Implementing ebMS3 for Single Touch Payroll

Guidance for the ISV Community

Presented by
Christopher Thorne
Assistant Commissioner Electronic Commerce Service Delivery
Australian Taxation Office

Single Touch Payroll (STP)

Single Touch Payroll is a government initiative that enables businesses and employers to report (through their business management software) staff salary and wages (including ordinary time earnings) and PAYG withholding amounts to the ATO at the same time they pay their employees.

For employers with 20 or more employees, STP reporting will be mandatory from 1 July 2018. Businesses (with an STP solution) can choose to start STP reporting from 1 July 2017.

STP also includes an optional streamlined process for individuals commencing employment. An employer can allow their employees to complete forms such as TFN declaration and Superannuation Choice using pre-fill in ATO online services or through their business management software.

A pilot will be conducted in late 2016/early 2017 to demonstrate the benefits for smaller employers.

"Single touch payroll has great potential, but it's part of a bigger plan for Australian businesses which is still taking shape."

Michael Croker,
Institute of Chartered Accountants Australia
BLOG 14 Jan 2015

Employees   **Banks**   **Super funds**

2
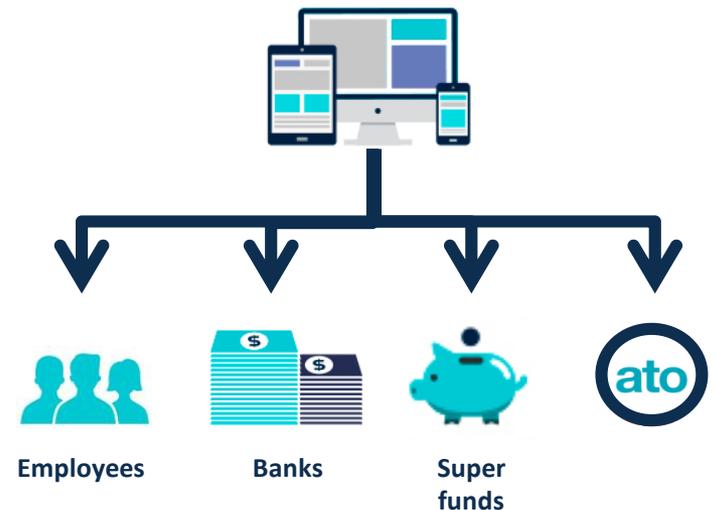
Building blocks for electronic commerce
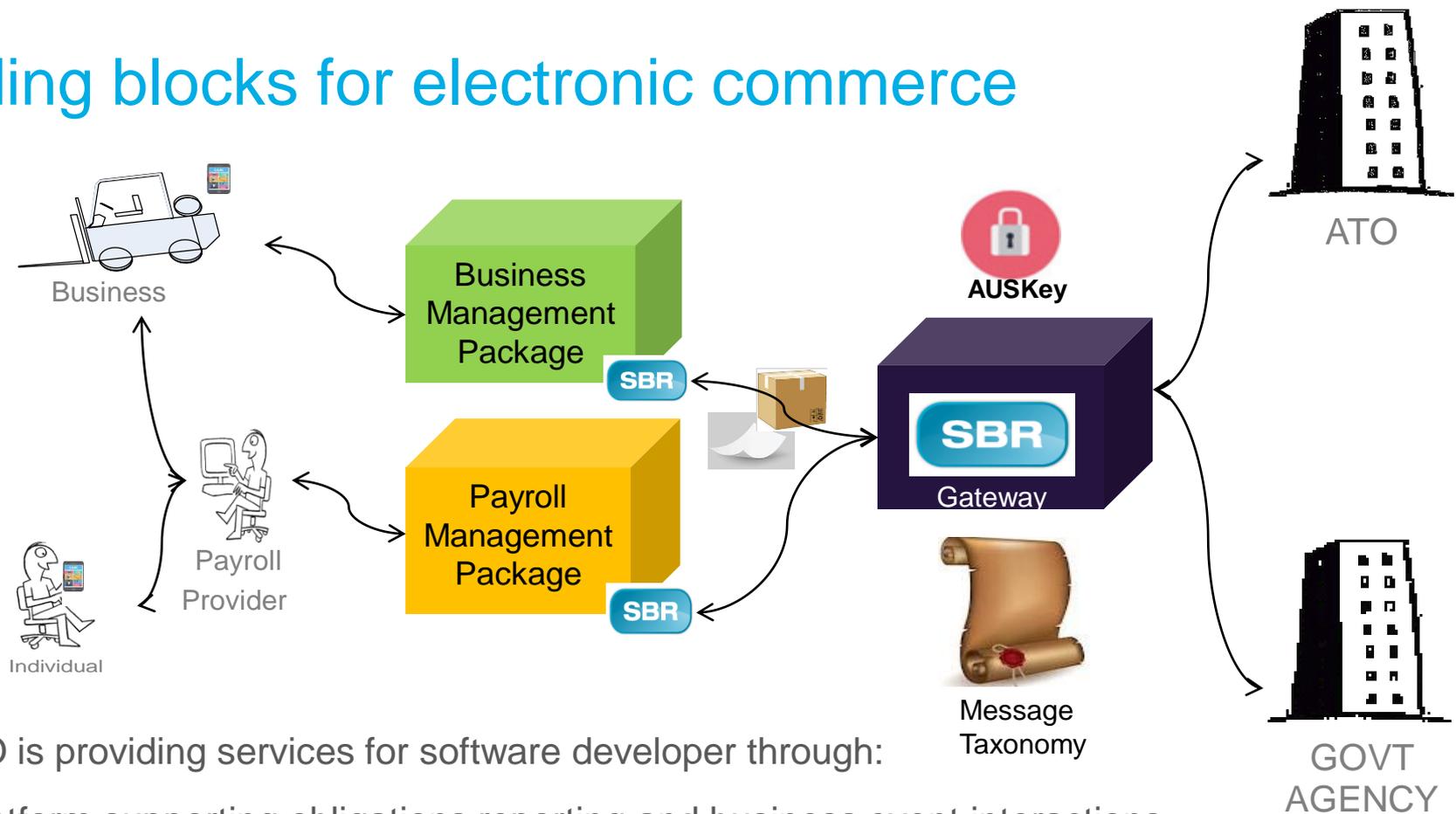
The ATO is providing services for software developer through:

1. A platform supporting <u>obligations reporting</u> and <u>business event</u> interactions.

2. A platform supporting any sensible combination of information exchange through:
   - Online or Bulk,
   - Push or Pull (initiated from either the ATO or a software package),
   - User connected or disconnected services

3. Use of whole of Government SBR capability defining common authentication, message taxonomy and message transport standards.

STP & Associated Reporting Transactions

Total Annual Volume for each Transaction type influences choice of ATO Gateway Patterns and ebMS Message Exchange Patterns (MEP).

Form Request	ATO Gateway Pattern	Annual Volumes
Tax File Number Declaration Actions: Submit, Validate, Identity Check	Single or Batch	440,000
Payroll Event (parent) Action: Submit	Batch only	
Payroll Event (child)		600,000,000
Employee Withholding	Single only	2,300,000
Employee Withholding Outcome (Acknowledgement)	Single or Batch	2,300,000
Super Contribution Transaction Report (still under high level design)	Batch only	200,000,000

Note: Gray transactions denote existing associated PAYG reporting

There are additional transactions still in design phase, including: *Payroll Adjustments* and *End of Year Reporting*
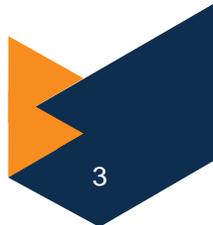
How Did We Select Messaging Protocol and Format?

Initiative Assessment for:		STP (Single Touch Payroll)				Description		XXX					
		Messaging Architectural Style					Message Format				Authentication			
		SOAP	Rest	WebSockets	EBMS 3.0	Other	XBRL	XML	JSON	Other (e.g. Structured CSV)	VANguard SAML, -AUSKey	VANguard OIDC, - AUSKey, - myGov, - Auth App	myGov OIDC	Anony-mous	Other
Criteria	Criteria														
	Dimensional Data Reporting				+	+	+	-	-						
	Large Message Size	-	-		+	+	-								
	High Volume						-	-		-					
	Trust, Reliable Messaging	+	-	To be discussed	+	-								To be discussed	
	Long Running				+	+									
	Requires Authentication										+	+		-	
	Requires low latency response	+	+				-								
	Requires Availability Tolerance														
	Lots of Participants	+	+				-	-	+	+	-				-
	Self Describing						+	+							
	Support Multiple MEPS				+										

The ATO design process uses the above approach to determine appropriate technologies to implement work programs. The STP assessment indicates:

- ebMS3 transport
- XML or JSON message structures (XML selected)
- Vanguard Auskey or SAML tokens (SAML selected)

Choosing an SBR implementation model

All parties in the SBR program must choose an implementation pattern.

Considerations:

1. **The Business Reporting Initiative(s) you will Support?**
- Single Touch Payroll (B2G)
- Standard Business Reporting (B2G)
- SuperStream Reporting (B2B)
- eInvoicing (B2B)

2. **The Functional role(s) you will Support?**
- Client Side processing
- Gateway Service

3. **The Customer Categories you will Support?**
- Small & Micro Businesses
- Large Businesses & Enterprises

4. **The effort involved to implement specific features?**
- Choose the ebMS3 feature set (see following slides)…

Commercial Business Application — ebMS

Super, Super, Super, Super, Super, Super, Super, Super, Other, Other

ATO

ebMS Gateways

Universal Client

Minimal Client

(Note: Commercial products are available, see Drummond International…)
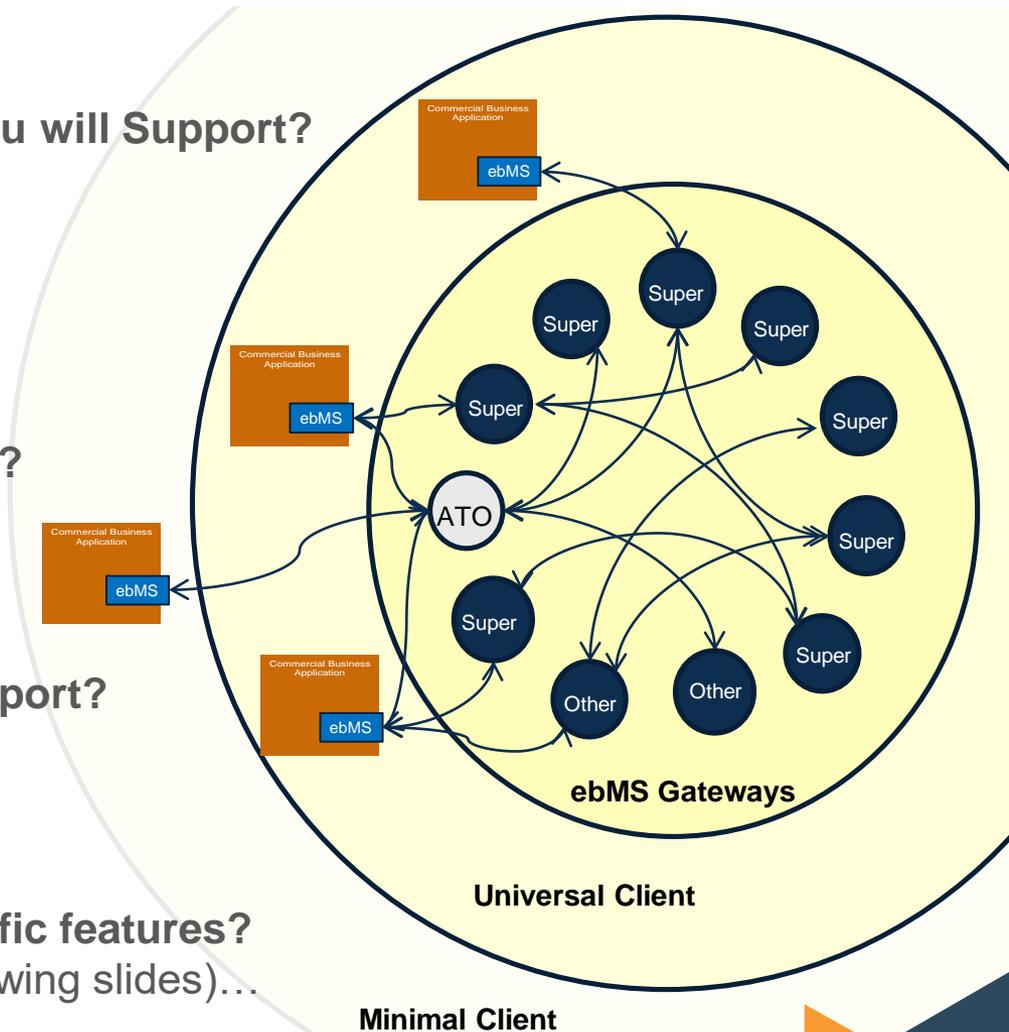
Which eBMS Specifications are being used for SBR?

The SBR Conformance Profiles draw on features from the ebMS3 core, ebMS3 advanced and AS4 specifications.

The ebMS3 specification describes the exchange of business documents using SOAP messaging. It brings together many existing W3C and OASIS WebServices (WS*) standards.

Standard Business Reporting ebMS3 Conformance Profiles

AS4 Profiles and Features

Conformance Profiles	Additional Features	Usage Profiles

| ebHandler Light Client Normal Client *NOT USED* | Multi-Hop End Point **Reception Awareness** **Compression Body** **Duplicate Detection** MPC Sub Channels Alt Auth of Pull | Receipts Error Handling Parameters Security CPAS Message Flow Deployment *NOT USED* |

ebMS 3 Conformance Profiles

Gateway Profile (V3) Light Handler Profile Activity Monitor Profile

NOT USED

ebMS 3 Advanced Features

Split / Join
Multi-Hop Intermed Point
Selective pull
Bundling
MPC Sub Channels

ebMS 3 Core Features

Message Model / MEPS
Msg Pulling & Partitioning
Processing Modes
Message Packaging
Error Handling
Security Module
Reliable Messaging Module

Level of Implementation

Full	Partial	Optional

STP Transactions

Volume for transaction types influences choice of ATO Gateway Patterns:

Form Request	ATO Gateway Pattern	ebMS3 MEP	Annual Volumes
Tax File Number Declaration Actions: Submit, Validate, Identity Check	Single or Batch	Two-Way/Sync Two-Way/Push-and-Pull One-Way/Push One-Way/Selective Pull	440,000
Payroll Event (parent) Action: Submit	Batch only	One-Way/Push One-Way/Selective Pull	
Payroll Event (child)			600,000,000
Employee Withholding	Single only	Two-Way/Sync Two-Way/Push-and-Pull	2,300,000
Employee Withholding Outcome (Acknowledgement)	Single or Batch	Two-Way/Sync Two-Way/Push-and-Pull One-Way/Push One-Way/Selective Pull	2,300,000
Super Contribution Transaction Report (still under high level design)	Batch only	One-Way/Push One-Way/Selective Pull	200,000,000

Note: Gray transactions denote existing associated PAYG reporting

- The ebMS3 standard describes how to use SOAP messages to exchange business documents.

- ebMS3 defines 6 message exchange patterns (MEP) that support synchronous and asynchronous modes of operation.

What do I need to Implement ?

Minimal Client (B2G) feature set:

- MEP – Two-Way Synch, One-Way Push and Selective Pull

- Error Handling – Able to receive and interpret error messages sent by ATO. No requirement to send error messages to the ATO

- Security – Apply SBR Security Model based on SAML and Auskey

Universal Min Client (B2G + B2B)

- Superset of features required for STP, SBR and SuperStream that can fulfil the client-side function for all initiatives.

Universal Gateway (B2G + B2B)

- Superset of the minimal features required for STP, SBR and SuperStream that can fulfil the gateway function for all initiatives.

Notes:
1. Client only needs to receive incoming error messages
2. Mandated by SuperStream but not currently used
3. Capability to configure p-mode values – no requirement to enforce p-modes or process p-mode definitions
4. Default channel only

Required to be implemented: Y Required for compliance: C Optional: X	Level of Implementation		
	Full	**Partial**	Optional

Suggested Patterns

Feature	Minimal Client	Universal Client	Universal Gateway
ebMS 3 Core Features			
Message Model / MEPs:			
one way push	Y	Y	Y
one way pull	X	Y	Y
two way sync	Y	Y	Y
two way push pull	X	Y	Y
two way push push	X	X	X
two way pull push	X	X	X
Msg Pulling & Partitioning:			
authenticated pull	Y[4]	Y[4]	Y[4]
msg partition channel	X	X	C[2]
Processing Modes	C[3]	C[3]	C[3]
Message Packaging	Y	Y	Y
Error Handling	Y[1]	Y[1]	Y
Security Module:			
user/password	X	Y	Y
XML encryption	X	X	C[2]
XML signature	Y	Y	Y
Reliable Messaging Module	X	X	X
SBR Security			
SAMLToken	Y	Y	Y
Signing of Message	Y	Y	Y
ebMS 3 Advanced Features			
Split /Join	X	X	C[2]
Multi-Hop Intermediate Point	X	X	X
Selective Pull	Y	Y	Y
Bundling	X	X	X
MPC Sub Channels	X	X	X
AS4 Profiles & Features			
Multi-Hop End Point	X	X	C[2]
Reception Awareness	Y	Y	Y
Compression Body	Y	Y	Y
Duplicate Detection	Y	Y	Y
MPC Sub Channels	X	X	X
Alt Authentication of Pull	X	X	X

Differences – SuperStream and ATO ebMS3 Implementation

Differences:

1. Message Properties:
   - ATO use some custom ebMS properties for SBR to accommodate cloud providers

2. SBR B2G Batch Message Design:
   - Hierarchically Ordered Single Documents with Meta-data record
   - Unique identifier for each document.

3. SuperStream Batch Message Design:
   - One document up to 10,000 records
   - Up to 20 documents in an ebMS message.

B2B SuperStream

ebMs3/AS4

Username & Password Auth
XML Encryption
Split/Join
Multi Hop End point
Message Partition Channel

One Way Push
One Way Pull
Authenticated Pull
Processing Modes
Message Packaging
Error Handling
XML Signature
Reception Awareness
Compression Body
Duplicate Detection

SAML Token Signing of Messages

B2G SBR

Two Way Push/Push
Two Way Pull/Push
Reliable Messaging
Multi-Hop Intermediate Point
Bundling
MPC Sub Channels
Alt Auth of Pull

Two Way Synch
Two Way Push/pull
Selective Pull

Note: STP Minimum Client features = Black

Want more information? Join the <u>ATO Technical Working Group</u>

13

UNCLASSIFIED

Gateway Comparison – B2B vs B2G

The ATO remains committed to conformance & interoperability with the industry gateway implementation.

Exceptions:

Additional MEPS to support minimal client users.

Error Handling
- Able to receive and interpret error messages sent by ATO
- Able to identify errors and send error messages

Security
- Able to apply multiple security mechanisms

Bulk Message Handling
- Multiple vs single record packaging

Notes:
1. N/A
2. Mandated by SuperStream but not currently used
3. Capability to configure p-mode values – no requirement to enforce p-modes or process p-mode definitions
4. Default channel only

Required to be implemented: Y	Level of Implementation		
Required for compliance: C	**Full**	**Partial**	Optional
Optional: X			

Gateway Profiles

	SBR	SS	
	SBR-GW	SS-AG	Universal Gateway
ebMS 3 Core Features			
Message Model / MEPs:			
one way push	Y	Y	Y
one way pull	Y	Y	Y
two way sync	Y	X	Y
two way push pull	Y	X	Y
two way push push	X	X	X
two way pull push	X	X	X
Msg Pulling & Partitioning:			
authenticated pull	Y^4	Y^4	Y^4
msg partition channel	X	C^2	C^2
Processing Modes	Y^3	Y^3	Y^3
Message Packaging	Y	Y	Y
Error Handling	Y	Y	Y
Security Module:			
user/password	X	Y	Y
XML encryption	X	C^2	C^2
XML signature	Y	Y	Y
Reliable Messaging Module	X	X	X
SBR Security			
SAMLToken	Y	X	Y
Signing of Message	Y	X	Y
ebMS 3 Advanced Features			
Split /Join	X	C^2	C^2
Multi-Hop Intermediate Point	X	X	X
Selective Pull	Y	X	Y
Bundling	X	X	X
MPC Sub Channels	X	X	X
AS4 Features			
Multi-Hop End Point	X	C^2	C^2
Reception Awareness	Y	Y	Y
Compression Body	Y	Y	Y
Duplicate Detection	Y	Y	Y
MPC Sub Channels	X	X	X
Alt Authentication of Pull	X	X	X

What is the Structure of the ebMS user message?
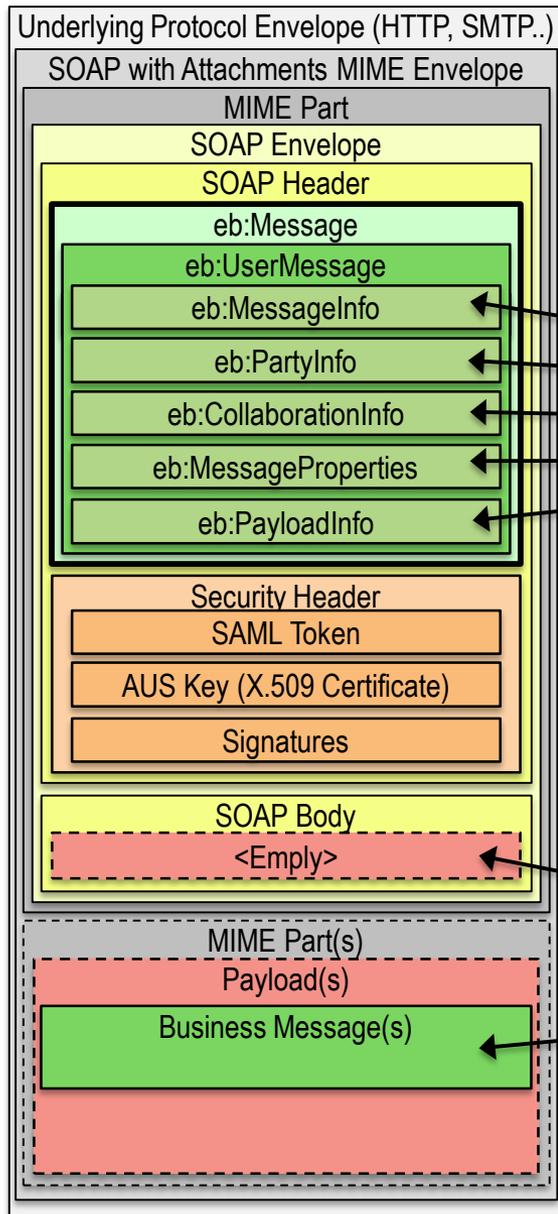
ebMS user message is just a SOAP message that has an additional eb:message header element that contains details about the enclosed business message.

Message structure is defined in the SBR ebMS3 WIG, ATO Common MIG and per service MIG's.

Message identification, timestamp and other links
Identification of communicating business partners
Collaboration parameters, agreements, service info
Other message properties with business relevance
Manifest for payload elements

SBR messages include a SAML token and AusKey in the SOAP Security Header

The actual business message is attached as a MIME part

SOAP body may contain business payload or may be empty eg ATO implementation will have an empty SOAP Body

There could be 0 or more additional MIME Parts that contain business messages as payloads. Business message may be in XBRL, XML or JSON format

What is the Structure of the ebMS response message?
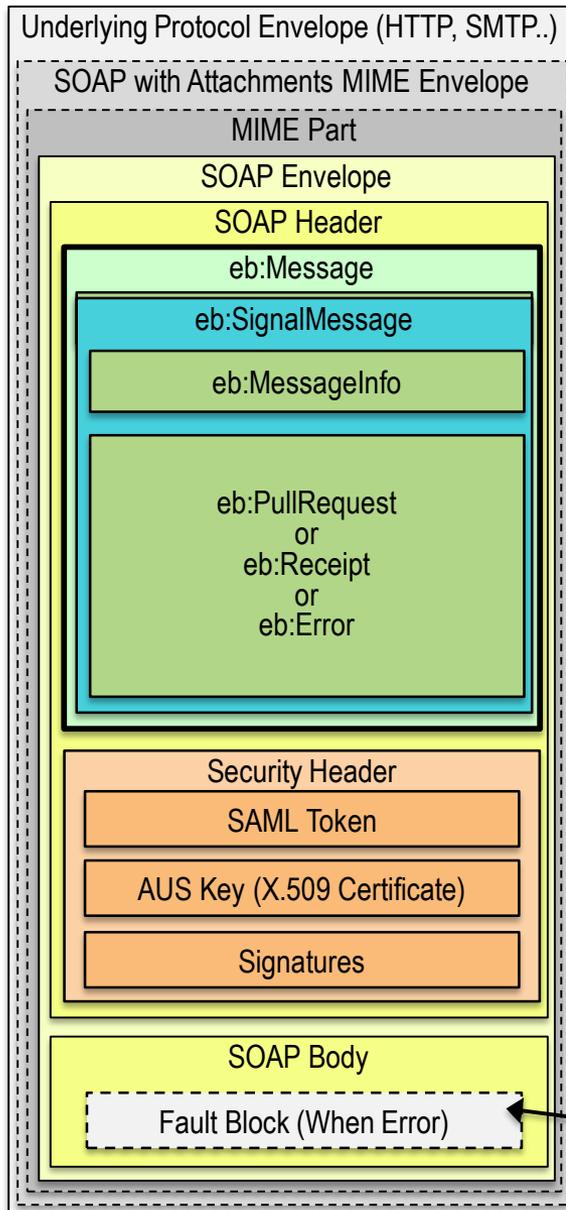
ebMS signal response message is just a SOAP message that has an additional eb:signal header.

Message structure is defined in the SBR ebMS3 WIG, ATO Common MIG and per service MIG's.

Underlying Protocol Envelope (HTTP, SMTP..)

SOAP with Attachments MIME Envelope

MIME Part

SOAP Envelope

SOAP Header

eb:Message

eb:SignalMessage

eb:MessageInfo

eb:PullRequest
or
eb:Receipt
or
eb:Error

Security Header

SAML Token

AUS Key (X.509 Certificate)

Signatures

SOAP Body

Fault Block (When Error)

Body is empty for Signal Messages, except when it's an Error in which case a Fault Block will be present.

Packaging of Bulk/Batch Messages

SBR (B2G)

Underlying Protocol Envelope (HTTP, SMTP..)
SOAP with Attachments MIME Envelope
MIME Part
SOAP Envelope
SOAP Header
eb:Message
eb:UserMessage

Security Header

SOAP Body
<Emply>

MIME Part
Payload
Business Message
<Logical document>

Business Message
<Logical Document>

Business Message
<Logical Document>
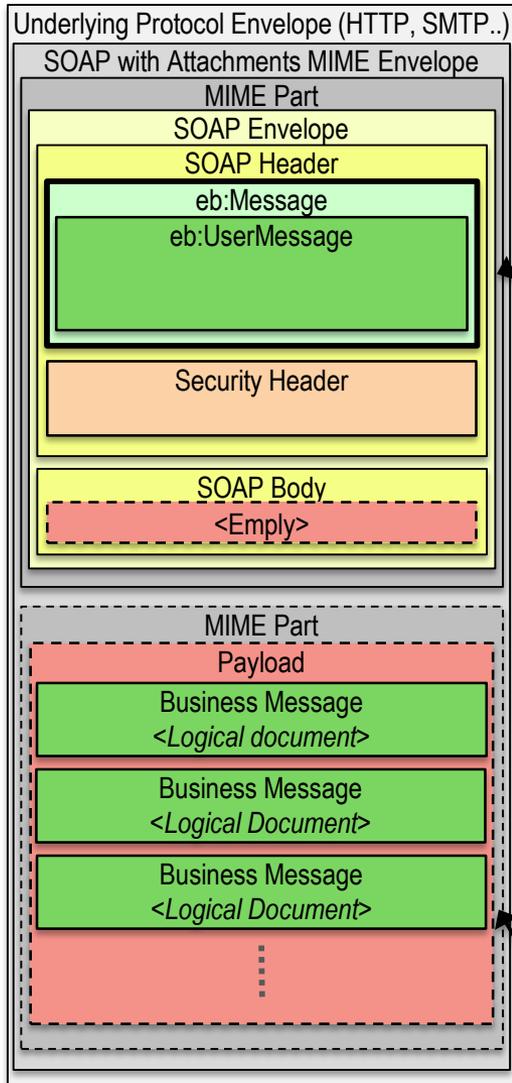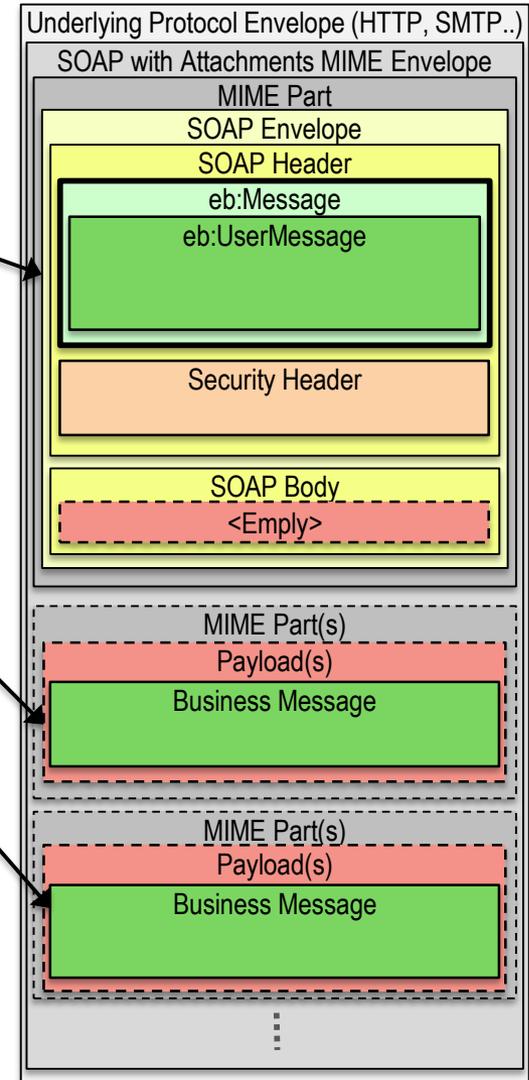
SBR & SuperStream
First MIME Part contains SOAP, ebMS and Security Headers. SOAP Body is empty

SuperStream
Second MIME Part contains a single composite document, of up to 10,000 Logical Records per document.

Up to 20 documents in an ebMS message.

SBR
Second MIME Part contains multiple Logical Documents each separated by a delimiter record.

SuperStream (B2B)

Underlying Protocol Envelope (HTTP, SMTP..)
SOAP with Attachments MIME Envelope
MIME Part
SOAP Envelope
SOAP Header
eb:Message
eb:UserMessage

Security Header

SOAP Body
<Emply>

MIME Part(s)
Payload(s)
Business Message

MIME Part(s)
Payload(s)
Business Message

Summary

All parties in the SBR program must choose an implementation feature set.

We have suggested three patterns in this presentation. To select a pattern:

1. Understand your business model and Transaction volumes.

2. Understand SBR, SuperStream and STP Specifications.

3. Determine what ebMS3 feature set and pattern is appropriate to your business

4. Choose ebMS3 Implementation approach. Should I
   - Buy,
   - Build or
   - Partner?

Commercial Business Application
ebMS

Super

ATO

ebMS Gateways

Universal Client

Minimal Client