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Oracle SOA Suite 11g R1 PS5

SOA Suite for healthcare integration Series

Series Overview

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Introduction

In my past articles I presented, amongst other things, HL7 v2 messaging solutions using the Oracle SOA Suite 11g R1 B2B HL7 infrastructure. At the beginning of the calendar year 2012 Oracle released a new incarnation if its HL7 messaging capability under the name of the "SOA Suite for healthcare integration". This capability builds on the SOA Suite B2B HL7, adding design, configurator, monitoring and management user interface capabilities which greatly simplify the task of creating HL7 v2 messaging solutions and enhance management and operational reporting.

The new and changed functionality is significant enough for me to consider writing a series of articles on the topic. The series is intended to walk the reader through the tasks of creating specific HL7 v2 messaging solutions using the SOA Suite for healthcare integration.

At this point in time I expect to produce articles on the following topics, in the order given:

1. Overview of the Development Environment
2. A Very Brief Overview of HL7 v2 Messaging
3. A Very Brief Overview of the SOA Suite for healthcare integration
4. Creating a Canonical Message Model
5. HL7 v2 Inbound to File
6. Constructing file name from message content and messaging properties
7. HL7 v2 Inbound to HL7 v2 Outbound Pass-through
8. Transformation and Routing using XSL and Mediator
9. Adding Data Map for pass-through code translation
10. Automating Exception Message Handling
11. Externalise, "Repair" and Resubmit "broken" messages
12. Implementing an A19 Query Processor
13. Send, Receive and Translate HL7 messages using B2B Web Services
14. Other Key Features

It will take some time to produce these articles and the list may change.

I am interested in hearing from people about other topics they might like to see covered. I will consider suggestions though I am not promising that I will act upon them.

In the following sections I am briefly elaborating on what I expect each topic to cover, and presenting a solution schematic where a solution will be developed.

Topics

Overview of the Development Environment

This topic will provide references to components which must be obtained and installed to get a working SOA Suite for healthcare integration environment. It will provide the links to documentation which will lead the reader through the installation process.

A Very Brief Overview of HL7 v2 Messaging

This topic will very briefly introduce HL7 v2 messaging to give these who are not at all familiar with the subject some notion of what kind of messages HL7 v2 message are, how messaging is conducted and how messages look like in their original delimited and the "new" XML formats.

A Very Brief Overview of the SOA Suite for healthcare integration

This topic will briefly discuss the architecture of the SOA Suite for healthcare integration, describe the components of HL7 messaging solutions which use it and outline key features of these components and their role in solution development.

Creating a Canonical Message Model

This topic will walk through the process of creating and "testing" a "canonical message" – a single message structure which will be able to parse a number of HL7 v2 ADT messages – using the Oracle Document Editor.

HL7 v2 Inbound to File

This topic will walk through the process of configuring an inbound HL7 receiver and constructing a simple SOA Suite "file writer" solution which will write received messages to the file system as files, both HL7 v2 delimited and XML.

The solution schematic is shown below.
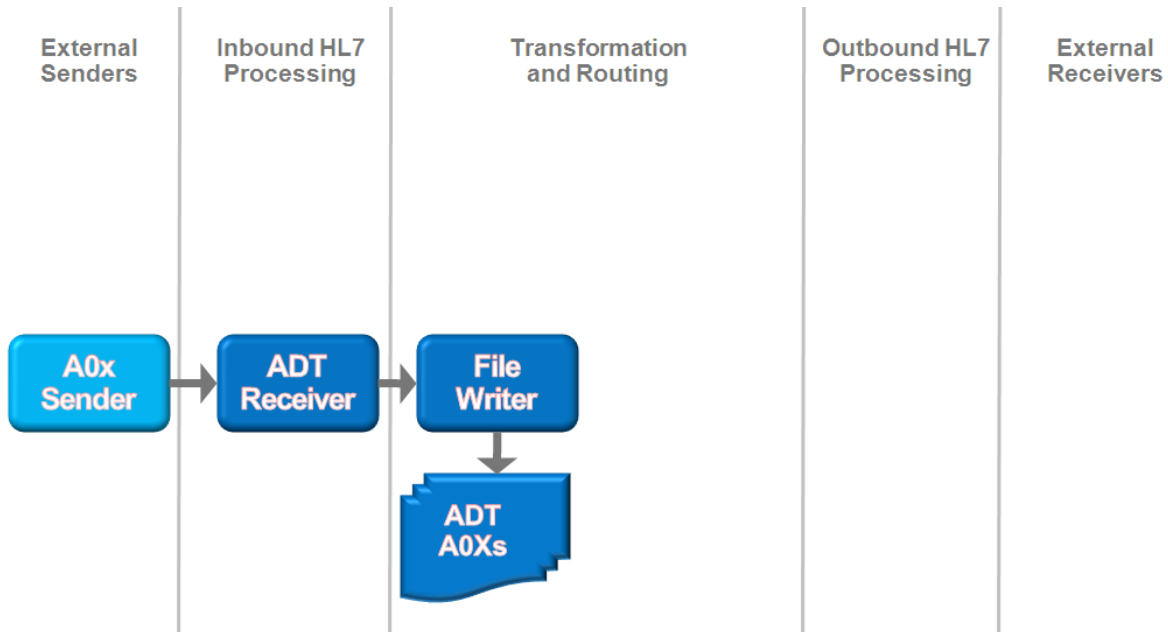
This schematic uses the component division convention which will be described in the article entitled "A Very Brief Overview of the SOA Suite for healthcare integration".

Constructing file name from message content and messaging properties

Where the solution developed in the article entitled "HL7 v2 Inbound to File" would have written a file with a fixed file name the solution in this article will construct file name based on the content of the message and the values of properties populated by the infrastructure, such as endpoint name and similar. The solution architecture will be identical to that in "HL7 v2 Inbound to File".

HL7 v2 Inbound to HL7 v2 Outbound Pass-through

In this article a HL7 v2 outbound endpoint will be configured and a simple SOA Suite-based routing solution will be added to route messages from the HL7 Inbound to the HL7 Outbound without transformation. This article builds on the knowledge gained while developing a solution discussed in "HL7 v2 Inbound to File".

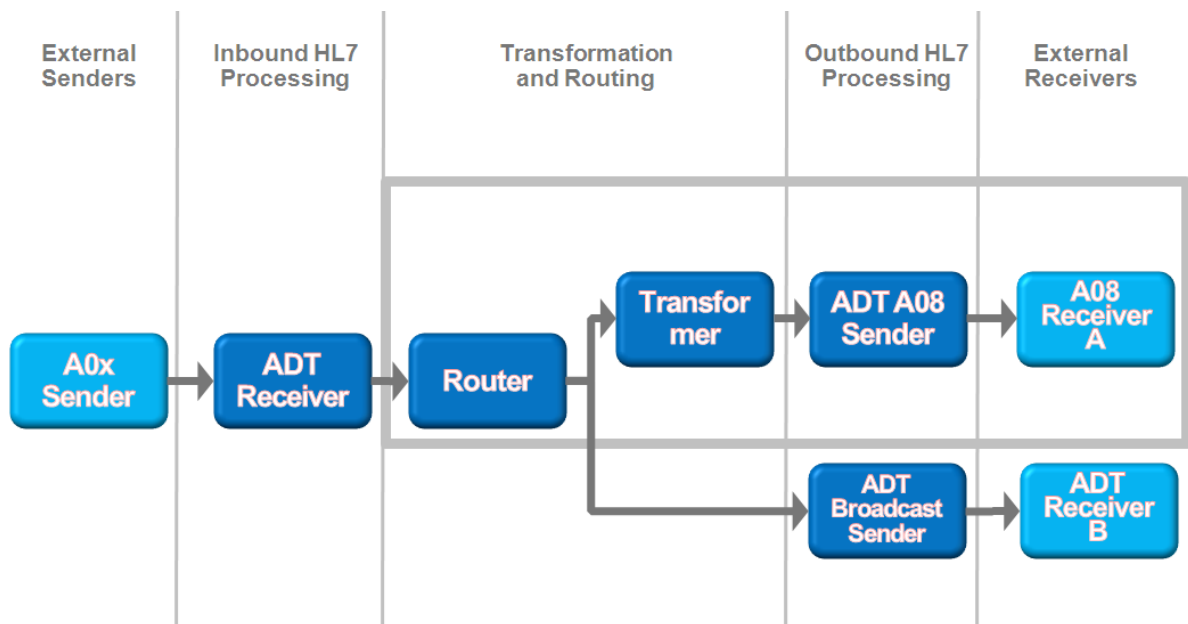The solution schematic is shown below.
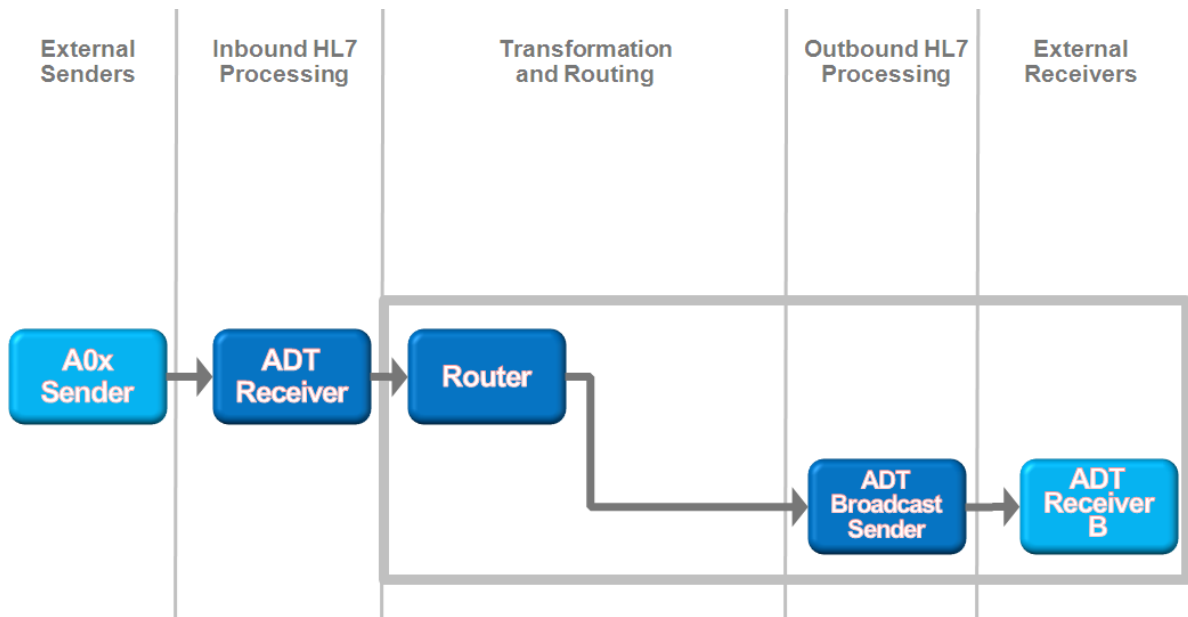
Transformation and Routing using XSL and Mediator

In this article the router developed in "HL7 v2 Inbound to HL7 v2 Outbound Pass-through" will be extended to add a fan-out for distribution of one inbound message to two outbound receivers and a ADT A01/A03 to ADT A08 transformation.

The solution schematic is shown below.

Adding Data Map for pass-through code translation

In this article a simple "data map" will be added to the transformation developed in "Transformation and Routing using XSL and Mediator" which will perform code substitution using a mapping table. The solution schematic will be the same as in "Transformation and Routing using XSL and Mediator".

Automating Exception Message Handling

As exceptions occur, the SOA Suite for healthcare integration automatically places exceptions messages in a pre-configured queue. In this article a simple solution which receives and automatically "processes" these exception messages will be developed to illustrate how exceptions can be handled for the purpose of, for example, operator notification.
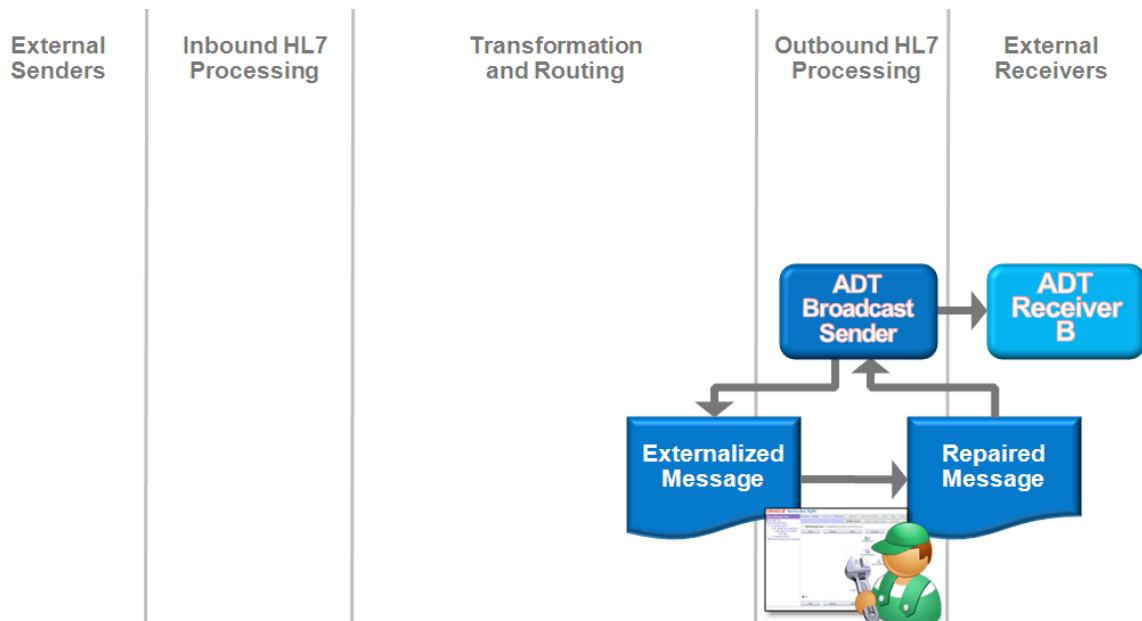
The solution schematic is shown below.
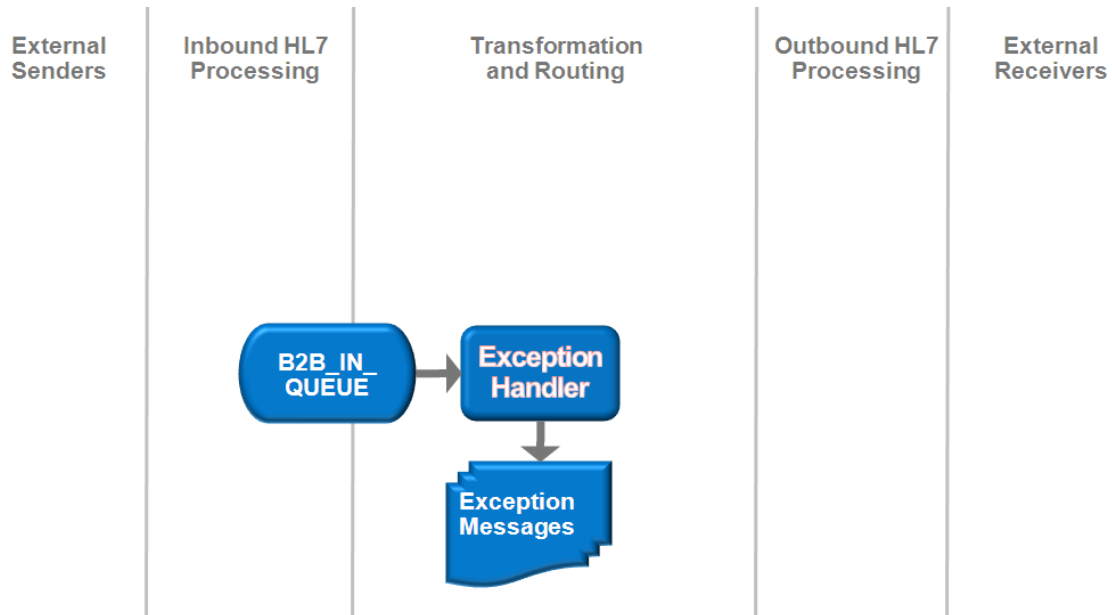
Externalise, "Repair" and Resubmit "broken" messages

It may happen that an outbound message is rejected by the receiver because it contains an invalid code or similar malformation. This article will explore how a message can be extracted for the system, modified (repaired) and re-submitted for sending. No specific solution will be built because all components needed to externalise and re-submit a message are a part of the product.
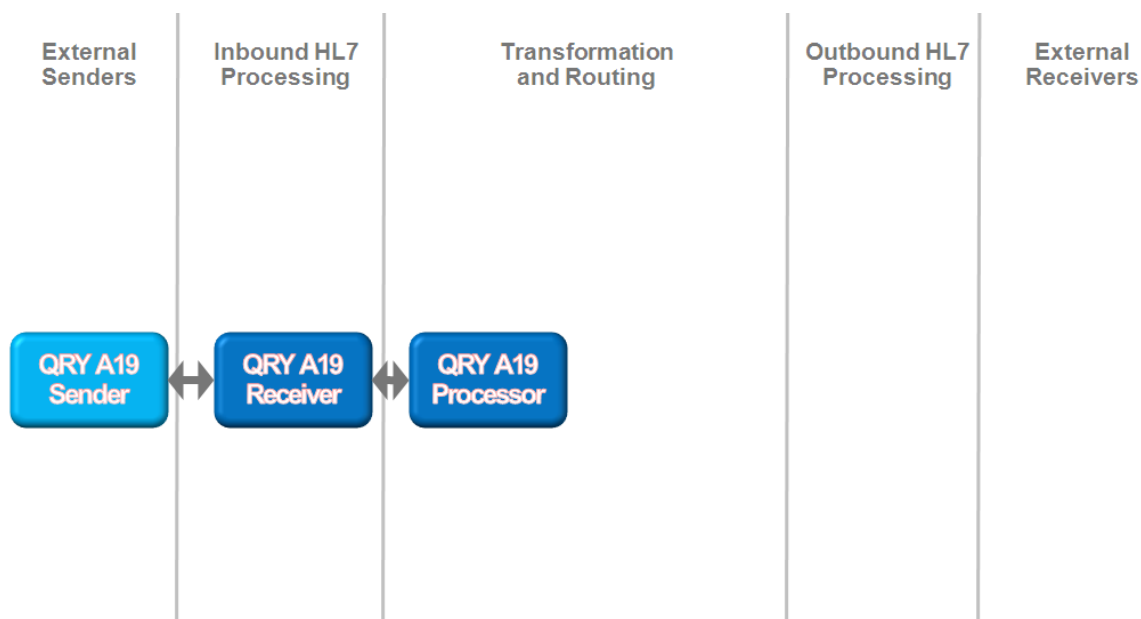
The non-solution can be depicted as shown below.

External Senders	Inbound HL7 Processing	Transformation and Routing	Outbound HL7 Processing	External Receivers

Implementing an A19 Query Processor

This article will walk through the process of developing and exercising a simple ADT A19 processor, which will receive ADT A91 query messages, construct A19 responses and return them to the requester.

The solution schematic is shown below.

External Senders	Inbound HL7 Processing	Transformation and Routing	Outbound HL7 Processing	External Receivers

Send, Receive and Translate HL7 messages using B2B Web Services

SOA Suite for healthcare integration functionality, such as translating HL7 v2 messages between delimited and XML forms in both directions, submitting messages to be sent and establishing a listener which will receive messages, can be accomplished from within a SOA solution, whether built using the Oracle SOA Suite or some other modern SOA platform, by invoking web services provided for the purpose. This article will explore some aspects of this functionality using built-in tooling. No specific solution will be built.

Other Key Features

In this article topics of configuration setting import/export/migration, configuration of alerts, integration with EAI solutions using JMS and purging instance and metadata will be discussed and illustrated. No specific solution will be built.

Summary

In this article I presented an overview of what I expect a series of future articles on the SOA Suite for healthcare integration might deliver.

Watch this space ☺