

# OwnMail's Structured Messaging

## Introduction

Currently email is structured (grouped) by way of inbox, i.e. I can send an email to your inbox and you can send one to mine. However, it is possible to structure email by way of customer, supplier, transaction or any atomic level of organization decided. The structuring of the content and context of email is termed Structured Messaging (SM).

## Structures Messaging detailed

On the subscriber side, SM does away with personal email ids to send and receive email. Instead, an “atomic level” of organization is decided. This could for example be a transaction or a customer. It is called the atomic level, since once decided, it cannot then be subdivided. E.g, if the atomic level is the customer, then it cannot be reduced to the level of a transaction with a customer. However, if the level chosen is that of a transaction, then it can be aggregated to that of a customer.

The significance of an atomic level is that messages relating to an instance of the level are segregated and given some of the attributes of a mailbox. It can be downloaded using POP3 or SMTP, displayed, and normal mailbox operations can be carried out on it.

## Example of a freight broker

Aqualogistics.com is an online freight broker / market place. Traders can log on and negotiate freight rates for their consignments from airlines and shipping lines. These negotiations are protracted and largely done by way of email. Aqualogistics uses OwnMail's SM to bring order to this email as detailed in the following example with screen shots.

1. Aqualogistics is an online freight broker that enables a trader to negotiate special (lower than list) freight rates, then book cargo on line and finally track the progress of the cargo through trans-shipments.

AQUALOGISTICS - Online Freight Forwarders - Microsoft Internet Explorer

File Edit View Favorites Tools Help Back Forward Stop Home Search Links Go

Address: <http://www.aqualogistics.com/>

**CHECK OUT FREIGHT RATES**  

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Satisfied with our rates ?  
Book your cargo online.  
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Internet

- Customer logs on to site to request a special freight rate for an upcoming consignment. In this case it is an air consignment of garments from Mumbai to London.

AQUA - Query Air Freight Rates - Microsoft Internet Explorer

File Edit View Favorites Tools Help Back Links Go

Address http://www.aqualogistics.com/airfreightupd.exe?frmno=1&logname=sush

Login Page | Logout | Feedback | What's This?

### Special Rates Request Form

Please Indicate Which Service You Require

**Destination...**

From  Mumbai  
To  London

If the required airport is unlisted then select OTHER and list it in Additional Information

**Product Details...**

Description Of Goods

Are the goods hazardous

Total Weight  Kg

The Freight is calculated on the actual weight or volume weight whichever is higher. To know the chargeable weight please give us the following details. (optional)

Number Of Pieces

Weight Per Piece

Dimension Per Piece (Length x Width x Height)  x  x  cm

What is the bargain you are looking for ? (currency,value/unit) INR  per

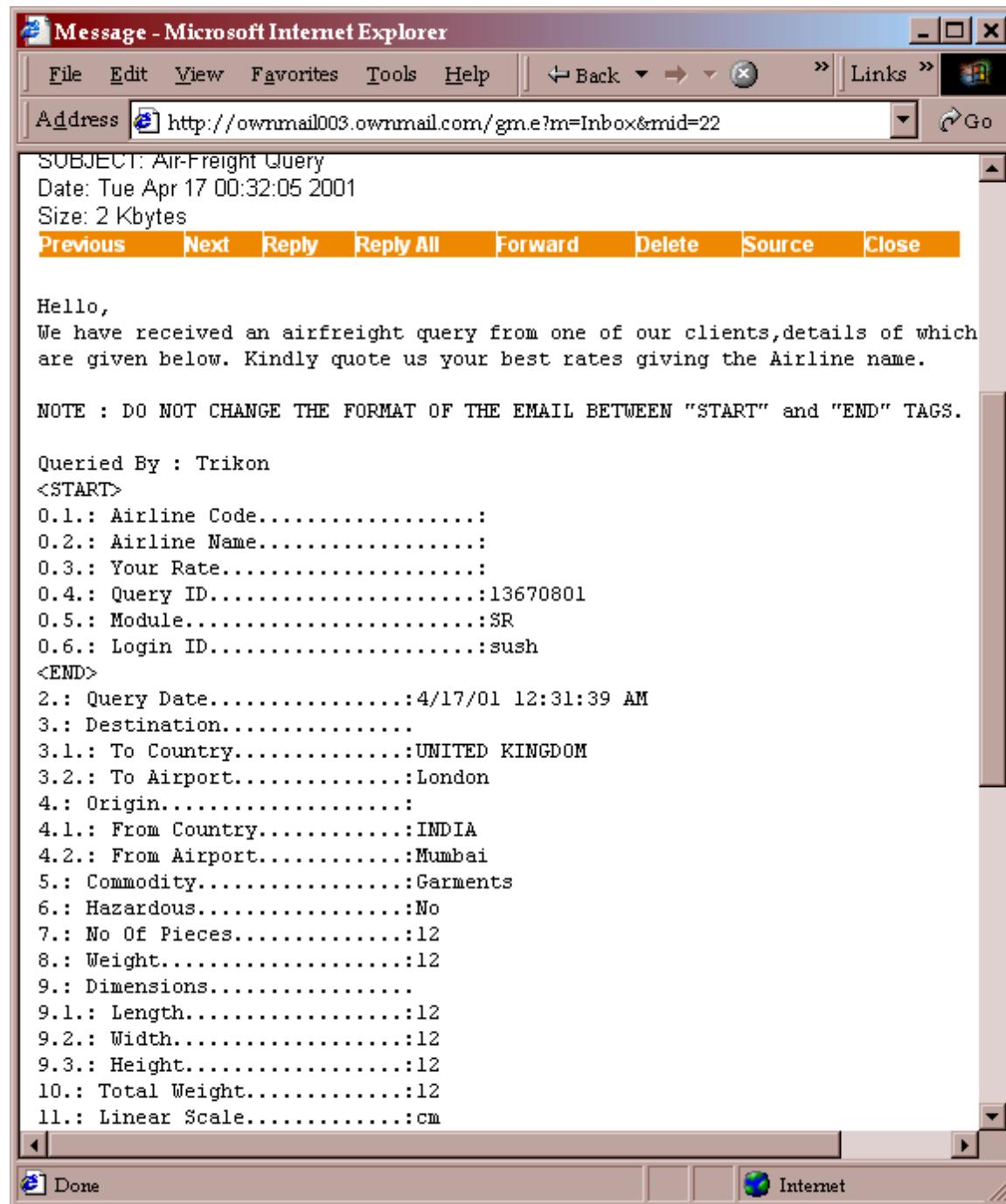
Probable date of shipment ?

What is your priority ?

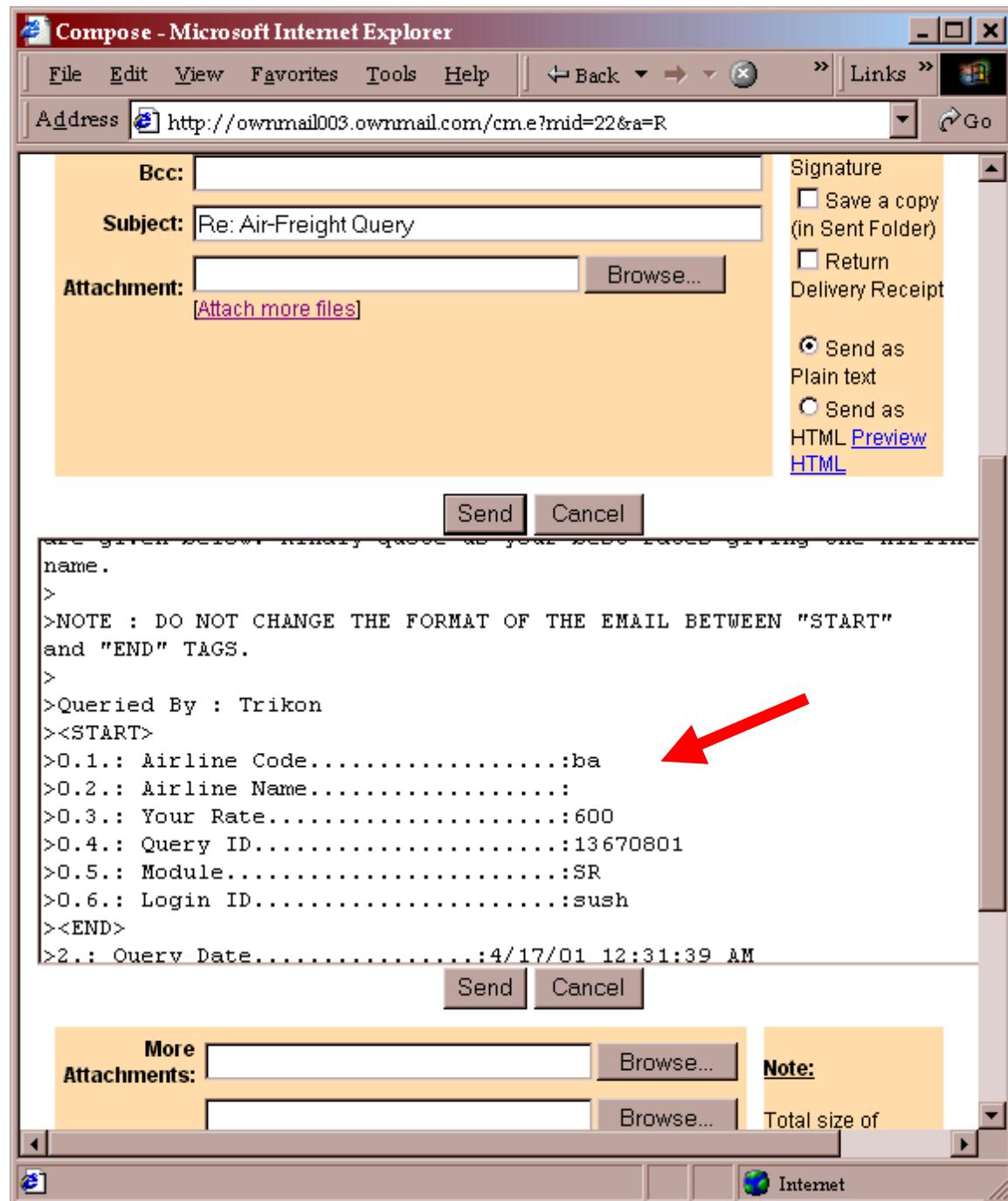
Additional Information

Internet

3. Shippers that are relevant to the route are automatically intimated by email that a special freight rate has been requested. This email uses structured content, but can be understood by humans. The screen shot seems to suggest that the responding airline is a customer of OwnMail, but in reality the airline will receive this structured email as just another message using its existing email system, such as Lotus Notes, Outlook, or even Hotmail!



4. The airline replies to the request (using its reply feature) inserting just the rate and in this case the airline code.



5. The information contained in the reply is automatically inserted into the application by OwnMail using its mail to XML/HTTP converter. The screen shot below shows the intranet of Aqualogistics, with the replies from British Airways and Air India updated for this query. Again note that while the screen shot seems to suggest that both respondents need to use OwnMail email services, this is not true. The respondents can use any existing email infrastructure.

**Aqua Staff - Microsoft Internet Explorer**

File Edit View Favorites Tools Help Back Search Links

Address http://www.aqualogistics.com/menu.exe?faFrameSet='n'

Cargo | Rating | Air Freight | Sea Freight | Tools | Logout

**Air Query Details**

<b>New Query</b>	<b>Rating</b>																																
<b>Tracking</b>	<b>Air</b>																																
<b>Sea</b>																																	
Query Number : 354	Query Date : 4/17/01 12:31:39 AM	To Country : UNITED KINGDOM	To Airport : London																														
From Country : INDIA	From Airport : Mumbai																																
Commodity: Garments	Length: 12	Width: 12	Height: 12																														
Hazardous: No	No. Of Pieces: 12																																
Weight: 12	Total Weight: 12																																
Measurement In: cm	Weight In: kg																																
Bargain Price: (currency,value,unit)	INR. 556 \$																																
Additional Info:																																	
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<a href="#">Copy Query</a>																																	
<b>Past Remarks</b>																																	
Date	User	Remarks																															
4/17/01 12:35:17 AM	britishair@ownmail.com	Rate updated by britishair@ownmail.com : 600																															
4/17/01 12:38:41 AM	airindia@ownmail.com	Rate updated by airindia@ownmail.com : 575																															
<table border="1"> <thead> <tr> <th></th> <th>Airline</th> <th>S.Chg</th> <th>Listed Rate</th> <th>Previous Buy Rate</th> <th>IATA</th> <th>Buy Rate</th> <th>Sell Rate</th> <th>History</th> <th>Acc</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td>EGYPT AIR</td> <td>2.5</td> <td>97.65</td> <td>0 0</td> <td>&lt;-Select IATA-&gt;</td> <td>0</td> <td>0</td> <td><a href="#">Click here</a></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>SRI LANKAN AIRLINES</td> <td>..</td> <td>..</td> <td>0</td> <td>..</td> <td>..</td> <td>..</td> <td><a href="#">Click</a></td> <td></td> </tr> </tbody> </table>					Airline	S.Chg	Listed Rate	Previous Buy Rate	IATA	Buy Rate	Sell Rate	History	Acc	<input type="checkbox"/>	EGYPT AIR	2.5	97.65	0 0	<-Select IATA->	0	0	<a href="#">Click here</a>	<input type="checkbox"/>		SRI LANKAN AIRLINES	..	..	0	..	..	..	<a href="#">Click</a>	
	Airline	S.Chg	Listed Rate	Previous Buy Rate	IATA	Buy Rate	Sell Rate	History	Acc																								
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	SRI LANKAN AIRLINES	..	..	0	..	..	..	<a href="#">Click</a>																									

[Done](#) [Internet](#)

6. Aqualogistics also uses structuring by context. The next screen shot displays a link at the bottom that throws up the correspondence relating just to this transaction. As an aside, also note that Aqualogistics uses OwnMail for fax messaging too.

Aqua Staff - Microsoft Internet Explorer

File Edit View Favorites Tools Help || Back Forward Stop Search Links Go Address http://www.aqualogistics.com/mmenu.exe?IsFrameSet='n'

Cargo | Rating | Air Freight | Sea Freight | Tools | Logout

**Rating**

AIRWAYS	0	here
<input type="checkbox"/> BRITISH AIRWAYS	4.5 132 0	<-Select IATA-> 0 0 Click here
<input type="checkbox"/> ALITALIA	4.5 135 0	<-Select IATA-> 0 0 Click here
<input type="checkbox"/> AIR FRANCE	4.5 489.8 0	<-Select IATA-> 0 0 Click here
<input type="checkbox"/> KLM ROYAL DU	-- -- --	<-Select IATA-> 0 0 --
<input type="checkbox"/> <-AirLine->	-- -- --	<-Select IATA-> 0 0 --

**Tracking**

New Query

Air Sea

**Destination Charges**

Remarks: [ ] Query Status: Pending

Rate to intimate :  Tariff  Self

Include Destination Charges  Include Origin Charges

Intimate by Fax: 8265398  Intimate by Email: brite@vsnl.net

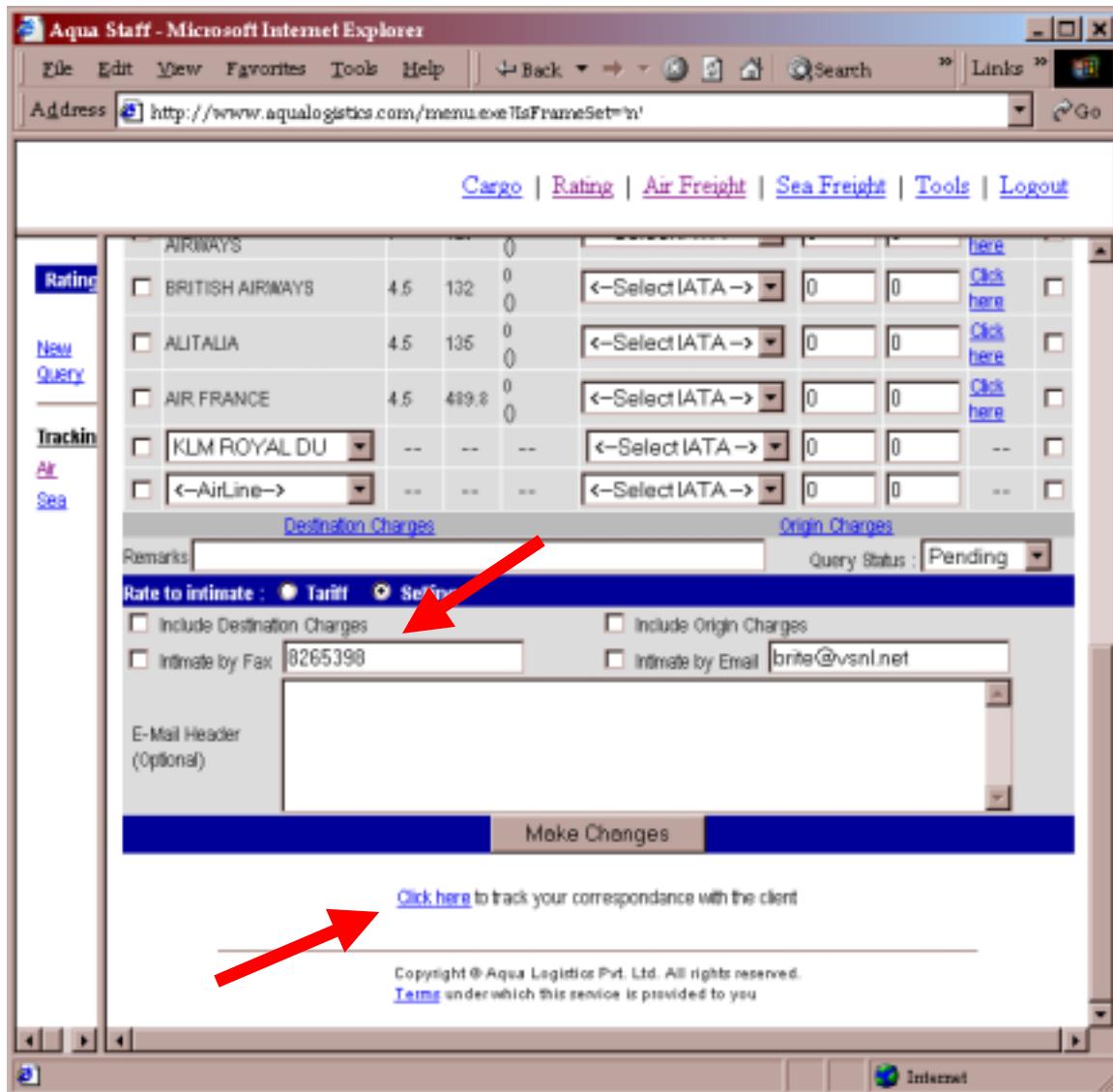
E-Mail Header (Optional)

Make Changes

[Click here](#) to track your correspondence with the client

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[Terms](#) under which this service is provided to you

Internet

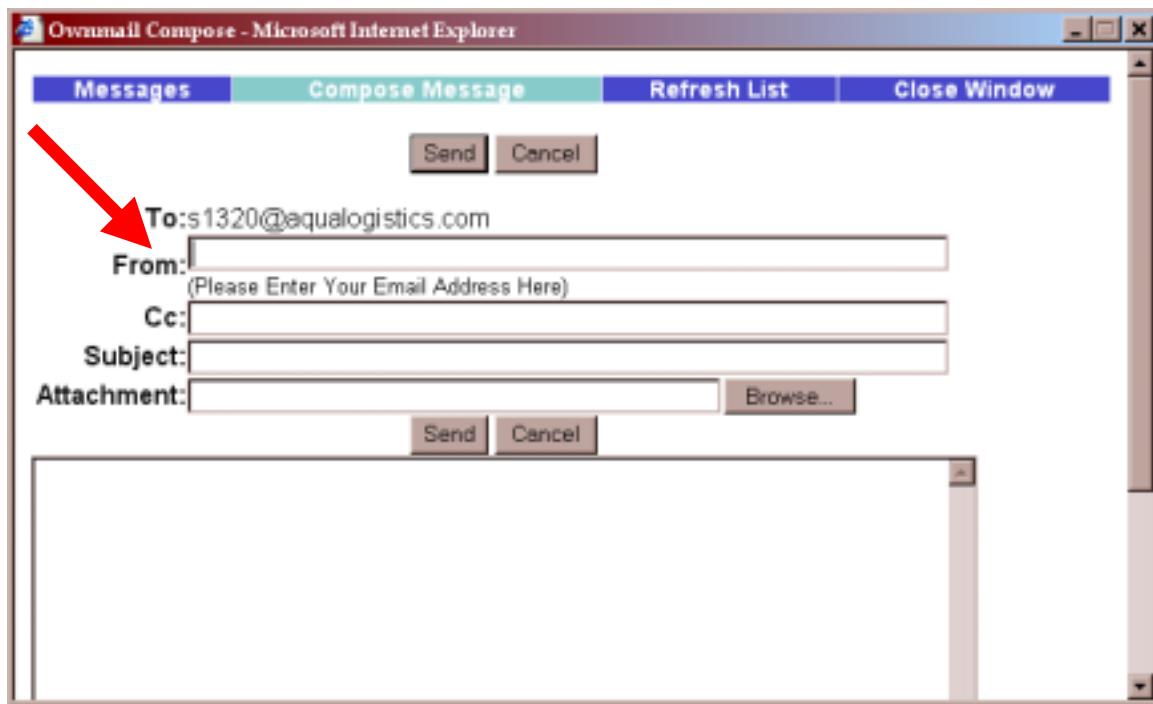


7. The next screen shot shows the “mailbox” thrown up by OwnMail that relates to this transaction. Only messaging relating to this transaction is shown here. Even confirmations of fax messages sent are available here. A CRM application or executive can now easily go through the record of past correspondence on the issue.

The screenshot shows a Microsoft Internet Explorer window titled "Ownmail Mailbox - Microsoft Internet Explorer". The main content is a table listing messages. The table has four columns: "From", "Subject", "Date", and "Size". There are four rows of data. Below the table is a navigation bar with buttons for "Messages", "Compose Message", "Refresh List", and "Close Window".

From	Subject	Date	Size
Trikon Email2Fax Services s1320@aqualogistics.com	Success : 8265398@fax.co.in Your Query No : 320 To Lagos	Thu Mar 22	1k
s1320@aqualogistics.com	Our Handling Charges	Thu Mar 22	1k
s1320@aqualogistics.com	Air-Freight Query	Wed Mar 21	1k

8. Note that the compose box does not require a "To" address, rather (in this case) it asks for a "From" address. This best illustrates how SM dispenses with personal email Ids on the subscriber side.



9. SM supports normal unstructured messaging also. The message below has copies to normal mailboxes.

 Ownmail Message - Microsoft Internet Explorer

Messages Compose Message Refresh List Close Window

From: s1320@equalogistics.com  
TO: s1320@equalogistics.com  
CC: ggrewal@aqualogistics.com, harish@uchil.com, kanchan@aqualogistics.com, rajesh@uchil.com, sushant@trikon.co.in  
SUBJECT: Your Query No : 320 To Lagos  
Date: Thu Mar 22 10:32:57 2001  
Size: 1 Kbytes

Previous Next Reply Close

Hello ,  
With reference to your air freight query no 320 to Lagos , NIGERIA , we are pleased to give here below our best possible buying rates. The rates are net/net and you will have to add a comfortable margin before quoting to your clients. The selling rates may be entered against each carrier in the special rate query page before quoting to the client.

The rates mentioned hereunder is per Kg and is calculated on the actual weight or dimensional weight whichever is higher.

Kind Attn: Mr. Shahbaz

With regards to your query for 30 tons shipment to Lagos I hereby quote you the following rates provided you give the freight payment in advance.

10. Screen shot below shows a configuration page for OwnMail's mail to XML/HTTP converter.

The screenshot shows a Microsoft Internet Explorer window titled "OwnMail Structured Messaging - Microsoft Internet Explorer". The page displays a table with two columns: "ID:" and "URL FIELDS". The table contains six rows, with the first four having data:

ID:	URL FIELDS
0	Query_Details
0.1	Airline_code
0.2	Airline_name
0.3	Rate

Below the table, there is a text input field labeled "Enter ur URL:" containing "http://". Underneath the URL input, there are two radio buttons: "Preference" and "HTML" (which is selected), and "XML". A "submit" button is located below these options. The browser interface includes standard menu bars (File, Edit, View, Favorites, Tools, Help) and navigation buttons (Back, Forward, Stop, Home, Refresh). The status bar at the bottom shows "Internet" and other typical browser icons.

11. Summary: - The preceding example shows that for the subscriber of OwnMail services, in this case Aqualogistics, automation is complete. Suppliers, in this case the airlines, are automatically intimated of a request, and their responses are automatically updated into Aqualogistics' database. There has thus been no human intervention on Aqualogistics part.

## **Uses**

One of the primary uses of Structured Messaging (SM) is as a mail system for applications. By adding structure to the content and context of email, we make it easy for software to make use of it. Some promising applications that may benefit from SM are: -

1. To connect enterprises with their customers. CRM software has ability to do everything but correspond intelligently with customers by way of email. While crude search and order tools do exist, they place many restrictions on the complexity of the interaction with the customer. Further, they are not very reliable in their ordering ability. By allowing far greater structure in the interaction with the customer, SM opens up a whole new vista in CRM ability. For example, the atomic level could be configured at the level of the customer, which would then give the ability to maintain a separate mailbox for each customer.
2. To connect enterprises to small suppliers: - Supply chain applications can use SM as the primary interface to connect to suppliers to send and receive documents. SM in the hands of the supplier will be a normal email message that he receives using his existing email account. It thus uses extant infrastructure with zero additional investment. However, for the enterprise hosting the application, automation is complete, since the mail is being sent and received by the application with no human intervention.
3. To connect applications to one another despite poor Internet infrastructure: - XML based messaging is currently largely of the instant variety. This presumes good Internet infrastructure between the applications talking to one another. By using SM, applications can leverage SMTP's multihop architecture and repeated automatic delivery attempt capability. While the content of such messages is already structured by XML, SM brings to the table structuring of context. For example this would allow reversal of a transaction that has been entered into using email.

## **Technical details:** -

OwnMail's SM is written largely in c++. It is designed to be suitable for delivery as a hosted service as well as a server. It runs on Slakware Linux. It uses Intel architecture and is rated at 500,000 mail operations per server per day. OwnMail includes high-level tools for delivery of normal mail services too via a sophisticated web interface, or POP3 protocol. Applications can use it to send and receive unstructured mail, or send fax messages, throw up a mailbox, etc.

## **Summary:** -

OwnMail's SM provides a means for applications to leverage the power of email by bringing structure to the content and context of messages. The subscriber achieves high level of automation. OwnMail's server also includes powerful tools for normal unstructured messages, such as the ability to throw up a mailbox, send a fax, download messages etc. By using OwnMail for an application's email needs, application writers can achieve cross platform portability without the need to maintain in house SMTP skills.