# Oracle SOA Suite 11g Oracle SOA Suite 11g HL7 Inbound Example

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### Introduction

As Sun Microsystems, and SeeBeyond before it, Oracle provides support for integration of systems which use HL7 v2.x messaging. Unlike Sun, and SeeBeyond before it, Oracle treats HL7 messaging as Business to Business exchanges (B2B) and uses the B2B part of the Oracle SOA Suite to accomplish the task [1].

In this article I develop and exercise a simple Oracle SOA Suite 11g B2B infrastructure-based HL7 v2 Receiver project for an ADT A01 message and use Message tracker to view messages, message states and messaging performance.

### **Pre-requisites**

It is assumed that a Windows XP SP3 platform with the Oracle SOA Suite 11g, installed and configured as discussed in "Installing Oracle SOA Suite for HL7 Exploration", published at <u>http://blogs.czapski.id.au/wp-content/uploads/2010/06/01 Installing Oracle SOA Suite for HL7 exploration v1.</u> <u>1.pdf</u>, is available and will be used for the work discussed in this article.

### **Prepare HL7 Data**

Unzip the archive, HL7\_messages\_sources.zip to C:\hl7\adt\data\. This archive is available from <u>http://blogs.czapski.id.au/wp-</u> content/uploads/2010/06/HL7\_messages\_sources.zip.

# **Obtain and Explore the HL7 Browser**

Typically a HL7 application sends or receives messages to or from another HL7 application. To keep the exercise simple we will use a 3<sup>rd</sup> party HL7 Browser to implement a sender application. This way we only need to configure the SOA Suite to receive messages.

Download and configure the free HL7 Browser tool, "HL7 Browser 1.0", from the author's page at <u>http://mac.softpedia.com/developer/Michael-Litherland-5914.html</u>. There are a number of other free HL7 tools by the same author at <u>http://nule.org/wp/</u>.

Unzip the archive, HI7Browser.1.0.zip, to c:\tools\HI7Browser.1.0. Using a Windows Explorer navigate to c:\tools\HI7Browser.1.0, right-click inside the folder that contains the HL7Browser.jar and choose New  $\rightarrow$  Shortcut. Enter "c:\jdk1.6.0\_18\bin\java -jar C:\tools\HI7Browser.1.0\HL7Browser.jar" as "location of the item" and click Next. (This assumes that JDK 1.6.0\_18 has been installed previously)



Enter "HL7 Browser" as the name of the item and click Finish.

Select a Title for the Proc	jram	×
	Type a name for this shortcut:	_
	Click Finish to create the shortcut.	
	< Back Finish Cancel	

Right-click on the name of the new shortcut and choose Properties. Change "Start in" property to "C:\tools\Hl7Browser.1.0". Change "Run" property to Minimized. Click OK.

HL7 Browser
HL7 Browser Properties
General Shortcut Options Font Layout Colors Compatibility
HL7 Browser
Target type: Application
Target location: bin
Target: C:\jdk1.6.0_18\bin\java.exe -jar HL7Browser.jar
Start in: C:\tools\HI/Browser.1.0
Shortcut key: None
Run: Minimized
Comment:
Find Target Change Icon Advanced
OK Cancel Apply

Double-click the HL7 Browser shortcut to start the browser and confirm that the shortcut works. Click on the "Open an HL7 File" button, navigate to c:\hl7\adt\data\sources and select the ADT\_A01\_output\_1.hl7 file.

HL7Browser - 1.0			
<ul> <li>HL7 Records</li> </ul>			
🛃 Open			×
Look in:	C sources	💌 🤌 🔛 📰	
My Recent Documents Desktop My Documents	ADT_A01_output_1.H7     ADT_A01_output_1.xml     ADT_A01_output_2.h17     ADT_A01_output_2.h17     ADT_A01_output_2.ch17     ADT_A01_output_2.6.h17     ADT_A01_output_2.6.xml     ADT_A01_output_5.h17     ADT_A01_output_5.xml     ADT_A01_output_5.0.h17     ADT_A01_output_50.xml     ADT_A01_output_50.xml     ADT_A01_output_50.xml     ADT_A01_output_50.xml     ADT_A01_output_50000.h17     ADT_A01_output_50000.xml     ADT_A01_output_5009.h17	ADT_A01_output_5099.xml     ADT_A03_output_1.hl7     ADT_A03_output_1.hl7     ADT_A03_output_1.xml     ADT_A03_output_1.zip     ADT_A03_output_25.hl7     ADT_A03_output_25.xml     ADT_A03_output_49.hl7     ADT_A03_output_9.hl7     ADT_A03_output_5.hl7     ADT_A03_output_5.hl7     ADT_A03_output_5.xml     ADT_A03_OU	ADT_A( ADT_A)( ADT_A
My Network Places	File name:         ADT_A01_output_1.hl7           Files of type:         All Files		Open Cancel

Double-click on the message text to expand it and see the next level of details.



Click "run the network utility" button in the HL7 Browser.



Click on the Receiver Mode tab, enter 12121 for port number and click Connect (which changes to Disconnect when connection is active).

🕌 HL7Browser - 1.0		<u>-                                    </u>
File		Help
Send Mode Receive Mode		
Port: 121212	Disconnect G Edit ACK	?
In listen mode		

Click "run the network utility" button in the HL7 Browser again.

HL7Browser - 1.0dt\data\sources\ADT_A01_output_1.hl7 - 1	
File	
D HL7 Records	
📙 🗁 🚩 MSH   ^~ \ &   SystemA   HosA   PI   MDM   2008090801529     ADT^A01   000	00
MSH ^~\& SystemA HosA PI MDM 2008090801529  ADT^A01	000
• EVN A01 2008090801529   JavaCAPS6^^^^^USERS	

Enter localhost and 12121 for Host and Port respectively. Click Connect and click Send Messages.

🕌 HL7Browser - 1.0		
File		Help
Send Mode Receive Mode		
Host: localhost	Port: 121212	
Start: 1	Stop: 1	💌 Send All? 🧭 Send Messages
		<b>1</b>
In send mode		

Note message exchange in the sender and the receiver, including a canned ACK in the sender window.

🛃 HL7Browser - 1.0		
File		Help
Send Mode Receive Mode		
Port: 12121	Disconnect 🥳 Edit ACK	?
Starting at: 01:10:50 01:10:50 received: MSH ~~{8:[SystemA HosA PI MDM 2008090801529  A aCAP56^^^^USERSPID 1  A000010^^HosA^MR^HosA  Kessel^/ 0828^UK       A2008090801529PV1 1 I  I  FUL^Fulde^Gordian 1529 01:10:50 sent ack	ADT^A01 000000_CTLID_2008090801529 P 2.3.1    Abigail  19460101123045 M   7 South 3rd Circle^^Do ^^^^^MAIN   EMR       V2008090801529^^^^\	AL  NEEVN A01 2008090801529   Jav ownham Market^England - Norfolk^3 /ISIT                     200809080
In listen mode		
🕌 HL7Browser - 1.0		
File		Help
Send Mode Receive Mode		
Host: localhost	Port: 12121	Disconnect
Start: 1 Stop: 1	l	Send All? Send Messages
Starting at: 01:10:50 01:10:50 sending: MSH ~~\& SystemA HosA PI MDM 2008090801529  AD aCAP56^^^^^USESPID 1  A000010^^~HosA^MR^HosA  Kessel^A 0828^UK       A2008090801529PV1 1 I  1  FUL^Fulde^Gordian^^^^ 1529	DT^A01 000000_CTLID_2008090801529 P 2.3.1   Al bigail 19460101123045 M   7 South 3rd Circle^^Do ^^^^MAIN   EMR        V2008090801529^^^^V	NEEVN A01 2008090801529  ]Jav wnham Market^England - Norfolk^3 ISIT                  200809080
01:10:50 received: MSH[^~\& NULEORG[HL7BROWSER_TNG]]]]ACK[[P]2	3   NE MSA AA  MSG OK	

The tool can be used to send messages to another application and receive messages from another application and acknowledge them with a canned ACK message.

We will use the tool later to look at and send HL7 messages.

# HL7 v2 Receiver Solution

Oracle uses the SOA Suite B2B component to provide HL7 v2 messaging support. It uses HL7 v2 message libraries and the B2B engine to provide message parsing and transformation between the native format (HL7 v2 delimited) and XML, which is used internally by the SOAP Suite.

Oracle B2b User's Guide can be found at http://download.oracle.com/docs/cd/E15523\_01/integration.1111/e10229.pdf.

The solution we will be building is a HL7 Receiver, which will receive v2 ADT A01 messages and will write them to files in the file system. This is the simplest HL7 solution possible.

The solution will consists of a B2B Listener Channel, to which HL7 v2 ADT A01 messages will be sent, and a SOA Composite which will receive these messages and will write them to a file in the file system.



Messages in the sample message set use the following identifiers:

SystemA
HosA
PI
MDM



# **Develop HL7 v2 Inbound Solution**

To develop the HL7 v2 inbound solution we need to go through a number of steps. The steps are:

- 1. Extract HL7 message structures from the standard library
- 2. Configure Local side of the B2B Partnership
- 3. Configure Remote side of the B2B Partnership
- 4. Create and deploy a Partnership Agreement
- 5. Create and deploy a HL7 Receiver B2B Composite

### Extract HL7 Message Structures

As part of the B2B Document Editor installation we installed a number of standards libraries. One of these libraries was the HL7 v2 library.

Since we will be receiving the ADT A01 we must obtain the eternal representations of the ADT A01 from the Standards Library.

Start the B2B Document Editor, which should be accessible through Start menu  $\rightarrow$  Programs  $\rightarrow$  Oracle as Oracle B2B.

ArGoSoft Mail Server	Oracle - OH1714220821	rvletlequestimpl,java ava:201) 173)
Windows Catalog Windows Update SOA Suite 11g Misc Tools	Orads     7-Zip     Nule.org ubls     Powertoys for Windows XP     XPL Copy Editor	PQ Analyzer     Mail Data Comparator     Q Data Editor     Q Data Editor     Q Data Generator     MapBuilder
🚰 Programs	🔥 🛅 Administrative Tools	Migrator
Documents	•	S Orada 828
Search		SpecGenerator
🔮 Help and Support 🗇 Run	Hereby Street	OS Version Service Pag
Ung Off Oracle Turn Off Computer	And the states	Snapshot 1 Subnet Mar
1 Start 🔗 🕑 🎭 🔾	🛄 Start WebLogic Server 🛛 🂐 2 Sysi	nternals Process +

Click the "New Document" button, select HL7 from the list, expand 2.3.1, select Event A01and click Next.



Leave the "Insert Envelope Segments" unchecked and click Finish.

🖻 New Document Wizard	×
New document creation Please select Envelope Segments	*3
Insert Envelope Segments	
From Envelope Database     C From Guideline	
HL7 - 2.3.1 - ADT - ADT message	
<u>E</u> nvelopes	Preview
<ul> <li>HL7</li> <li>Version 2.6</li> <li>Sile with Batch</li> <li>Sile with Batch for Query</li> <li>Version 2.5.1</li> <li>File with Batch for Query</li> <li>File</li> <li>Batch</li> <li>File with Batch for Query</li> <li>Version 2.5</li> <li>File with Batch for Query</li> <li>Version 2.4</li> <li>File with Batch for Query</li> <li>Version 2.4</li> <li>File with Batch</li> <li>File</li> <li>Batch</li> <li>File with Batch for Query</li> <li>Version 2.4</li> <li>File with Batch</li> <li>File</li> <li>Batch</li> <li>File with Batch for Query</li> <li>Version 2.4</li> <li>File with Batch for Query</li> <li>Version 2.4</li> <li>File</li> <li>Batch</li> <li>File</li> </ul>	ADT - ADT message FHS File header BHS Batch header BTS Batch trailer FTS File trailer
	< Back Finish Cancel Help

In the new window pull down the File menu and select "Export ...".

Spect - Oracle B2B - [HL7-	2.3.1]			
gie Edit Yew Iools Windo	w Help			
Green Col+N	RABVX	A 🖸 💈	4 <b>#</b> =   2 2 2 2 2 5 5 5 4   2	
Save Ctri+S Save §s Save As Tepplate Remove Tenplate	(everx A01) sage header segment	Message Prope	ADT	Category
C gose	I type segment t identification segment it additional demographi of King / associated partie	Name: Event: Event Name:	ADT message A01 ADT/ACK - Admit / visit notification	
Publish to	t visit regment t visit - additional informu- vity segment	Standard: El Notes	HL7 Version: 2.3.1	
Print Preview     Print Preview     Print Setup     Document Options	I valion/leuit segment k alergy information segr cost segment noss related group segm IE ritor segment	H Purpose	Purpose An A01 event is intended to be used for "Adm patients only. An A01 event is sent as a resu patient undergoing the admission process wi assigns the patient to a bed. It signals the be a patient's stay in a healthcare facility. Norm	nitted"

Select Oracle B2B 2.0 and click Next.

Export Wizard		×
	Welcome to Export Wizard	
	This wizard helps you convert a SpecBuilder guideline into external formats for use with other applications.	
EXPORT	Choose an export to perform:	
	Comma Separated Values format (CSV) gXML v1.0 Oracle B2B. 2.0	
	Description:	
	This export routine will convert the guideline from the internal format to one that can be used with the Oracle B2B runtime software 2.0.	
	< Back Next > Cancel Help	

Enter C:\hl7\ADT\_Specs\ADT\_A01 into the "Save exported File as:" entry field, check the "Save guideline before exporting" checkbox and click Next.

Export Wizard	×
Export Export destination	
Save exported File as: [c:\hl7\ADT_Specs\ADT_A01] Save guideline before exporting Show advanced options	
< Back	Next > Cancel Help

Enter C:\hl7\ADT\_Specs\ADT\_A01 into the "File name:" text box and click Save.

	Save As						<u>?</u> ×
:	Save in:	🗀 Guidelines		•	+ 🗈 💣	•	
1	My Recent Documents						
:	Desktop						
:	Documents						
•	Wy Computer						
	My Network	File name:	C:\hl7\ADT_Specs\ADT_A01	1	•		Save
	Places	Save as type:	SpecBuilder Files (*.ecs)		•		Cancel

#### Click Finish.

Export Wizard	×
Export Exporting the document	S
Converting to Oracle B2B. 2.0	
Finished	
	🗖 Close on Finish
< Back Finish	Cancel Help

Close both windows. We are done with the B2B Document Editor for this exercise.

We exported the HL7 v2 ADT A01 definition in both the XML Schema form and the format used by the EDIFECS engine. The former can and will be used in the SOA Composite and the later is required to configure the B2B document for the trading partnership we will create shortly, and is used at runtime by the EDIFECS Engine.

### Configure B2B Partnership

Start the B2B Trading Partner Manager console by pointing the web browser at <u>http://localhost:7001/b2b. Log in as weblogic/welcome1</u>.



Click the Administration link, select the Document Tab, select HL7 in the node tree and click the large Plus sign to add a new document.

ORACLE B2B	Administration   Partners   Reports   Metrics   Help   Logout
Import/Export Document Deploy Manage Deployments	Logged in as weblogic Types Schedule Batch Manage Batch »
Documents     Document Protocols     Document     Document     Document Protocols	Save     New Version       xol, you can create multiple document versions. Then you can create specific document types and       HL7

Enter 2.3.1 for Version Name and click Save. The screenshot shows the state after the Save button has been clicked.

Documents 🔶 🔆	Document Pr	otocol Versio	an i				Save New Tat
Coursent Protocols Coursent Pro	HL7-2.3.1 has been s HL7-2.3.1 Specify the version for	ned. The document provide the document provide the document provide the document of the docume	The Header	cnew version	s saved, you can create & n Macalanes.or	ew document type.	Rest Paramete
	Security			Internatio	rolation	Internetoria	
	Processing ID			3. 3	Cade Yext	Version ID	
				- Diteristic	PLASER AND	Carried samples	

With the new node, 2.3.1, selected, click the large Plus sign to create a new document under that node, name if ADT\_A01 and click Save. This name is derived from the Message Type and Trigger Event in the HL7 message.

ORACLE B2B	
Import/Export Document Deploy Manag	e Deployments Types Schedule Batch Manage Batch Callout Purge Lister
<ul> <li>□ Documents</li> <li>□ Document Protocols</li> <li>□ Custom</li> <li>□ EDI_EDIFACT</li> <li>□ EDI_X12</li> <li>□ ■ HL7</li> <li>□ □ 2.3.1</li> <li>□ ■ PositionalFlatFile</li> <li>□ RosettaNet</li> <li>□ UCCNet</li> </ul>	Document Type HL7-2.3.1-NewDocumentType Specify the document type for this version. After the new type is saved, you can create a term  Description  Transaction
	HL7 Generic ACK

With the new node, ADT\_A01, selected click the large Plus sign to add a new document under that node. Provide the name of ADT\_A01\_DocDef, locate and choose c:\hl7\ADT\_Specs\ADT\_A01.xsd file for document definition and c:\hl7\ADT\_Specs\ADT\_A01.ecs file for Transaction Set ecs File.

E Documents	+ 2	Document Definition			
E COLUMENT POTOCOS COLUMENT POTOCOS EDIL/12 E	HL EN	7-2.3.1-ADT_A01-NewDe ar the document definition name and * Document Definition Name	finition select the required definition ( ADT_A01_DocDef	te.	
GAG PositionalRatPile RosettaNet UCCNet		Definition Root XSD Name	ADT_A01.xad Update	1	

Click the Routing Tab and enter HL7\_ADT\_A01 into the Routing ID field.

Transaction Routing XPath Correlation Apps
Document Routing ID HL7_ADT_A01

Click Save to save the changes.

A hierarchy like that shown below should be now defined.

Import/Export Document Deploy Manag	e Deployments Types Schedule Batch Manage Batch Callout Purge
□ Documents	Document Definition Confirmation: ADT_A01_DocDef has been saved. HL7-2.3.1-ADT_A01-ADT_A01_DocDef Enter the document definition name and select the required definition file. Document Definition Name ADT_A01_DocDef Description Definition ADT_A01.xsd Update Root XSD Name
	Transaction Routing XPath Correlation Apps Document Routing ID HL7_ADT_A01

This defines the documents to be used in setting up message exchanges.

Now we need to configure trading partners, the local partner and the remote partner.

Click the Partners navigational link, select the default pre-defined MyCompany partner and click the Edit button (Pencil icon).

ORACLE B2B		Administration Partners Reports Metrics mil	Logaut 📿
🗄 Partner 🛛 💠 🔏 🖉 👩	Profile Users Docurrents Chernels	Logged i	n as weblogic
Search Advanced	MyCompany The toding partner profile uniquely identifies each parameters for each partner.	partner. Set up identifiers, contact information, and customized	bpert ×
	Identifier types uniquely identify a trading partner	and define how to exchange documents.	

Change the name to LocalHL7Receiver and click OK.

🗆 Partner 🛛 🔶	/ X & B	Profile Users Documents Channels
Search Name Search	Trading Partne	r Name and Icon
🔏 MyCompany	* Partner Name	Local HL7Receiver
	Icon File	Browse
	Replaces default p	artner icon. Use a 16 x 16 pixel .png file.
		OK Cancel

Click the large Plus sign in the right hand window to add two identifiers. From the drop-down lists choose HL7 Message Application ID and set it to the value of PI for one and HL7 Message Facility ID set to the value of MDM for the other. Click Save.

These are the IDs of the receiver side. This is what the messages are expected to carry in MSH-5 and MSH-6 fields.

Profile Users Documents Channels					
LocalHL7Receiver The trading partner profile uniquely identifies each partner. Set up identifiers, contact information, and customized parameters for each partner. Identifiers					
Turse	Value				
Name	LocalHL7Receiver				
HL7 Message Application ID	PI				
HL7 Message Facility ID	MDM				

With the LocalHL7Receiver selected click the Documents Tab, uncheck the Sender checkbox and click Save. We are configuring the HL7 inbound so the local role is that of a receiver of messages.

	Charles and the	Looged in as well
Profile Lisers Documents Charries		
Alt for all HL ZReceiver Alt fre documents that are specific to this trading partner. All documents the Documents	hat the host creates are available to add to the t	tading partner's profile
Definitions HL7-2.3.3-ADT_ADL_DocType=ADT_ADL_DocDef	Sender	Receiver P
	Profile JUINT Documents Courses & LocalHL/Receiver Add the documents that are specific to this trading partner. All documents th Documents Definitions H.7-2.3.1-K0T_ADL_DecType-ADT_ADL_Docter	Profile         User         Documents         Outviel                Å LocalHLZReceiver               Å LocalHLZReceiver               Å documents that are specific to this trading partner. All documents that the host creates are available to add to the t             flocuments               Declarements                Declarements              Declarements               Sender                HLP2.3.1.40T_ABL_Doctype #OT_ABL_Bochef               Г

Click the large Plus sign to create a new trading partner, named RemoteHL7Sender, enter the name and click OK.

ORACLE B	2B			
🖻 Partner	+ / × B	Pr	ofile Users	Docume
Search Name Search	*Partner Name	RemoteHL7	Sender	
			ОК	Cancel

With the RemoteHL7Sender selected click the large Plus sign in the right hand panel to add three identifiers, HL7 Message Application ID set to the value of SystemA, HL7 Message facility ID set to the value of HosA and MLLP ID set to the value of 127.0.0.1. Click Save.

🗆 Partner 🛛 🕂 🧪 💥 🚳	Profile Users Documents Channels			
Search Name Search Advanced	& RemoteHI 7Sender	Save Export		
LocalHL7Receiver	The trading partner profile uniquely identifies each partner. S	et up identifers, contact information,		
RemoteHL7Sender	and customized parameters for each partner.			
	RemoteHL7Sender has been saved.			
	Identifiers			
		Value		
	Nome	Remotel IL7Sender		
	HL7 Message Application ID	SystemA		
	HL7 Message Facility ID	HosA		
	MLLP ID	127.0.0.1		

With the RemoteHL7Sender selected, click the Documents Tab, click the large Plus sign to add a document, select HL7  $\rightarrow$  2.3.1  $\rightarrow$  ADT\_A01  $\rightarrow$  ADT\_A01\_DocDef and click Add.

= Partner 🕹 🖉 🕱 🚳	Profic Users Documents Channels	Lugged in as weblogic
Localiti.7Receiver	RemoteHL7Sender     Add the documents that are specific to the tracing partner. All documents     Decuments	the the host creates are available to add to the
	Definitions elect Document Definition	Serder 4
	Custom C	

Uncheck the Receiver checkbox and click Save.

Profile Users Documents Channels				
& RemoteHL7Sender Add the documents that are specific to this trading partner. All documents that the host create Documents	s are available to add	to the trading partner's profile.		
Definitions HL7-2.3.1-ADT_A01-ADT_A01_DocDef	Sender	Receiver Responder		

With the RemoteHL7Sender partner selected click the Channels Tab, select MLLP-1.0 from the Protocol drop-down, configure Connection Mode: server, Host Name: localhost, Port: 12121 properties and check the Permanent Connection checkbox.

Profile Users Documents Channels	
RemoteHL7Sender Channels define how a message is delivered.	Save
Channel	+ ×
Name	
RemoteHL7Sender Channel	-
Channel Details	
Transport Protocol TCP	
Transport Protocol Parameters Channel Attributes Exchange Protocol Parameters Security	
Connection Mode Server 💌	300
Host Name localhost	
Port 12121	
Permanent Connection 🔽	
Sequence	
Polling Interval 10	

In the Channel Details section of the panel click the Exchange Protocol Parameters Tab. Choose Default from the Immediate ACK drop-down, check the Map ACK Control ID and Map Trigger Event checkboxes. Finish by clicking the Save button.

Channel Deta	ês -				
Transport Prote	scol TCP +				
Transport Pro	toosi Parameters 0	hannel Attributes Exchange	e Protocol Parameters Security		
Inmediate ACX Custom Inmediate ACX File Mop ACX Control ID Mat Trigger Event	Default	Brownes	End Block -Divarsater (ox 12 Carriage Rietum Cheracter Identify TP by delivery channel Start Block End Block	Message Length Indus Retain Header	
Dacard HL7 ACX Start Black	fione		Header Length		

We defined the document types the remote partner will be sending and configured the listener we need to use on our side to receive messages from that partner.

Click the large Plus sign in the Agreements section to add a new trading partnership agreement. Provide the Agreement ID of HL7ReceiverTPA and the Name of HL7ReceiverTPA\_Agr.

🗏 Partner 🛛 💠 🧨 🗱 🔯	Agreement
Search Name Search Advanced	A=A New Agreement_0613_0203
	Definition Definition *Agreement Id HL?ReceiverTPA *Name HL?ReceiverTPA_Agr
E Agreement 4 20 Search Ame Search Advanced	Agreement Parameters

Click the "Select Document Definition" icon in the top centre of the panel, select the definition of the document being sent from the remote sender to local receiver and click OK.

Agreement				
å <b>a</b> a New Agre	ement_0613_0203			/
		LocalHL7Receiver	Select Document Definition	RemoteHL7Sender
Details	Select Document Definition	on		×
*/ å≓å Select Docun		Select Document Def	nition	
	Partr	her	Document Definition	
	LocalHL7Receiver	<ul> <li>RemoteHL7Sender</li> </ul>	HL7 - 2.3.1 - ADT_A01_DocType - A	ADT_A01_DocDef
	1			Callou

Choose the RemoteHL7Sender\_Channel from the Channel drop-down on the RemoteHL7Sender panel in the bottom right portion of the display.

In the bottom right panel click the large Plus sign to specify identifiers defined when the RemoteHL7Sender partner was created.

Identifiers					
		Type		Value RemoteHL7Sender	
_	_	Name		Renoteniz/Sender	
	Select	Identification			
		<mark>≟≓å Select Id</mark>	entification		
		Туре	Value		
		HL7 Message Application ID	SystemA		
337		HL7 Message Facility ID	HosA		
		MLLP ID	127.0.0.1		
			127.0.0.1		

In the bottom left panel click the large Plus sign to add identifiers used by the LocalHL7Receiver partner.

LocalHL7Receiver			A RemoteHL7Sender	
Channel 💽			Channel RemoteHL7Sender_Ch	annel 💌
Identifiers		1	Identifiers	
Type Value	ue		Туре	Value
Name Loca	alHL7Receiver	tion		ystemA
	Select Identificat			osA
	2 -> 2	Coloct Identification		.emoteHL:
		Select Identification		
	Type	value		
	HL7 Messag	e Application ID PI		
	HL7 Messag	je Facility ID MDM		
1 lint				

Click Save to save the new trading partnership agreement.

\_\_\_\_\_

Agreement				
a≓å New Agreement_	0619_1022			Save Validate Deploy
	LiscaHL 7Receiver	ADT_AD_DocDef	Remotei	L7Sender
Details				
* Agreement 3d	HL/Receiver/TPA		Start Date	6
* None	HL/ReceiverTPA_Agr		End Date	10b
Description			Caleut	Callout Details
	Translate Functional Adl.			
å LocalHL7Receiver		ā P	temoteHL7Sender	
Orannel 💽		Char	nel Remotel41.75ender	Channel 💌
Identifiers		4 % Idea	ntifiers	÷ X
Туре	Value	Top	æ	Value
HL7 Message Application ID	PI	HL7	7 Message Application ID	SystemA
HL7 Message Facility ID	MDM	HLT	7 Message Facility ID	HosA
Name	LoceHL7Receiver	ML	LP ID	127.0.0,1
		Ner Ner	100	11 The second

Click Deploy link to deploy the trading partnership agreement.

Agreement				
å≓å HL7ReceiverTPA_Agr				Save Valdate Deploy
Confirmation:				
H. Receiver TPA_Agr has been saved.				
	2	80	2	
	Local-L.Receiver	AUT_AUL_DodXef	RenoteHL75ender	
Details				100

We are finished with the trading partner management console for the time being. The partnership has been defined and deployed. Now we need the runtime solution that will receive messages, according to the trading partnership agreement, and will write them to a file in the file system. This solution, which will be a SOA Suite Composite, will be developed using the JDeveloper IDE and will be deployed to the WebLogic Application Server.

### **Develop File Writer Solution**

Start JDevelope IDE, perhaps by following Start menu  $\rightarrow$  Programs  $\rightarrow$  Oracle WebLogic  $\rightarrow$  JDeveloper Studio 11.1.1.3.0 path through the menus.



Once JDeveloper is up create a new SOA Application.



Name this application HL7ReceiverApp, choose SOA Application template and click Next.

📥 Create SOA Application	n - Step 1 of 3
Name your application	
Project Name	Application Name: HL7ReceiverApp
o Project SOA Settings	C:\JDeveloper\mywork\HL7ReceiverApp Browse
	Application Package Prefix:
	Application Template:
_	Portlet Producer Application     This application template is configured for creating portlets. It consists of a project     for creating Standards based Java and Oracle PDK portlet providers. Portlets     created in this application can be consumed in a WebCenter Application.
	SOA Application Creates a SOA (service-oriented architecture) application. The application consists of one SOA project for the SOA composite, components, and adapters.
_	WebCenter Application     This application template is configured for building a WebCenter application. It     consists of two projects: one for using the Content Repository to view content     within your application, and another project for view and controller components that     consume WebCenter services and the portlets.
Help	< Back Next > Einish Cancel

Name the project HL7Receiver and click Next.

ame your project	Seal of the seal o	
Application Name	Project Name: HL7Receiver	
Project Name	Directory: C:\JDeveloper\mywork\HL7ReceiverApp\HL7Receiver Bro	wse
Project SOA Settings	Project Technologies Generated Components Associated Libraries	
	<u>A</u> vailable: <u>S</u> elected:	
	AUF Library web Application Support ADF Page Flow ADF Swing Announcement Service Ant BPM Control Description:	
	SOA is the Service Oriented Architecture to build composite applications.	

Accept the default Composite Name of HL7Receiver and default template Empty Composite, and click Finish.

Create SOA Application	- Step 3 of 3 gs	mainin	International States	×
Application Name Project Name Project SOA Settings	Composite Name: HL7Receiver Composite Template: Empty Composite Composite With BPEL Process Composite With Business Rule Composite With Mediator Composite With Mediator Composite With Mediator Composite With Spring Context Composite With Spring Context Composite From Oracle BPA Blueprint			
<	Customizable	< <u>B</u> ack	Next >	inish Cancel

Drag the B2B Service Adapter from the list of service adapters in the SOA components palette.



Click Next to the "Welcome to B2B Configuration Wizard" dialogue window.

Set the Service Name to HL7ReceiverIn and click Next.

💩 B2B Configu	uration Wizard - Step 2 of 4
Service Na	ne
Enter a Service	Name.
Service Type:	B2B
Service Name:	HL7ReceiverIn

Accept default "Default" and the B2b Integration Type and click Next.



This is the first time we are developing a composite in this installation so there will be no AppServer Connection. Click the large Plus sign next to the AppServe Connection, to start the AppServer connection definition wizard. We will resume the B2B Interface Wizard shortly.

2
document definitions. Select the New button to create a
• + / ×
▼ Test B2B

Give the connection the name of WebLogic\_Local, Accept the default of WebLogic 10.3 and click Next.

🔶 Create Application Se	rver Connection - Step 1 of 5
Name and Type	
🔎 Name and Type	Specify a unique name and type for the connection. The name must be a valid Java identifier.
Authentication	Create connection in: IDE Connections
Configuration	Connection Name:
y Test	WebLocgic_Local
U Finish	Connection Type: WebLogic 10.3

Provide credentials weblogic/welcome1 and click Next.

े Create Application Se	rver Connection - Step 2 of 5
Authentication	
Mame and Type	Specify a username and password to authenticate the connection.
Authentication	Username:
Configuration	weblogic
U Test	Password:
5 Finish	

Set WebLogic Domain to single\_server\_domain, which is what our domain is called, and click Next.

Create Application S	erver Connection - Step 3 of 5	2
Configuration		
Authentication	WebLogic Server connections use Domain of the target will be verifie Weblogic Hostname (Administration	a host name and port to establish a connection. The ed on Server):
	localhost	
Y <u>lest</u>	Port:	<u>S</u> L Port:
U Finish	7001	7002
	Always use SSL	
17	Weblogic <u>D</u> omain:	

Click "Test Connection" button. Hopefully you will see several Success messages. Click Next and Finish.

Create Application Se	erver Lonnection - Step 4 of 5		1
Authentication Configuration Test Enish	Click Test Connection to determine if the in connection with the application server. Test Connection Status: Testing JSR-160 Runtime Testing JSR-160 DomainRuntime	formation specified successfully establishes	2 sa
	Testing JSR-88 Testing JSR-88-LOCAL Testing JMDI Testing JSR-160 Edit Testing HTTP Testing Server MBeans Model Testing HTTP Authentication 9 of 9 tests successful.	5400655. 5400655. 5400655. 5400655. 5400655. 5400655.	
Help		< Back Nevt > Finish	Cancel

Back in the B2B Interface Wizard the new AppServer Connection, WebLogic\_Local, will be selected. Click the Text B2B button. Once the Success dialog opens, click OK, then Next to continue defining the B2B Interface.

ew connectio	on,	
ppServer Co	onnection:	WebLocgic_Local 🗾 🕈 🧪 💥
User Name: Host Name:	weblogic localhost	
50A Server	AdminServer	✓ Iest 628
		B2B server connection successful !!

Choose the Receive operation and click Next.

B2B Configuration Wizard - Step 5	of 7 2
Operation	
B2B supports the following two operations defined in this wizard.	. Select the operation to use. Only one operation per service may be
Send	

Keep the Document Definition Handling at Basic, the default, and click Next.

B2B Configuration Wizard - Step 6 of 7	
Document Definition Handling	
Basic Advanced	
Import Schema from B2B	
An xsd file will be copied to the project's directo will not include dependent files. Dependent files directory structure.	ry in order for it to be available at runtime. However, this s must be manually copied, maintaining the same relative

Choose the HL7 2.3.1 ADT A01 document definition and click Next.

B2B Configuration Wizard - Step 7 of 8			
Document Definition			
Select the document definition for this service.			
	Search	Refresh	B2B Configuration
Use Routing ID			
Document Definitions			
Ġ <mark>/ 2</mark> HL7			
⊟			
ADT_A01_DocDef			
🗄 🛅 B2B			

Click Finish to complete the wizard.

The HL7ReceiverIn will appear in the composite in the "Exposed Services" swim line.

③Start Page IHL7ReceiverApp G	Dverview	
✓  ✓ <p< th=""><th>招 図 🔮 🤣</th><th>Composite: HL7Receiver</th></p<>	招 図 🔮 🤣	Composite: HL7Receiver
Exposed Services	Components	External References
HL7ReceiverIn Operations: receive		

Drag the File Adapter from the Service Adapters component palette to the External References swim line.

Composite: HL7Receiver	SOA	•
External References	<b>6</b> 0	0
	Spring Context	1
	- Service Adapters	
	ADF-BC Service	
1.00	🏭 AQ Adapter	Ĩ
<b>A</b>	😥 B2B	
	🛗 BAM Adapter	
	🖓 Database Adapter	
1 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	🛞 Direct Binding	
and the second se	🔞 EJB Service	
	😘 File Adapter	
	🚳 FTP Adapter	
	[ 🚮 HTTP Binding	

Click Next to the Welcome dialogue, enter HL7FileWriter as service name and click Next.

Adapter Configuration Wizard - Step 2 of 4	×
Service Name	*
Enter a Service Name.	
Service Type: File Adapter	
Service Name: HL7FileWriter	

Accept the defaults for Adapter Interface and click Next.

े Adapter Configuration Wizard - Step 3 of	4 X
Adapter Interface	
The adapter interface is defined by a wsdl that is this wizard. Optionally, the adapter interface may	generated using the operation name and schema(s) specified later in be defined by importing an existing WSDL.
Interface: () Define from operation and schema	(specified later)
◯ Import an existing WSDL	
WSDL URL:	1
Port Type:	·
Operation:	*

Choose Write File operation type, accept default operation name and click Next.

hdapter Conf	iguration Wizard - Step 4 of 7
Operation	
The File Adapter : system, a Write F contents of a file, Operation Name.	supports four operations. There is a Read File operation that polls for incoming files in your local file ile operation that creates outgoing files, a Synchronous Read File operation that reads the current , and a List Files operation that lists file names in specified locations. Specify the Operation type and Only one operation per Adapter Service may be defined using this wizard.
Operation Type:	○ <u>R</u> ead File
	● <u>W</u> rite File
	◯ <u>S</u> ynchronous Read File
	O List Files
Operation Name:	Write

Specify C:\hl7\received as the physical path to the directory where the files will be written. Specify HL7\_ADT\_A01\_in\_% yyMMddHHmmssSS%.hl7 as the "file naming convention". Leave all else at defaults and click Next.

-ile Configuration						
Specify the parameters for the Wri	ite File oper	ation.				
Directory specified as Directory for Outgoing Files (physic	ysical Path cal path):	O Logical Nar	ne			
Eile Naming Convention (po_%5EQ	2%.txt):	HL7_ADT_A01	l_in_%yyMMdd	HHmmss55%.H	117	-2-1120
Append to existing file						
Write to output file when any of I	these condi	itions are met—				
Number of Messages Equals:	1					
Elanced Time Exceeds	I		(A)	minutes		
T Elabsen ulue exceeds:	1.0					

Click "Browse for Schema File".

⁄lessages	
Define the message for the Write File operatic defines the messages in the outgoing files. Us Schema is Onaque', then you do not need to a	on. Specify the Schema File Location and select the Schema Element tha ie the Browse button to find an existing schema definition. If you check specify a Schema
-Message Schema	
-Message Schema	(Schema is Opaque)
-Message Schema Native format translation is not required ( URL	(Schema is Opaque)

In Type Explorer choose ADT\_A01 element of the ADT\_A01.xsd schema file and click OK.

🖕 Type Chooser	×
	絮 🖻
🔍 Type Explorer	
🖨 🗁 Project Schema Files	
🖮 🛃 ADT_A01.xsd	
ADT_A01	
🗄 💼 Project WSDL Files	

Confirm the schema element, click Next and click Finish.

4essages		
Define the message defines the message	for the Write File operation. Specify the Schema File Location and select es in the outgoing files. Use the Browse button to find an existing schema	: the Schema Element tha a definition. If you check
-Message Schema	, then you do not need to specify a Schema.	
-Message Schema	, then you do not need to specify a Schema. ranslation is not required (Schema is Opaque)	
-Message Schema	, then you do not need to specify a Schema, ranslation is not required (Schema is Opaque) xsd/HL7/2.3.1/ADT_A01_DocType/ADT_A01_DocDef/ADT_A01.xsd	Q_ @

The structure of the HL7 message which will be written by the File Adapter will conform to this schema element.

Our composite has an inbound (B2B) and an outbound (File) adapter.



Now we need a piece of logic to copy the message from one adapter to the other, potentially transforming it if needed. We will not need to do this in this example since all we care about is to receive a message and write it to a file.

Let's choose the Mediator to develop the simple logic we need. Drag the Mediator component from the Service Components palette onto the Components swim line.



Name the component HL7PassThrough and click OK. The Mediator component appears is the composite.



"Wire" components together by dragging from the chevron icon of the component at the left to the "corresponding" chevron icon at the component to the right.



Double-click the Mediator component to open its plan and configure it.

2	
ć Mediator	
Nane: HL7PassTtrough	
WSDLLFL: ML7Recoverin.wsd 🍇	
Port Type1 028_receive_ptt	
Resequence Level operations 💌	
🗉 🛍 Routing Rules	
@ Operations	<b>B</b> , <b>B</b>
🗝 receive Priority 🛛 🔁 🗌 Kakdate Syntax (XSD)	⇒ <b>∀ †• X</b>
Calbut To < <dava calout="" gaus="">&gt;</dava>	
Resequence Off	
- Static Building	
🚊 ( <filter expression="">&gt; 🛛 🗣 强 🗝 (#D)Flat/whiter :Write</filter>	() Sequential •
Valdate Semantic	
Transform Littra hodu - c - Transformation Maco o	- 84
Arcini Univer	3 88
Mosign i rativos	

Click the Mapper icon to start defining the mapping between the B2B Adapter and the File Adapter.

Static Routing			~	
	Yakista Semartir	+L7FileWriten:Write	) 5ec	quential 💌
	Transform Using	body : < <transformation map="">&gt;</transformation>		
	Assign Values			

Choose "Create New Mapper File" and click OK.

Transformation	n Map	×
Transformation from request	message B2BMsg to message Write_msg.	
Transformation to part:	body	
O Use Existing Mapper File:		<ul> <li>&lt; /</li> </ul>
Create New Mapper File:	ADT_A01_To_ADT_A01.xsl	
Help	OK	Cancel

Based on your knowledge of the incoming message, map segments and fields as appropriate. In the case of our sample message we have only MSH, ENV, PID and PV1 segments.

🔁 HL7 Records
🗄 ✔ MSH   ^~ \ &   System A   HosA   PI   MDM   2008090801529     ADT^A01   000000_CTLID_2008090801529   P   2.3.1       AL   MEEVN   A01   20080
• MSH ^~\& SystemA HosA PI MDM 2008090801529  ADT^A01 000000_CTLID_2008090801529 P 2.3.1   AL NE
• EVN A01 2008090801529   JavaCAPS6^^^^^USERS
PID 1  A000010^^^HosA^MR^HosA  Kessel^Abigai1  19460101123045 M   7 South 3rd Circle^^Downham Market^Eng
• PV1 1 I   FUL^Fulde^Gordian^^^^^^^AAAN   EMR        V2008090801529^^^^VISIT

Map MSH to MSH, EVN to EVN, PID to PID and PV1 to PV1. Ensure the confirmation dialogue box options are correctly set.

📤 Auto Map Preferences	×
<ul> <li>Confirm Auto Map Results</li> <li>Prompt for Preferences before Auto Map</li> </ul>	
Mode: Basic 🔻	
During Auto Map:	
Match Elements with Similar Names     Match Elements with Exact Names	
Match Elements with Exact Types     Match Elements Considering their Ancestor Names	
Insert xsl:if statements:	_
For optional nodes with reguired children     For all optional nodes	
Show Dictionaries >>	
<b>✓</b> <u>E</u> nable Auto Ma	эр
Help OK Cancel	

Hacomposite.xml	ADT_A01_To_ADT_A01.xsl	
Source: HL7ReceiverIn.wsdl		XSLT File: HL7FileWriter.wsdl
🚼 <sources></sources>		<target> 🚼 🖃</target>
🖮 🖇 ns1:ADT_A01		ns1:ADT_A01 🐝 着
туре		Type ma
XDataVersion		XDataVersion
🔤 Standard		Standard 🔤
Version		Version m
GUID		
		CrostedPu 201
CreatedDate		
Name		Name 22
Internal-Properties		ns1:Internal-Properties 🚧 🕀
🗄 🛞 ns1:MSH		for-each 🕺 🗄
🖶 🛞 ns1:EVN	- <u> </u>	for-each 😥 🗄
🖶 🛞 ns1:PID		for-each 🛞 🗄
🖶 🐼 ns1:PD1		ns1:PD1 😹 🕀
🗄 🖓 ns1:NK1		ns1:NK1 🐻 🕀
🔿 🛞 ns1:PV1		for-each 🐼 🕂
H- KN ns1:PV2		ns1:PV2
B IDB1		nstruction in the second secon

Click the Save All button in the JDeveloper tool bar and close the Mediator Plan and Mapper Tabs.

Drocks Developer 11g Release I - HL7Receiver tile tidt View Application Relator Sean	App.Jurs I HL TReceiver.Jpr h. Navigate Build Bun Versignin - I & - I & 22 II	g Loois Window Help	
CBFM Project Newgator	Start Page   ⊟HL7ReceiverApp Over ✓ ∮ \ 10 10 10 11 10 11 10 11 10 11	ren afgeomooste uni	Compositie
I	Exposed Services	Components	External References

We are ready to build and deploy this application.

Make sure the Application Navigator panel is visible.

									_	_
े Ora	icle JD	evel	oper 11g Releas	e 1 - HL7Re	ceiverAp	p.jws : HL7F	Receiver	.jpr		
<u>F</u> ile	<u>E</u> dit	⊻iev	Application	Refa <u>c</u> tor	<u>S</u> earch	<u>N</u> avigate	<u>B</u> uild	<u>R</u> un	Ver	rsi <u>o</u> ni
P 🖻	) 🖯	@	Application Navigal	tor			Ctrl+Shiff	-A	+	
Ca.			Application <u>S</u> erver	Navigator			Ctrl+Shiff	÷G		
@Ap	plicati	●≣	Breakpoints				Ctrl+Shiff	-R		
E HL	.7Rece	<b>1</b>	Component Palette	•			Ctrl+Shiff	۶P		<b>a</b> %
🗢 Proj	jects	. !	<u>D</u> atabase					•		
B C	HL78		D <u>e</u> bugger					•	s	
Ė		:	<u>l</u> ava					•		
	÷		Log				Ctrl+Shiff	÷L		
		<b>P</b> 1	Profile Points							
	<u>ب</u>	<b>S</b>	Property Inspector				Ctrl+Shiff	el -		
	÷		Resource Palette				Ctrl+Shiff	-0		

Right-click on the name of the project HL7Receiver, choose Deploy and HL7Receiver...



Accept default and click Next.

×
Select a deployment action from the list below.
Deploy to Application Server Deploy to SAR

Check the "Overwrite any existing composites with the same revision ID" and click Next.

Deploy HL7Receiver Deploy Configuration			ATOMA TO MANAGE 13	2-2
Deployment Action Deploy Configuration Select Server Summary	HL7Receiver Composite Revision ID – Project: HL7Receiver Current Revision ID: 1.0 New Revision ID: 1.0	SOA Configuration Plar  Do not attach  Select a configuration	on plan from the list.	
Help	Mark composite revision     Overwrite any existing     Use the following SOA c	as default. composites with the same onfiguration plan for all co < <u>Back</u>	revision ID. mposites: Next > Finish	Browse

Accept the default WebLogic\_Local application server and click Next.

Deploy HL7Receiver		×
Select Server		
Deployment Action	Application Servers: WebLocgic_Local	te 💠
SOA Servers Summary		

Accept the default SOA Server and click Next.

SOA Servers				
Leployment Action	Choose the target SOA ser archive.	ver(s) and correspo	onding partitions to w	hich you want to deploy t
L Deploy Configuration	SOA Server:	Partition:	Status:	Server URL:
		default		http://xpone:7001
Select Server	Adminserver			
Solect Server	Adminserver			

Click Finish.

Observer SOA Log window.

×	Buildfile:	C:\Oracle\Mi	iddleware\llg_	_home\jdeveloper	\bin\ant-sc:	a-compile.xml	٦
	scac: [ <u>scac</u> ]	Validating	composite "C:	:\JDeveloper\myw	ork\HL7Rece:	iverApp\HL7Receiver\composite.x	ml"
	BUILD SUCCE Total time:	SSFUL 14 seconds					
50A - Log	<			9			>
i	Messages	Extensions	Mapper Message	s Deployment	SOA 🍂		•

Observe Deployment Log window.

[U4:59:29 A	1] Deployin	g_sca_HL7Receiver	_rev1.U.jar 1	to partition "d	ietault" on server	r AdminServe	
[04:59:29 AM	[] Processi	ng sar=/C:/JDevel	oper/mywork/l	HL7ReceiverApp,	/HL7Receiver/deplo	oy/sca_HL7Re	
[04:59:29 AM	[] Adding s	ar file - C:\JDev	eloper\myworl	k\HL7ReceiverAp	p\HL7Receiver\dep	ploy\sca_HL7	
[04:59:29 AM] Preparing to send HTTP request for deployment							
[04:59:29 AM	[] Creating	HTTP connection	to host:xpon	e, port:7001			
[04:59:29 AM	[] Sending :	internal deployme:	nt descripto:	r			
[04:59:29 AM	[04:59:29 AM] Sending archive - sca_HL7Receiver_rev1.0.jar						
[04:59:52 AM] Received HTTP response from the server, response code=200							
[04:59:52 AM] Successfully deployed archive sca_HL7Receiver_revl.0.jar to partition "default"							
[04:59:52 AM	[] Elapsed (	time for deployme:	nt: 41 seco	nds			
[04:59:52 AM	[] Dej	ployment finished					
<						>	
Messages	Extensions	Mapper Messages	Deployment	SOA .			
	104:59:29 AN 104:59:29 AN 104:59:29 AN 104:59:29 AN 104:59:29 AN 104:59:29 AN 104:59:52 AN 104:59:52 AN 104:59:52 AN 104:59:52 AN 104:59:52 AN 104:59:52 AN	[04:59:29 AM] Deployin         [04:59:29 AM] Processin         [04:59:29 AM] Adding s.         [04:59:29 AM] Preparin.         [04:59:29 AM] Creating         [04:59:29 AM] Sending :         [04:59:29 AM] Sending :         [04:59:29 AM] Sending :         [04:59:29 AM] Sending :         [04:59:52 AM] Received         [04:59:52 AM] Successfi         [04:59:52 AM] Elapsed 1         [04:59:52 AM] Elapsed 2         [04:59:52 AM] Elapsed 3         [04:59:52 AM] Elapsed 4	[04:59:29 AM] Deploying sca_HL7Receiver [04:59:29 AM] Processing sar=/C:/JDevel [04:59:29 AM] Adding sar file - C:\JDev [04:59:29 AM] Preparing to send HTTP re [04:59:29 AM] Creating HTTP connection [04:59:29 AM] Sending internal deploymen [04:59:52 AM] Sending archive - sca_HL7 [04:59:52 AM] Received HTTP response fr [04:59:52 AM] Received HTTP response fr [04:59:52 AM] Successfully deployed archive [04:59:52 AM] Elapsed time for deployment [04:59:52 AM] Deployment finished	[04:59:29 AM] Deploying sca_HL7Receiver_rev1.0.jar 4 [04:59:29 AM] Processing sar=/C:/JDeveloper/mywork/ [04:59:29 AM] Adding sar file - C:\JDeveloper\mywork/ [04:59:29 AM] Preparing to send HTTP request for dep [04:59:29 AM] Creating HTTP connection to host:xpon [04:59:29 AM] Sending internal deployment descripto: [04:59:29 AM] Sending archive - sca_HL7Receiver_rev. [04:59:52 AM] Sending archive - sca_HL7Receiver_rev. [04:59:52 AM] Received HTTP response from the serve: [04:59:52 AM] Received HTTP response from the serve: [04:59:52 AM] Successfully deployed archive sca_HL7? [04:59:52 AM] Elapsed time for deployment: 41 secon [04:59:52 AM] Deployment finished	<pre>[U4:59:29 AM] Deploying sca_HL7Receiver_revI.U.jar to partition "G [04:59:29 AM] Processing sar=/C:/JDeveloper/mywork/HL7ReceiverApp/ [04:59:29 AM] Adding sar file - C:\JDeveloper\mywork\HL7ReceiverApp/ [04:59:29 AM] Preparing to send HTTP request for deployment [04:59:29 AM] Creating HTTP connection to host:xpone, port:7001 [04:59:29 AM] Sending internal deployment descriptor [04:59:29 AM] Sending archive - sca_HL7Receiver_revI.0.jar [04:59:52 AM] Received HTTP response from the server, response cod [04:59:52 AM] Received HTTP response from the server, response cod [04:59:52 AM] Successfully deployed archive sca_HL7Receiver_revI.0 [04:59:52 AM] Elapsed time for deployment: 41 seconds [04:59:52 AM] Deployment finished</pre>	<pre>[U4:59:29 AM] Deploying sca_HL7Receiver_rev1.0.jar to partition "default" on server [04:59:29 AM] Processing sar=/C:/JDeveloper/mywork/HL7ReceiverApp/HL7Receiver/deplot [04:59:29 AM] Adding sar file - C:\JDeveloper\mywork\HL7ReceiverApp\HL7Receiver\deplot [04:59:29 AM] Preparing to send HTTP request for deployment [04:59:29 AM] Creating HTTP connection to host:xpone, port:7001 [04:59:29 AM] Sending internal deployment descriptor [04:59:29 AM] Sending archive - sca_HL7Receiver_rev1.0.jar [04:59:52 AM] Received HTTP response from the server, response code=200 [04:59:52 AM] Successfully deployed archive sca_HL7Receiver_rev1.0.jar to partition [04:59:52 AM] Elapsed time for deployment: 41 seconds [04:59:52 AM] Deployment finished</pre>	

Click Save All toolbar button and exit JDeveloper Studio.

### **Exercise HL7 Inbound solution**

To see the interaction and message exchange we need to increase logging level for the appropriate parts of the infrastructure. Start the Oracle Enterprise Manager, <u>http://localhost:7001/em</u>. Expand SOA node. Right-click on soa-infra. Choose Logs  $\rightarrow$  Log Configuration.



Change log levels for oracle.soa.adapter and oracle.soa.b2b to FINEST, check "Persist log level state ..." and click Apply.

Or soa-infra ③     SoA Infrastructure →							
Log Configuration Use this page to configure basic and advanced log Log Levels Log Files This page allows you to configure the log level for and become active when the component is started during runtime and become active when a particula when an EJB module is deployed. Log levels for run	g configuration settings. both persistent loggers and active runtime loggers. Per I. The log levels for these loggers are persisted across o ar feature area is exercised. For example, oracle.j2ee.e time loggers are not persisted across component resta	sistent loggers are loggers that a component restarts. Runtime logg ejb.deployment.Logger is a runtin rts.					
View Runtime Loggers	1						
Search All Categories 💌							
Logger Name	Oracle Diagnostic Logging Level (Java Level)	Log File					
⊞ oracle.bpm	NOTIFICATION: 1 (INFO) [Inheri	odl-handler					
	NOTIFICATION: 1 (INFO) [Inheri	odl-handler					
€ oracle.sdp	NOTIFICATION: 1 (INFO) [Inheri	odl-handler					
oracle.sdpinternal	NOTIFICATION: 1 (INFO) [Inheri	odl-handler					
🗆 oracle.soa	NOTIFICATION: 1 (INFO) [Inheri	odl-handler					
oracle.soa.adapter	TRACE:32 (FINEST)	odl-handler					
oracle.soa.b2b	TRACE:32 (FINEST)	odl-handler					
oracle.soa.bpel	NOTIFICATION: 1 (INFO) [Inheri	odl-handler					
	NOTIFICATION: 1 (INFO) [Inherit	odl-handler					
oracle.soa.bpmn.jpa	NOTIFICATION: 1 (INFO) [Inheri	odl-handler					
oracle.soa.bpmn.system	NOTIFICATION: 1 (INFO) [Inheri	odl-handler					
oracle.soa.deployplan.DeployManager	NOTIFICATION: 1 (INFO) [Inheri	odl-handler					
Persist log level state across component resta	arts	n					

Close Enterprise Manager.

Start the B2B Trading Partner Manager Web Console, <u>http://localhost:7001/b2b</u>, log in and click the Reports link. Note that there are no messages shown. No messages have been received yet.

Open a command window and run the HL7Browser:

C:\jdk1.6.0\_20\bin\java.exe -jar C:\tools\Hl7Browser.1.0\HL7Browser.jar

When the UI appears click the "Open an HL7 File" button, locate the ADT A01 transaction file, C: $h17\adt\ada\sources\ ADT_A0x\_output1.h17$ , and open it.

HL7Browser - 1.0	adt\data\sources\ ADT_A0x_out	put1.dat	
File			
	📥 🔍 🕈 🔜 🚫 N	1	
<ul> <li>HL7 Records</li> </ul>			
🛓 Open			×
Look in:	: 🛅 sources	💌 🤌 🔛 📰	
	ADT_A01_output_1.hl7	ADT_A01_output_5099.xml	adt_ac
	ADT_A01_output_1.xml	ADT_A03_output_1.hl7	ADT_AC
My Recent	aDT_A01_output_2.hl7	ADT_A03_output_1.hl7_copy_up.cm	d 🗟 ADT_AC
Documents	ADT_A01_output_2.xml	ADT_A03_output_1.xml	adt_a(
	aDT_A01_output_26.hl7	🚺 ADT_A03_output_1.zip	adt_a(
	ADT_A01_output_26.xml	📾 ADT_A03_output_25.hl7	🗟 ADT_AC
Desktop	ADT_A01_output_5.hl7	ADT_A03_output_25.xml	🗟 ADT_AC
	ADT_A01_output_5.xml	📷 ADT_A03_output_49.hl7	🗟 ADT_AC
	ADT_A01_output_50.hl7	📄 ADT_A03_output_49.xml	🖬 ADT_AC
My Documents	ADT_A01_output_50.xml	📷 ADT_A03_output_5.hl7	adt_ac
my bocaniones	aDT_A01_output_50000.hl7	ADT_A03_output_5.xml	adt_ac
	ADT_A01_output_50000.xml	📷 ADT_A03_output_50000.hl7	adt_ac
	aDT_A01_output_5099.hl7	ADT_A03_output_50000.xml	adt_a(
My Computer			
	File name: ADT_A01_output_1.	hl7	Open
My Network Places	Files of type: All Files		Cancel

Click "Run the network utility" button, provide localhost as the Host and 12121 as the Port (recall this is the port on which the B2B listener is listening) and click Connect.

All The second s	<u>ا</u> ا
File Hel;	1
C HL7 Records	1 5
B V MSH   ^~ \&   System A   HosA   PI   MDM   2008090801529     AD . 401   000000_CTLID_2008090801529   P  2.3.1     AL   NEEVN   A01   2008	22
• MSH ^~\& SystemA HosA PI MDM 2008090801529  ADT 1000000_CTLID_2008090801529 P 2.3.1   AL NE	42
• EVN A01 2008090801529   JavaCAPS6^^^^^USERS	1
📕 🚽 🗣 PID 1  A000010^^^HosA^MR^HosA  Kessel^Abigail  19460101123045 M   7 South 3rd Circle^^Downham Market^En	g 1
• PV1 1 I  I  FUL^Fulde^Gordian^^^^^^MAIN  EMR     V2008090801529^^^^VISIT	4,303
	42,273
🛃 HL7Browser - 1.0	
File	Help
Send Mode Receive Mode	
	<b>V</b> 1
Host: localhost Port: 12121	Connect
	•
Stop: 1 Stop: 1	i Messages

Once connected, click the "Send Messages" button.

Observe message exchange. The message sent and the ACK received.

🛃 HL7Browser - 1.0		
File		Help
Send Mode Receive Mode		
Host: localhost	Port: 12121	
Start: 1	Stop: 1	🔽 Send All? 🥳 Send Messages
Starting at: 05:43:29 05:43:29 sending: MSH ~~\& SystemA HosA PI MDM 20080 JavaCAP56^^^^_USERSPID 1  A000010^^_HosA^MM folk^30828^UK      A2008090801529PV1 1 I  I  FUL^FL 008090801529	090801529  ADT^A01 000000_CTLID_2 R^HosA  Kessel^Abigai  194601011230 ulde^Gordian^^^^^^^AAIN   E	2008090801529 P 2.3.1   AL NEEVN A01 2008090801529    145 M   7 South 3rd Circle^^Downham Market^England - Nor R       V2008090801529^^^^VISIT
05:43:29 received: M5H ^~\& PI MDM SystemA HosA 2010 05:43:29 MSG Received Successfully	J0613054329  ACK^A01 000000_CTLID	_2008090801529 P 2.3.1 M5A AA 000000_CTLID_2008090

Open Windows Explorer on c:\hl7\received folder and inspect the file deposited there by the SOA Composite.



This is a XML message so use the Internet Explorer or an XML editor to inspect its contents.



## **Explore Message Tracking**

Start the B2B Trading Partner Manager Web Console, <u>http://localhost:7001:b2b</u>, and click Search.

DRACLE 828	Adventuries Patters Reports Period Jugo
Dimensi Henninge Wite Nessage Application Hessage ( Dror Conversation	
Business Message	
8 Search	Advanced
Auch C al G any Service Contains 2 Apartment Contains 2	The Name Genetier Than 🗶 🦓 (UTC + 12-00) Systems, Cardonne State (Essaie 🔊 🕺
iend Twe Stanu   Greater Than 🔄 (4/19/2010 12/00/01 44 🖏 (JTC+22:00) Sydney, Carbama	Search Search Search Search
lesult (Message Count: 1) <u>Senia</u> Baie <sup>1</sup> / <sub>2</sub> Denia Baie <sup>1</sup> /	Intern Descender C Filling Pringe Berland Apriland Apriland Berland Resource Tree Steven Selection, Are 19, 2110 (1010)

Note the status  $\rightarrow$  MSG\_COMPLETE, Document Type, Sender, Receiver and other details.

Click the Details icon.

Re	sult (Messag	e Count: 1)			Sort by:	Created	Date	<ul> <li>Ord</li> </ul>	er:
	Details	State	Document Type	Agreement	Sender		Receiver	F	Reci
1	t-	MSG_COMPLETE	ADT_A01	HL7ReceiverTPA_Agr	RemoteHL	7Sender	LocalHL7Rece	eiver S	Satu

Inspect details of the "Business Message" exchange.

Business Message		
DI	C0A000051299DBBB3A500000AD052300	-
Message Id	C0A806851294DBBB38600000AD052200-1	
Refer To Message	Refer To Message	
Sender Type	MLLP ID	
Sender Value	127.0.0.1	
Receiver Type	Name	
Receiver Value	LocalHL /Receiver	
Sender	RemoteHL/Sender	
Receiver	LocalHL/Receiver	
Agreement Id	HL7ReceiverTPA	
Agreement	HL7ReceiverTPA_Agr	
Document Type	ADT_A01	
Document Protocol	HL7	
Document Version	2.3.1	
Message Type	REQ	
Direction	INBOUND	
State	MSG_COMPLETE	
Acknowledgement Mode	NONE	
Response Mode	ASYNC	
Send Time Stamp	Saturday, June 19, 2010 11:03:31 AM GMT+10:00	
Receive Time Stamp	Saturday, June 19, 2010 11:03:30 AM GMT+10:00	
Document Retry Interval	0	
Document Remaining Retry	0	
Native Message Size	412	
Translated Message Size	11028	
Business Action Name		
Business Transaction Name		
Xpath Name 1	XPathName1	Ψ
•		
		OK

Scroll down until you see the Wire Message link. Click on it to inspect details of the message that was received over the wire.

Correlation To XPath Expression		
Wire Message	Wire Message	
Application Message	Application Message	
Payload Storage	Payload Storage	
Attachment	Attachment	
Label	soa_b2b Sat Jun 19 10:25:40 EST 2010	
Collaboration Id	C0A806851294DBB9B7A00000AD052000	
Collabration Name		
<b>A I I I I I I I I I I</b>		

Wire Message	
Id	ReSubmit C0A806851294DBB56D00000AD051900
Message Id	C0A806851294DBB56D00000AD051900
Business Message	C0A806851294DBBB3A500000AD052300
Packed Message	Packed Message
Payload	Payload
Protocol Message Id	1276909409890-205238343
Refer To Protocol Message Id	
Protocol Collaboration Id	
Protocol Transport Binding	From=localhost FromIP=127.0.0.1 MSG_RECEIVED_TIME=Sat Jun 19 11:03:29 EST 2010 protocolVersion=1.0 ToIP=127.0.0.1 Port=12121 Sequencing=false Message-Id=1276909409890- 205238343 DynamicIP=127.0.0.1:1238 To=localhost protocol=TCP
Message Digest	Message Digest
Digest Algorithm	
Transport Protocol	TCP
Transport Protocol Version	1.0
Url	TCP://127.0.0.1:12121
security	
Transport Headers	From=localhost FromIP=127.0.0.1 MSG_RECEIVED_TIME=Sat Jun 19 11:03:29 EST 2010 protocolVersion=1.0 ToIP=127.0.0.1 Port=12121 Sequencing=false Message-Id=1276909409890- 205238343 DynamicIP=127.0.0.1:1238 To=localhost protocol=TCP
certificates	certificates
State	COMPLETE
E C	

Note the ReSubmit button. You can use it to re-submit the message to the B2B infrastructure without having to have the original external system resubmit it. Click the Payload link to see the actual wire message.

Payload	X
Download           MSH ^~\& SystemA HosA PI MDM 2008090801529  ADT^A01 000000_CTLID_2008090801529 P 2.3           South 3rd Circle^^Downham Market^England -           Norfolk^30828^UK       A2008090801529PV1 1 I  I  FUL^Fulde^Gordian^^^^^AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	L: MI

Dismiss the dialogue boxes by clicking OK on each.

Note the various sub-Tabs in the Reporting section – Business Message, Wire Message, ...

ORACLE B2B						
Business Message	Wire Message	Application Message	Error	Conversation		
E DUSINGS PROS	uye					

Explore the functionality to get a feel for what is available. In B2B terms this functionality is called Message Tracking.

Note, too, the facility to re-submit the wire message and the application message directly from the list of messages.

			•		Search Reset Save
Dr	der:	Descending 💌	Purge	ReSubmit App Message	ReSubmit Wire Message
	Rece	ive Time Stamp		Send Time Stamp	Created Date
r	Satur	rday, June 19, 2010	0 11:03:	Saturday, June 19, 2010 11:03:	Saturday, June 19, 2010 11:03:30

In this example the wire message is the message that is received by the B2B infrastructure and the Application Message is the message that the B2B infrastructure passes to the SOA Suite Composite for further processing.

Modify the original message in the HL7 Browser changing the PID segment ID to PIX thus making the message structurally invalid.

🛃 HL7Bro	wser - 1.0dt\data\sources\ADT_A01_outp	ut_1.hl7 - 1
Eile		
	⊇ 🖆 📇 🔍 🐬 🔜 🄇	$\succ$
🗋 🗀 HL7 Re	ecords	
HIN MSH	HAAVALSvstemAlHosALPTIMDM1200809080	152911ADT^A011000000 CTLTD
1		T.
	lodity Record 🛛 🗙	1
	Watch your escape characters:	
	JJAVACAPS6^^^^OSERS\rPIXJ1JJA000010^	
	OK Cancel	
4		

Switch to the HL7 Browser's Send Mode window and click Send Message to submit the modified message.

Switch to the B2B Console and use the Reports Tab to view the business message. Note that the status is MSG\_COMPLETE even though the message is structurally invalid. This is because we did not check the "Validate" checkbox in the trading partnership agreement. Let's do that now, Save the agreement and Deploy it.

ORACLE B2B			Administration   Partner	Reports   Metrics   Help   Logout
Partner	Amerment			Logged in as webi
Search Name Search Advanced	A= HL7Receive	erTPA_Agr	seve	valdate Deploy Export
LocalHL7Receiver	Loc	aHL Receiver	ADT_AD1_DocDef	RemoteHL7Sender
	* Agreement Id	H, 7RéceiverTPA	Start Date	6
	Name	rt. Marmar Tell_Ag	End Date	100
	Description		Calout	Calout Details
🗄 Agreement 🛛 💠 💥				
Search Name Search Advanced			-	
HL/ReceiverTPA_Agr	Agreement Parame	ters	and the second se	
		Validate 🔽		
		Functional Arts		

With that done, let's Send Message again and check the Business Message report in the B2B Console. Message status shows as MSG\_ERROR. Clicking Details icon opens the details window with the error details.

	Business Message	
Business Message Wire Message Application 1		
	Correlation From XPath Value	<u> </u>
🖺 Business Message	Correlation From XPath	
	Expression	
	Correlation To XPath Name	
⊡ Search	Correlation To XPath Value	
March Courses	Correlation To XPath Expression	Man Manager
	VVIre Message	Andre Message
Sender Contains 💌	Application Message	Application Message
Pereiver Contains	Attachment	Attachment
	Attachment	soa b2b - Sat Jun 19 13:54:38 EST 2010
Agreement Contains 💌	Collaboration Id	C0A806851294E584C350000018800EE0
Send Time Stamp Greater Than 🔽 06/19/2	Collaboration Name	
	Collabration Version	
	Business Action Name	
	Exchange Protocol Name	MLLP
Result (Message Count: 2)	Exchange Protocol Version	1.0
Details State Document Tv	Interchange Control Number	
1 Hand MSG ERROR ADT A01	Group Control Number	
2 B MSG COMPLETE ADT A01	Transaction Set Control Number	000000_CTLID_2008090801529
	Error Code	B2B-51507
	Error Description	
	Error Level	ERROR_LEVEL_COLLABORATION
	Error Severity	ERROR
	Error Text	Invalid date or time. The data element is too long. Invalid date or time. Validator error - Extra data was encountered. A data segment with 'Mandatory' status is missing. An invalid code value was encountered. An invalid code value was encountered. The data element is too long. An invalid code value was encountered. Invalid date or time.
		ОК

Close the Details window.

Modify the message in HL7 Browser changing PIX segment name back to PID segment name and changing MSH-3 from SystemA to SystemX and MSH-4 from HosA to HosX. Submit the message and observe the outcome in the B2B Console Report Tab.

PHL7 Records
□ M MSH / ~ \&   SYSTEMX   HOSX   PI   MDM   2008090801529   ADT^A01   0000
🖻 🗁 MSH   ^~ \ &   System X   HosX   PI   MDM   2008090801529     ADT^A01   0
🔸 🌒 3: SystemX
• 4: HosX
• 5: PI
• 6: MDM
• 7: 2008090801529
• 9: ADT^A01
10: 000000_CTLID_2008090801529
• 11: P
• 12: 2.3.1
• 15: AL
• 16: NE
EVNIA0112008090801529   JavaCAPS6^^^^^USERS
PID 1  A000010^^^HosA^MR^HosA  Kessel^Abigai1  194601

Note that the message is in error and is shown as such in the Reports -> Error Tab with specific diagnostics.

Business Message Wire Message App	lication Message Error Conver	rsation
Error Message	Ducino an Marcana	
Entersage	Business Message	
⊡Search	Correlation From XPath Expression	
	Correlation To XPath Name	
Match C All 👁 Any	Correlation To XPath Value	
Error Code Contains 💌	Correlation To XPath Expression	
Error Level Contains	Wire Message	Wire Message
	Application Message	Application Message
Error Severity Contains	Payload Storage	Payload Storage
	Attachment	Attachment
	Label	soa_b2b Sat Jun 19 13:54:38 EST 2010
	Collaboration Id	C0A806851294E69CF1E0000018B010B0
Result (Message Count: 2)	Collabration Name	
Details Error Code	Collabration Version	
1 E_ B2B-51512	Business Action Name	
2 E B2B-51507	Exchange Protocol Name	MLLP
	Exchange Protocol Version	1.0
	Interchange Control Number	
	Group Control Number	
	Transaction Set Control Number	000000_CTLID_2008090801529
	Error Code	B2B-51512
	Error Description	Machine Into: (kponeb.zb) validation of Message neader parameters failed. Please verify all the Message header parameters in the B2B configuration match the Message header parameters in the message. Following parameters are not matching with the configured parameters in B2B, key = [MessageSendingFacility] value = [HosX] param = [HosA] key = [MessageSendingApp] value = [SystemX] param = [SystemA] EPDOP_LEVEL_COLLARCRATION
	Error Severity	ERROR
	Error Text	Validation of Message header parameters failed.
	·	- · · · · · · · · · · · · · · · · · · ·

# **Explore Messaging Metrics**

Let's submit 50 HL7 v2 messages from a file ADT\_A01\_output\_50.hl7.

Close the HL7 Browser's sender client window and the HL7 Browser window as well to start afresh.

Switch to B2B Console and uncheck the Validate agreement parameter, save and deploy the agreement.

RemoteHL7Sender	å <b>æå HL7ReceiverTPA_A</b>	gr LocalHL7Receiver
	Details	
	* Agreement Id	HL7ReceiverTPA
	Name	HL7ReceiverTPA_Agr
	Description	
	Agreement Parameters	
		Velidata
Agreement 🔒 💥		Validate
Agreement 🕂 🐥 💥		Translate

This is done so that the 50 message file, which contains transaction with data exceeding HL7 recommended lengths, does not invalidate message exchange.

Start the HL7 Browser. Open the file c:\hl7\adt\data\sources\ADT\_A01\_output\_50.hl7.

🛃 HL Throwser - 1.0data'-sources',401_A01_output	MINT-90	
Ele		Help a Da
	×	0
HL7 Records		
#SH ^-\& System& HosA PI(HE@)2006090801	1529  ADT^A01 000000_CTLID_2008090801529 P12.0.1	(  A1 MEEVN A01 200
#SH(^-\e)SystemA(HosA)PI(MDM(200809080)	1333211ADT^A011000001_CTLID_200809080133321P12.3	.1111ALINEEVWIA011:
# ESH(*=\\$)Systems(inceller)ind(200000000)	1 C. 51416655666666666 //TTTT TOBOOO11055746112665	21127 CMPROVELED 120C II
ISH(*-\s(Syz) = HUZBroweer - 4.0		<u>=1012</u>
• ESHI*~\&ISYz Ete		194
ISH / - \+   Sys Send Mode Receive Mode		
<ul> <li>Holl (~= \6   SY2</li> <li>Holl (~= \6   SY2</li> </ul>	200 0000	
<ul> <li>MORIA - VALDAR</li> <li>MORIA - VALDAR</li> <li>HORIA</li> </ul>	Port: L2121	Disconnect
- #SH(A_) / (Sm	201	
- BSHIA-141574	Stop: EU	Send All Send Message:
• #SH1^-\415yz		
■ ESH(^-\4)Syz		
• #SH1^-\&1Sys		
- • ESH)^-\&}Syz		
■ ■SH1^-\41Sys		
— ● MSH(*=\&)Syz		
■ MSHI^~\siSys		
4		
HOLD DAY TO DAY TO DAY		
nedord passes v		

Connect and Send Messages. Observe responses in the HL7 Browser window.

Switch to B2B Console and view Reports  $\rightarrow$  Business Messages.

	ishess M	essage							
5	ards-						Advan	red	
å	CAR	here:							
	Sech	Contens .	1		Tanah et T	Ins Stanp Greater Than		UTC+15:00 Sidney, Centeria	
	Lane.	Contana W	101 10			lints Enues IN		×	
		Lecture 1	10			Courses and		23). 	
		-	A second	NUMBER OF STREET, STRE		and the second sec			
								Beach Reset	Sevenii:
	it (Messa	ge Count: 5	0)	Sarths	Created Sale	Orderi Desperating	Party Halabert has been	Reliand West	ningi i i
	Detail.	Sible	DatasettTrie	Agreenert	. Herolet	Reizirei.	Reiene Tive Stand	Seid Time Stang	Crested
	Detain.	HEG_COMPL.	ADT_AOL	Agreevent PL7RaceiverTFA_Agr	kender Renotaris, Tsender	Receiver Local4L7Receiver	Rejenie Tone Stang Security, June 18, 2010 3:45:5.	Gend Time Stand Geturday, June 28, 2010 314515	Crested Returds
	Details.	HEG_COMPL.	Description ADT_A01 ADT_A01	Agreevent PLTRacenerTFA_Agr PLTRacenerTFA_Agr	Bender Renotaris, Taender Renotaris, Taender	Noticitet LocalHL TReparker LocalHL TReparker	Rejerie Twe Stars Security, June 18, 2010 2(45:5). Security, June 18, 2010 2(45:5).	Send Tune Stand Seturday, June 29, 2010 314515 Seturday, June 19, 2010 114515	Crestel Baturda Secunda
	Details.	NEG_COMPL. MEG_COMPL. MEG_COMPL.	ADT_AD1 ADT_AD1 ADT_AD1 ADT_AD1	Agreevent HL Receiver THL Agr HL Receiver THL Agr HL Receiver THL Agr	Bender Renotant, Tiender Renotant, Tiender Renotant, Tiender	Rozover Local4.7Receiver Local4.7Receiver Local4.7Receiver	Receive Time Stanu Security, June 18, 2010 (1+5:5). Security, June 18, 2010 (1+5:5). Security, June 18, 2010 (1+5:5).	Send Time Stand Seturday, June 19, 2010 3145-5 Seturday, June 19, 2010 3145-5 Seturday, June 19, 2010 3145-5	Created Saturda Saturda Saturda
	Depair and a second second	HEG_COMPL MEG_COMPL MEG_COMPL MEG_COMPL	DecorrentType ACT_ACL ACT_ACL ACT_ACL ACT_ACL ACT_ACL	Agreeterit HLTRacelowTFR_Agr HLTRacelowTFR_Agr HLTRacelowTFR_Agr HLTRacelowTFR_Agr	Bender Renotaris Tiender Renoteris Tiender Renoteris Tiender Renoteris Tiender	Routive: Local4.7Receiver Local4.7Receiver Local4.7Receiver Local4.7Receiver	Reperie Tree Mary Security, June 18, 2010 2 45:5. Security, June 18, 2010 2 45:5. Security, June 18, 2010 2 45:5. Security, June 18, 2010 2 45:5.	Send Time Stars Seturday, June 39, 2010 1-45-5 Seturday, June 39, 2010 1-45-5 Saturday, June 39, 2010 1-45-5 Seturday, June 39, 2010 1-45-5	Created Securda Securda Securda Securda
	Construction of the second second	HEG_COMPL HEG_COMPL HEG_COMPL HEG_COMPL HEG_COMPL	DocurentType  ADT_AG1  ADT_AG1  ADT_AG1  ADT_AG1  ADT_AG1	Appendit PL Tacone TA, Ap PL Tacone TA, Ap PL Tacone TA, Ap PL Tacone TA, Ap PL Tacone TA, Ap	Bender Renotarik Taender Renotarik Taender Renotarik Taender Renotarik Taender Renotarik Taender	Robert Local-CRecever Local-CRecever Local-CRecever Local-CRecever Local-CRecever	Recens Twe Data Security, June 18, 2010 2-45-5. Security, June 18, 2010 2-45-5. Security, June 19, 2010 2-45-5. Security, June 19, 2010 2-45-5. Security, June 19, 2010 2-45-5.	Send Tree Stern Seturney, June 39, 2010 31-615 Seturney, June 39, 2010 31-615 Seturney, June 39, 2010 31-615 Seturney, June 39, 2010 31-615 Seturney, June 39, 2010 31-615	Greated Saturda Saturda Saturda Saturda
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Explore the information provided.

Enable Validation for the agreement, save and deploy the agreement and submit 5 messages from the file ADT\_A01\_output\_5.hl7.

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### Inspecting the Server Log

The AdminServer-diagnostic.log, in the installation discussed in this article, lives in C:\Oracle\Middleware\11g\_home\user\_projects\domains\single\_server\_domain\server s\AdminServer\logs. Open the log with a text editor and look for the expression "Payload = <Exception". Inspect this message and surrounding messages. The messages we are submitting are not as valid as we might like them to be. The B2B infrastructure validates messages when asked (Validate checkbox in the trading partner agreement) and logs the diagnostics when asked. The log message might look like:

```
[2010-06-19T15:51:31.781+10:00] [AdminServer] [TRACE] [] [oracle.soa.b2b.engine] [tid:
weblogic.work.j2ee.J2EEWorkManager$WorkWithListener@2f6984] [userId: <anonymous>]
[ecid: 0000I EkkXTCSsWFLzuHOA1C73CF0001p2,0] [SRC CLASS:
oracle.tip.b2b.system.DiagnosticService] [APP: soa-infra] [dcid:
e6d3d61dea16942c:65bbb7b1:1294e297e08:-7fd3-00000000000000050] [SRC METHOD:
synchedLog J] Notification: notifyApp: payload = <Exception</pre>
xmlns="http://integration.oracle.com/B2B/Exception"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">[[
  <correlationId>null</correlationId>
  <b2bMessageId>C0A806851294EC309C50000018B07880-1</b2bMessageId>
  <errorCode>B2B-51507</errorCode>
  <errorText>
  <! [CDATA[Invalid date or time.
The data element is too long.
Invalid date or time.
The data element is too long.
An invalid code value was encountered.
An invalid code value was encountered.
The data element is too long.
An invalid code value was encountered.
Invalid date or time.
  11>
  </errorText>
  <errorDescription>
  <! [CDATA [Machine Info: (xponeb2b)
Component MSH-7.1 (time of an event) has a data type of 'string data' (ST). The
expected format was YYYY[MM[DD[HHMM[SS[.S[S[S]]]]]]]][+/-ZZZZ]. Segment MSH is
defined in the guideline at position 001. {br} {br} This error was detected
at:{br}{tab}Segment Count: 1{br}{tab}Field Count: 7{br}{tab}Component Count:
1{br}{tab}Characters: 29 through 42
The length of Field MSH10 (Message Control ID) is '26'. The maximum allowed length is
'20'. Segment MSH is defined in the guideline at position 001.{br}{br}This error was
```

```
detected at: {br}{tab}Segment Count: 1{br}{tab}Field Count: 10{br}{tab}Characters: 52
through 78
Component EVN-2.1 (time of an event) has a data type of 'string data' (ST). The
expected format was YYYY[MM[DD[HHMM[SS[.S[S[S]]]]]]][+/-ZZZZ]. Segment EVN is
defined in the guideline at position 002. {br} {br} This error was detected
at:{br}{tab}Segment Count: 2{br}{tab}Field Count: 2{br}{tab}Component Count:
1{br}{tab}Characters: 103 through 116
The length of Field PID3 (Patient Identifier List) is '22'. The maximum allowed length
is '20'. Segment PID is defined in the guideline at position 003. {br} this error
was detected at: {br} {tab}Segment Count: 3 {br} {tab}Field Count: 3 {br} {tab}Characters:
148 through 170
Field PV14 (Admission Type) does not contain a valid identification code: 'I' is not
allowed. Segment PV1 is defined in the guideline at position 006. {br} {br} This error
was detected at: {br} {tab}Segment Count: 4 {br} {tab}Field Count: 4 {br} {tab}Characters:
300 through 301
Component PV17-14 (identifier type code) does not contain a valid identification code:
'MAIN' is not allowed. Segment PV1 is defined in the guideline at position
006. {br} {br} This error was detected at: {br} {tab} Segment Count: 4{br} {tab} Field Count:
7{br}{tab}Component Count: 13{br}{tab}Characters: 331 through 335
The length of Field PV119 (Visit Number) is '23'. The maximum allowed length is '20'.
Segment PV1 is defined in the guideline at position 006. {br} {br}This error was
detected at: {br} {tab}Segment Count: 4 {br} {tab}Field Count: 19 {br} {tab}Characters: 350
through 373
Component PV119-5 (identifier type code) does not contain a valid identification code:
'VISIT' is not allowed. Segment PV1 is defined in the guideline at position
006. {br} {br} This error was detected at: {br} {tab} Segment Count: 4 {br} {tab} Field Count:
19{br}{tab}Component Count: 5{br}{tab}Characters: 368 through 373
Component PV1-44.1 (time of an event) has a data type of 'string data' (ST). The
expected format was YYYY[MM[DD[HHMM[SS[.S[S[S]]]]]]]][+/-ZZZZ]. Segment PV1 is
defined in the guideline at position 006. {br}{br}This error was detected
at:{br}{tab}Segment Count: 4{br}{tab}Field Count: 44{br}{tab}Component Count:
1{br}{tab}Characters: 398 through 411
  11>
  </errorDescription>
  <errorSeverity>2</errorSeverity>
  <errorDetails>
<parameter name="b2b.messageId" value="C0A806851294EC309C50000018B07880-1"/>
<parameter name="b2b.documentTypeName" value="ADT A01"/>
<parameter name="b2b.documentProtocolVersion" value="2.3.1"/>
/>/> /> />/>/>/>
<parameter name="b2b.documentProtocolName" value="HL7"/>
<parameter name="b2b.messageType" value="1"/>
<parameter name="b2b.fromTradingPartnerId" value="127.0.0.1"/>
cparameter name="b2b.fromTradingPartnerIdType" value="MLLP ID"/>
<parameter name="b2b.toTradingPartnerId" value="LocalHL7Receiver"/>
<parameter name="b2b.toTradingPartnerIdType" value="Name"/>
  </errorDetails>
</Exception>
11
```

This concludes the exercise.

### Summary

Oracle SOA Suite B2B component can be used to provide HL7 v2 messaging support for healthcare environments.

In this article a simple Oracle SOA Suite 11g B2B infrastructure-based HL7 v2 Receiver project for ADT A01 messages was developed and exercised. Message Tracker was used to view messages, message states and messaging performance.

### References

[1] Oracle B2B Site, Available: <u>http://www.oracle.com/technology/products/integration/b2b/index.html</u>, Accessed: 4 June 2010 [2] Oracle B2B User's Guide, Available: <u>http://download.oracle.com/docs/cd/E15523\_01/integration.1111/e10229.pdf</u>, Accessed: 19 June 2010