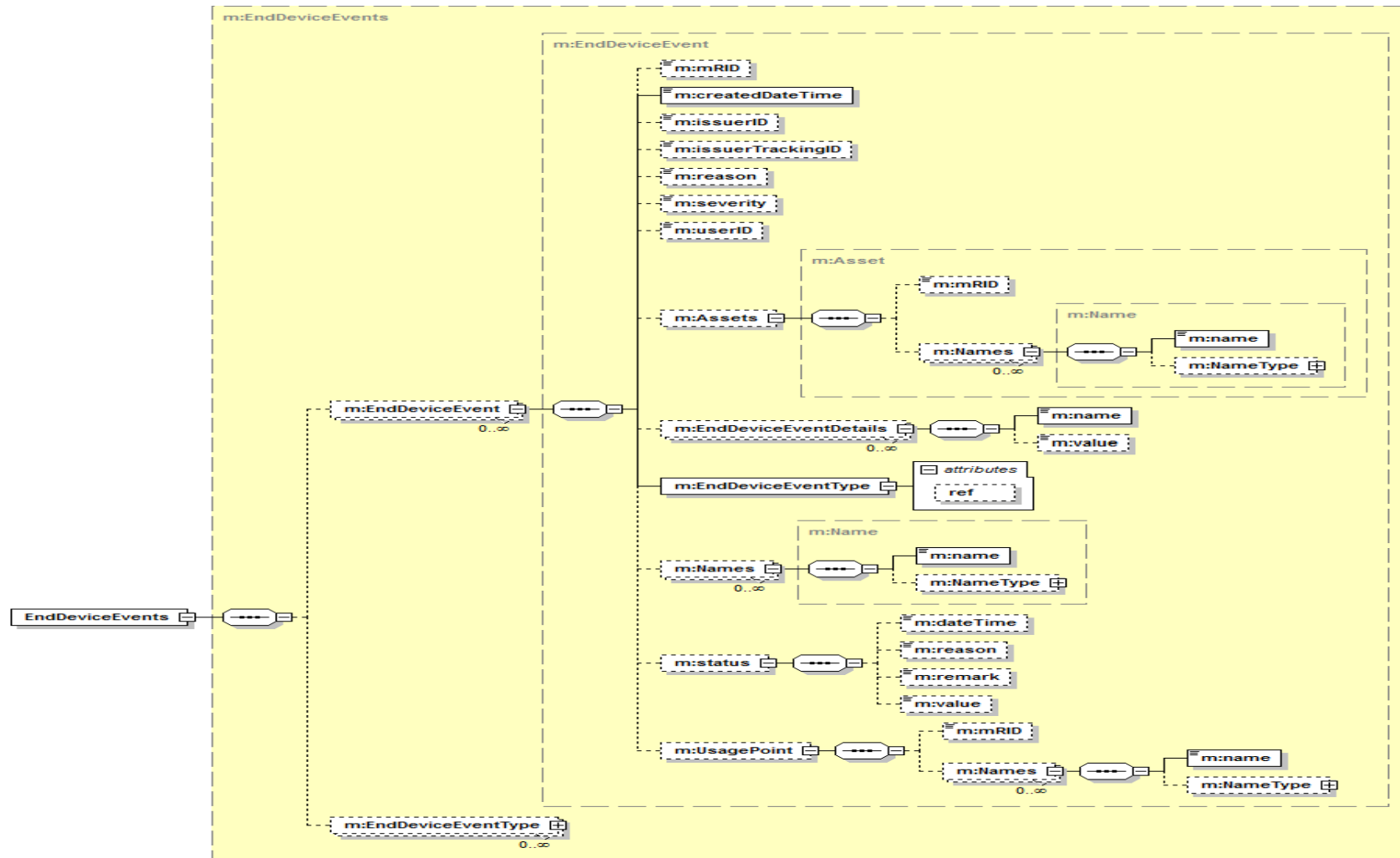


Message Organization – Operation Set Extension for use with Transaction Processing





Message Organization – Example Payload





Message Organization – Verb List

- Get
- Create
- Created
- Change
- Changed
- Cancel
- Cancelled
- Close
- Closed
- Delete
- Deleted
- Reply
- Execute
- Executed



Message Organization – Nouns

- Normally this is the same as the Profile name.
Example Nouns include:
 - EndDeviceEvent
 - MeterReading
 - UsagePointConfig
 - EndDeviceConfig
 - MeterConfig
 - EndDeviceControl



Message Organization – Event and Control Type Enumerations

- The Event and Control Types define the events or control using a string composed of 4 parts:
 - <EndDeviceType>
 - <EndDeviceDomain>
 - <EndDeviceSubdomain>
 - <EndDeviceEventorAction>
- The values are contained in the EndDeviceEventType and the EndDeviceControlType Classes within the Message Profiles



Message Organization – Event Type Enumerations

EndDeviceEventType	Description
*.26.0.85	Power off alarm
*.26.0.216	Power on
*.26.38.150	Low voltage
*.26.38.93	High voltage
*.26.38.37	Voltage Imbalance Cleared
*.12.1.38	Unauthorized Access attempt
*.12.0.257	Tamper detection
*.8.0.215	Demand reset occurred
*.31.0.68	Disconnected
*.31.0.42	Connected



Message Organization – Control Type Enumerations

EndDeviceControlType	Description
*.8.0.214	Demand reset
3.15.6.242.0	Load control started
3.15.6.243.1	Load control stopped
*.31.0.18	Close remote connect/disconnect switch
*.31.0.22	Disable RCD Switch
*.31.0.23	Open remote connect/disconnect switch
*.31.0.26	Enable RCD switch
*.20.9.82	Price signal



Message Organization - Example Message

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:mes="http://www.iec.ch/TC57/2008/schema/message"
  xmlns:oas="http://www.docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <soap:Header/>
  <soap:Body>
    <mes:EventMessage xmlns:mes="http://www.iec.ch/TC57/2008/schema/message">
      <mes:Header>
        <mes:Verb>created</mes:Verb>
        <mes:Noun>EndDeviceEvents</mes:Noun>
        <mes:Context>TESTING</mes:Context>
        <mes:Timestamp>2010-01-05T11:20:35-05:00</mes:Timestamp>
        <mes:Source>L+G</mes:Source>
        <mes:AsyncReplyFlag>>false</mes:AsyncReplyFlag>
        <mes:ReplyAddress>//10.3.6.87/EITESTServer.asmx</mes:ReplyAddress>
        <mes:MessageID>19c1bb66-ae09-485e-b6b3-c0ece4a29d70</mes:MessageID>
      </mes:Header>
      <mes:Payload>
        <ns1:EndDeviceEvents xmlns:ns1="http://iec.ch/TC57/2011/EndDeviceEvents#">
          <ns1:EndDeviceEvent>
            <ns1:createdDateTime>2009-11-04T18:52:50.001-05:00</ns1:createdDateTime>
            <ns1:EndDeviceEventType ref="3.26.0.85"/>
            <ns1:description>Power off alarm</ns1:description>
            <ns1:Assets>
              <ns1:mRID>3dc53ee5-777e-50b4-8699-a1c224f45f3d</ns1:mRID>
              <ns1:Names>
                <ns1:name>Meter23253</ns1:name>
              </ns1:Names>
            </ns1:Assets>
          </ns1:EndDeviceEvent>
        </ns1:EndDeviceEvents>
      </mes:Payload>
    </mes:EventMessage>
  </soap:Body>
</soap:Envelope>
```



Questions & Contacts

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