

Rhapsody Webcast Series: Making the Switch from CxR to CIE

Chicago, IL

July 2013

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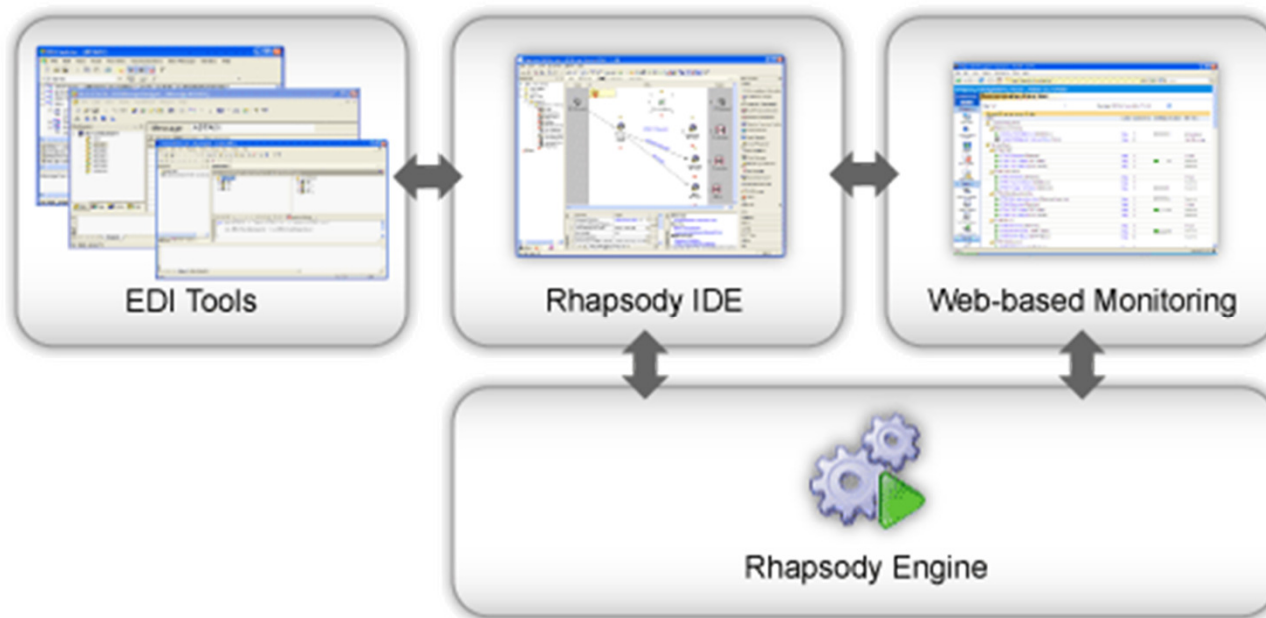
Outline

- **Introduction**
- **Key Comparisons**
 - Architecture
 - Messages
 - Monitoring
 - Communication
 - Mapping
 - Data Manipulation
 - Environment Variables
- **CIE Demo of a PM Interface**
- **Summary**
- **Rhaptor Migration Utility**
- **Q & A**

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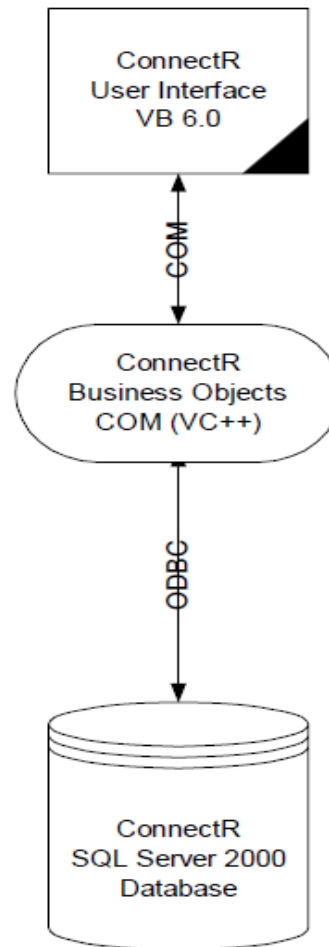
Rhapsody Architecture



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ConnectR Architecture



Messages

- **The basic unit of data processed by Rhapsody.**
- **May contain arbitrary binary data, but frequently conforms to a messaging standard:**
 - ASTM
 - HL7
 - EDIFACT
 - X.12
 - HIPAA
 - XML
 - User-defined flat file structure
 - NCPDP

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Message <-> Message Definition

The screenshot displays the GE Rhapsody v5.2 interface, which is used for defining and managing messages. The interface is divided into several panes and windows.

Left Pane (Monitor/Definition/Action/Admin): The 'Definition' tab is selected, showing a list of message types (ORU, MSH, PID, PV1, ORC, OBR, NTE, OBX, NTE) and a table of message fields.

Message Window (Top Left): This window shows the 'Message' tab selected. It displays the message name 'ORU - [Quest]' and the description 'Quest'. The 'Protocol' is set to 'HL7'. The 'Message' tab is highlighted in red.

Message Definition Window (Top Right): This window shows the 'HL7v2.3.1.s3d - EDI Message Designer' window. It displays the message structure for 'ORUR01' (Message ORUR01). The 'Definitions' pane on the left shows the message structure tree, with 'HL7v2.3.1.s3d' highlighted in red.

Message Structure Table (Top Right): This table lists the message structure elements for 'ORUR01'.

Structure	Description	R	Min Repeats	Max Repeats	GT	H
MSH			0	1		
ObservationMessage			0	Infinite		Order...
PatientInformation			0	1		Order...
PID			0	1		
PD1			0	1		
NK1			0	Infinite		
NTE			0	Infinite		
PatientVisit			0	1		Order...
PV1			0	1		
PV2			0	1		
Order (Ordered G			0	Infinite		Order...
ORC			0	1		

Message Notes (Bottom Right): This section contains notes for the message 'ORUR01' and its sub-structures 'ORUR01.MSH' and 'ORUR01.ObservationMessage'.

Bottom Right: The 'vitalcenter' logo and the 'GALEN HEALTHCARE SOLUTIONS' logo are displayed.

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Monitoring <-> Rhapsody Management Console

File Edit Reports Window Help

Status

Message Log

Error Worklist

Service Log

System Info

Toolbelt

Monitor

Definition

Action

Admin

Help

Field Help

Logout

Systems▲							
All	ID▲	Source System▲	Target System▲	Status▲	Last Message At▲	QSize▲	Server▲
<input type="checkbox"/>	150	Live - Charge Order Source	-----	Not Running	01/01/00 00:00:00	---	CAMPBELLVM
<input type="checkbox"/>	154	-----	Live Order Target SCImage	Not Running	01/01/00 00:00:00	0	CAMPBELLVM
<input type="checkbox"/>	160	LIVE CED XML Source	-----	Not Running			
<input type="checkbox"/>	165	-----	LIVE CED Text Target	Not Running			
<input type="checkbox"/>	196	Live - Result Source SCImage	-----	Not Running			
<input type="checkbox"/>	197	-----	Live - Result Dict Target SCI	Not Running			
<input type="checkbox"/>	198	-----	Live - Result Target SCImage	Not Running			
<input type="checkbox"/>	205	Live Touchworks Source	-----	Not Running			
<input type="checkbox"/>	7029	-----	LIVE Atlas Order Target	Not Running			
<input type="checkbox"/>	705	Live Immunization Source	-----	Not Running			
<input type="checkbox"/>	706	-----	Live Immunization Target	Not Running			
<input type="checkbox"/>	1005	Test Cent. Group Sol. Dict S	-----	Not Running			

Servers				
All	Server▲	Status▲	Last Started At▲	Last Stopped At▲
<input type="checkbox"/>	CAMPBELLVM	Connected	12/22/12 03:04:27	ServiceManager 12/13/12 03:16

Refresh Interval 30 Refresh Start Stop Cycle Lo

RHAPSODY52

Justin Campbell 27-Dec-2012 09:42 ORION HEALTH 5.2.0.69651

Monitoring

Engine Monitor

Communication Points

Routes

Web Services

System Monitor

Error Queue

Hold Queue

Find Messages

Input Search

Output Search

Route Search

Saved Searches

Recent Results

Notifications

My Notifications

Watchlists

Suspend / Resume All

Delivery Methods

Public Holidays

Default Settings

Management

Change Password

Reset Counters

Lookup Tables

Archive Cleanup

Backup and Restore

Setting Up Notifications

1 An administrator sets up how the Rhapsody server delivers notifications.
Go To Delivery Methods

2 An administrator defines default recipients and reviews the default threshold settings.
Go To Default Settings

3 Add your contact details and configure the way you want to receive notifications.
Go To My Notifications

Engine Monitor

Messages Processed 33

Engine Uptime 6 days

Throughput Export
Received (0) Processed (0) Sent (0)
messages/minute
8:50 9:00 9:10 9:20 9:30 9:40

Current Issues

All Components 3

Watchlists

There are no watchlists.
Create a Watchlist

All Components

ORU's Database Error Queue Message Nov 29, 2012 11:33:23 AM

Message Routing - Javascript Conditional Connector Error Queue Message Nov 24, 2012 3:49:14 PM

TCP Server route Error Queue Message Nov 23, 2012 3:12:48 PM

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File Edit Reports Window Help

StatusMessage LogError WorklistService LogSystem InfoToolbelt

Monitor

Definition

Action

Admin

Help

Field Help

Logout

System:

Test CED Target - [7027]

Date:

12/26/2012

Time:

3:30:43 PM

Max # of Records:

Seq:

16

of:

16

Source System:

All Sources

Go To Time:

Full-text Search:

String Filter:

Monitoring

Engine Monitor

Communication Points

Routes

Web Services

System Monitor

Error Queue

Hold Queue

Find Messages

Input Search

Output Search

Route Search

Saved Searches

Recent Results

Notifications

My Notifications

Watchlists

Suspend / Resume All

Delivery Methods

Public Holidays

Default Settings

Management

Change Password

Reset Counters

Lookup Tables

Archive Cleanup

Backup and Restore

Message Banner

Login Settings

General Settings

System State

System Log

Audit Log

Threads

Generate Thread Dump

User Sessions

Database Key Values

JavaScript Couters

Source

<1><1>SupersetData<3>323<3>2012-12-26
15:30:34.960<3>CED<3>0<3>87<3>0<3>0<3>0<3>
<3>0<3>0<3>0<3>0<3> <6>ExtractPerson_CMS<3>0<3>
<3>0<3>Whaley<3>Betsy<3> <3>
<3><3><3>3<3>F<3><3><3>1995-05-23
00:00:00.000<3>560980443<3><3>2398 Maek
Farm<3><3>Shelburne<3>VT<3>05482<3>
<3><3><3>802<3>878<3>0933<3><3>0<3>0<3><3>
<3><3>0<3>0<3><3><3>0<3>0<3>0<3>2005-01-16
11:43:43.970<3>0<3>0<3><3><3><3> <3>
<3><3><3><3><3> <3> <3><3><3><3><3> <3>
<3><3><3><3><3> <3> <3><3><3><3><3> <3>
<3><3>0<6>ExtractPatient_CMS<3>0<3>New World
Health System<3>0<3><3><3><3> <3> <3><3>0<3> <3>
<3> <3><3> <3>N<3>N<3><3> <3> <3>

Target

\CAMPBELLYM\Cliniger
Export\Whaley_Betsy_15

Msg Type:

Data M

Message:

CEDOut

Process Time:

4

System:

Test Superset Outbound Source - [5000]

Message:

CED

Length:

525

Refresh

Message View 1.22272.203

Displaying message 1 of 3 from the result set named 'Clinic Server Input Archive' Back to Result Set

InjectRedirect CopyRedirect Edited Copy

Message Events Always Show OutputsLast refreshed at 09:45

Component	Timestamp	Description
Clinic Server	Nov 29, 2012 11:33:2...	Received by communication p...
Labs	Nov 29, 2012 11:33:2...	Placed on route
Labs	Nov 29, 2012 11:33:2...	Property extraction performed
No-operation	Nov 29, 2012 11:33:2...	Filtering succeeded; took 0.01...
HL7 Acknowledgement Generation		
Clinic Server		
Normalize to 2.3.1 and Dr Lookup		
ORU's Database		

Showing 3 of 3

Message Properties Property NameProperty ValueInputTime1354206803068rhapsody.InputCommunicationPointClinic Serrerrhapsody.InputCommunicationPointId7Size: 9113 bytes

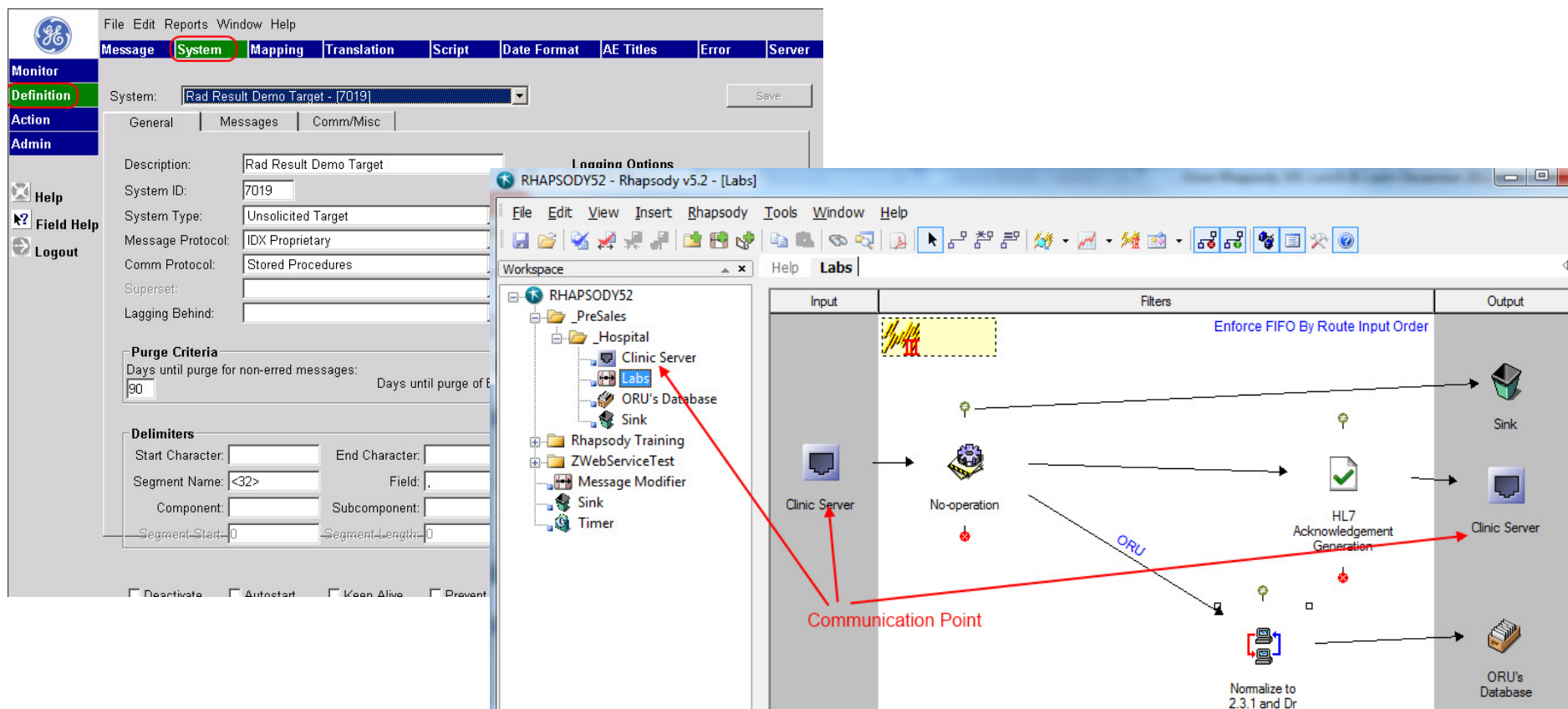
Show WhitespaceEncoding: windows-1252

```
M$H|~\\&i||| | 20021010015440 ||ORUAR01ARGV_00I|FGDFG6540RGE|DAT|2..0D^13^A16|6789||NE|AL|22|^ISO IR14^-PID|0320|^S^L^M11^ADI|4^Z^AISOLADS|IHUTCHINGACORINNE^^IAMFAASAWAI|SHERRILLATOKI_AASPAMWMEAWMI|19911PD1|HU-D-O-A||58^LONGENBAUGHMARIKA ^^IMWSABEAST23AAATAISAOLNAI~-54ASTEVEENSDEAN ^^ADRANGASTI23YNK1|5468|DAUGHERTYAZARA ^^IMWSMFADAI|7|15th STAALLondonTexas^9002213APAAA-I-19th ST^ANN YorkASENTE|1654|P|RE|rPV1|5468|P|Therapy^4567^destroyedAsurgeonwest wing^3|L|^54AISOLAPI|ICU^4567^occupiedNursing t
```


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Systems <-> Communication Points



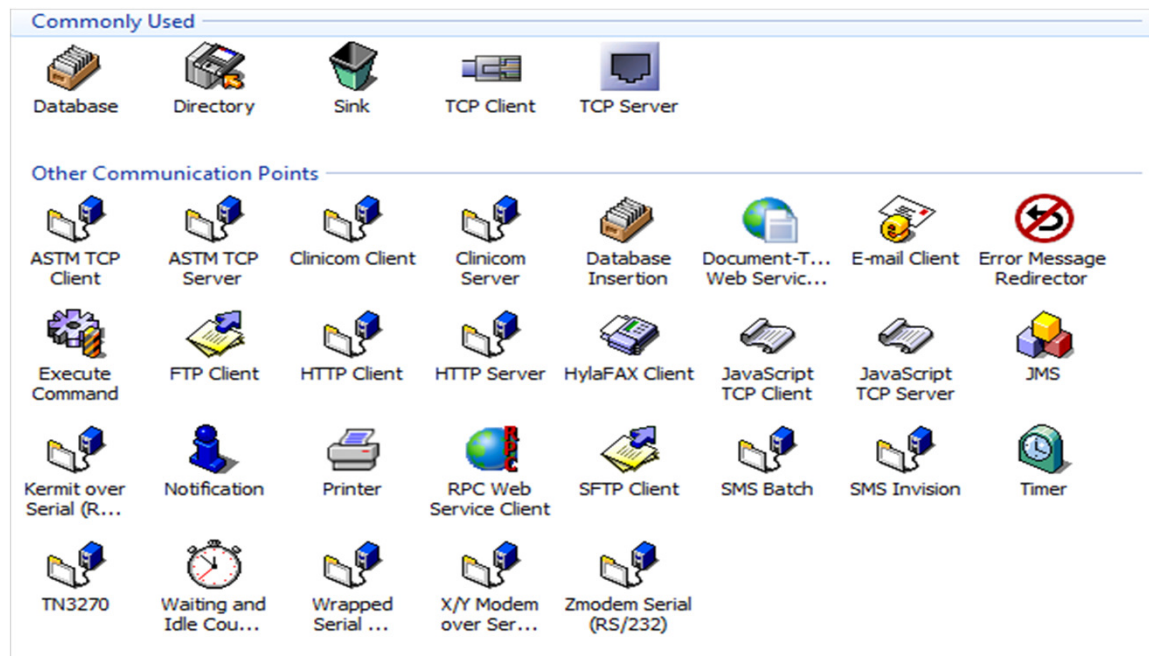
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Communication Points

Numerous protocols are available, including:

- TCP Client/Server
- HTTP Server/Client
- Database
- File and Email
- Web Services
- FTP/SFTP
- Command-line programs



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Mapping <-> Routes

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File Edit Reports Window Help

Message System **Mapping** Translation Script Date Format AE Titles

Monitor Definition Action Admin

Source System: Live - Result Source SCImage - [196] Target System: Live - Result Target SCImage

Source Message: ORU Target Message: FileResult_CMS

Source Msg Desc: ORU_SCIImage Target Msg Desc: Live - v10.2

Help Field Help Logout

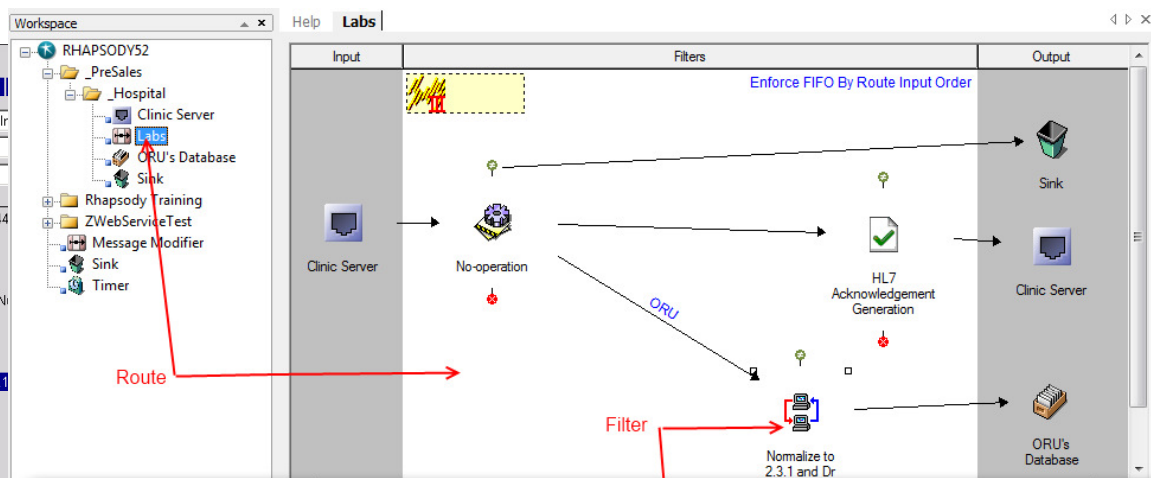
ORU

- MSH-Message header segment
- PID-Patient identification segment
- PV1-Patient visit segment
- ORC-ORC - Common Order Segment
- OBR-Observation request segment
- NTE-NTE - OBR as Parent
- OBX-Observation/result segment
- NTE-NTE - OBX as Parent
- ZPS-ZPS - Place of Service Facility

Dt/Tm - HL7_Date_Time(PV1.1-[44])

- [10]-EndDTTM
- [11]-VisitNumberExt
- ASpace(OBR.1-[2]-Placer Order N
- [12]-VisitStatusDE
- [13]-OrganizationalMRN
- Script PadMRNto12(ASpace(PID.1
- [14]-OrganizationIDOMRN
- [15]-ReferringProviderID
- [16]-ProviderID

The output of the Script PadMRNto12(PID.1-[2]-Patient ID (External ID,NULL,NULL).1.1.0 Leading/Trailing Space



GE Healthcare Solutions

File Edit Reports Window Help

Message System Mapping Translation **Script** Date

Monitor Definition Action Admin

Script: PadMRNto12

Description: PadMRNto12

Lang: For: Script

Help Field Help Logout

```
function PadMRNto12(MRN)
dim i
dim MRNOut
MRNOut = MRN
if LEN(MRN) < 12 then
for i=1 to 12 - LEN(MRN)
MRNOut = "0" & MRNOut
next
end if
PadMRNto12=MRNOut
end function
```

PreSales_DrLookup_Normalize_HL7.mdf - Map Designer - [mainORUR01]

File Edit View Mapping Testing Debug Tools Window Help

Workspace

mainORUR01([in] ORUR01 in, [out] ORUR01 out)

- MapCETtoCE([in] CE in, [out] CE out)
- MapCNTtoCN([in] CN in, [out] CN out)
- MapCQtoCQ([in] CQ in, [out] CQ out)
- MapCTtoCTI([in] CTI in, [out] CTI out)
- MapCXtoCX([in] CX in, [out] CX out)
- MapDLDTtoDLD([in] DLD in, [out] DLD out)
- MapDLNTtoDLN([in] DLN in, [out] DLN out)
- MapDTtoDT([in] DT in, [out] DT out)
- MapEIPtoEIP([in] EIP in, [out] EIP out)
- MapEITtoEI([in] EI in, [out] EI out)
- MapFCTtoFC([in] FC in, [out] FC out)
- MapHDTtoHD([in] HD in, [out] HD out)
- MapJCCtoJCC([in] JCC in, [out] JCC out)
- MapMOCtoMOC([in] MOC in, [out] MOC out)

map mainORUR01(<- Input::ORUR01 in, -> Output::ORUR01 out)

```
{
MapMSHtoMSH(in.MSH, out.MSH);
MapObservationMessageToObservationMessage(in.ObservationMessage[ *], out
```

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Data Manipulation

- **Filters**
- **Connectors**
- **Lookup Tables**

Common Filters

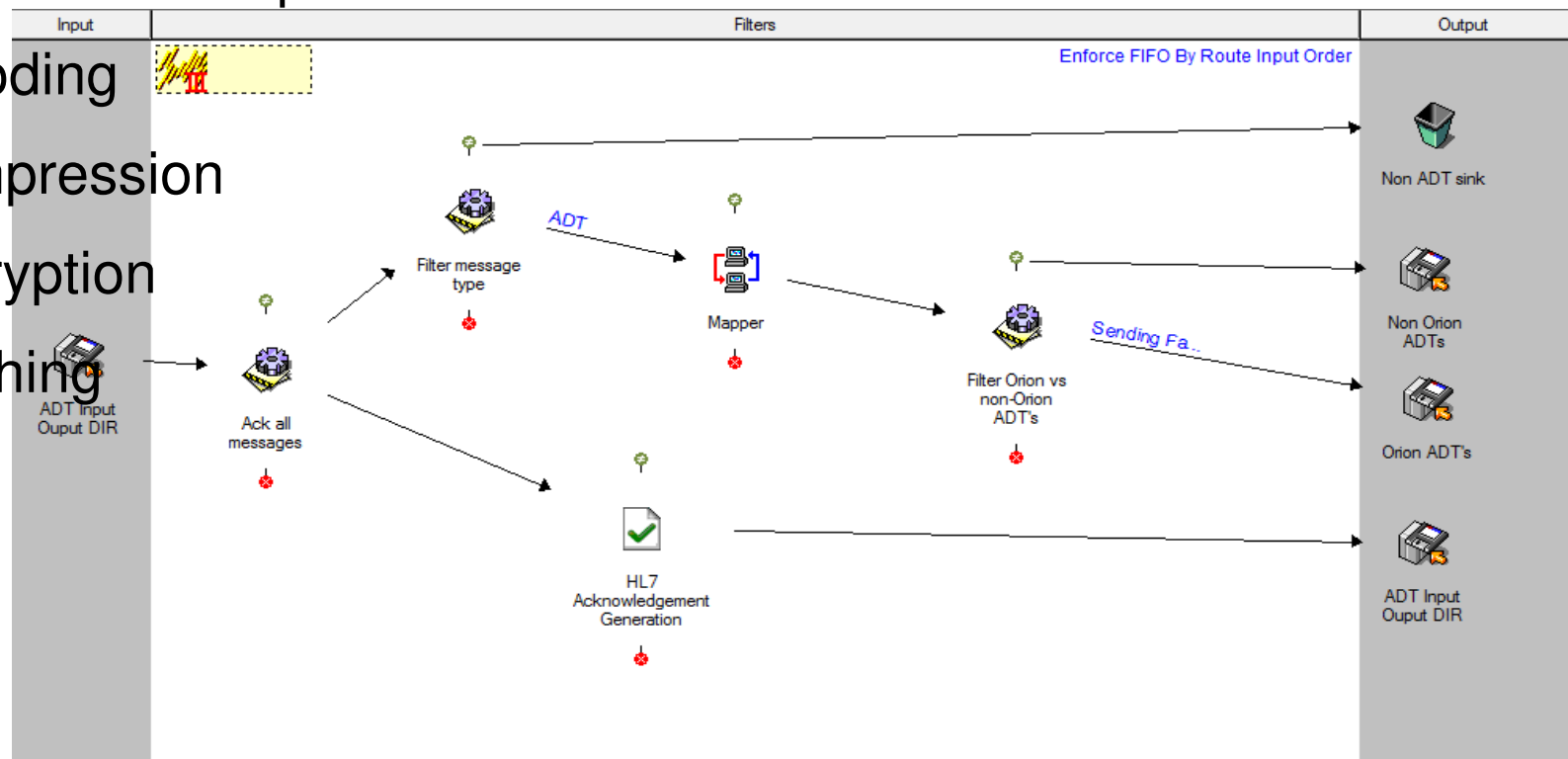
- **No-operation**
 - Passes all messages (unchanged) from input to output.
- **JavaScript**
 - Executes the JavaScript to process messages as they pass through the Rhapsody engine.
- **Mapper**
 - Maps one or more input messages to an output message.
- **Database Lookup**
 - Enables information to be retrieved from JDBC-accessible data sources and inserts that information into the message in accordance with its message properties.

Connectors

- **Determines the direction and flow of messages through the route**
 - From the Input communication point
 - Through any configured filters
 - To the Output communication point
- **Three types of connectors**
 - Standard
 - Conditional
 - JavaScript

Filters and Connectors in a Route

- mapping,
- code translation
- database lookup
- encoding
- Compression
- Encryption
- batching



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Lookup Tables

Rhapsody Lookup Tables

Add Delete Edit Structure Edit Values View Values Check Out Check In Undo Check Out

Name	Description	Rows	Checked Out User	Last Modified
AEPMAbortCodes	This table is used to transform E...	2		6/24/2011 8:47 AM
AEPMConfigurations	This ta			
AEPMOptions	AEPM			
AEPMOrgID	This lo			
AEPMPatientPreferredCont...	This lo			
AEPMReminderPatientCom...	Remin			
AEPMRTPrefix	AEPM			

Edit Lookup Table Values

Lookup Table Values

Edit Table Structure Import Export Find / Replace Delete All Rows

MSH6	OrgID
TouchWorks	3
TouchWorks1	3
*	

Lookup failures

Refresh Create Lookup Entry Cleanup Delete Delete All Failures

MSH6	OrgID	Count
Professional Clinic		195758

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Environment Variable

- **Enables properties used in multiple places or environments to be easily changed.**
 - For example, Development, Test and Production.

Demonstration

- **PM to EHR interface in CIE**

Summary

- **Benefits of CIE**
 - User friendly Web Management console
 - Easier to maintain and monitor
 - Control Management
 - Robust Documentation
 - Improvements and Updates
 - Performance
- <http://www.orionhealth.com/rhapsody-integration-engine/advantages>
- <http://www.orionhealth.com/rhapsody-integration-engine/features>

RhaptoR

- **Standard and custom message definitions to s3d**
- **Mapping definitions to Rhapsody Mapper Filter definition**
- **Translation tables to Lookup tables**
- **VBscripts to Javascript filters**

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Thank you for joining us today, for additional assistance....

You can contact us through our **NEW** website at www.galenhealthcare.com

A screenshot of the Galen Healthcare Solutions website. The header includes the company logo, navigation links (Blog, Wiki, Webcasts, Forum), a search bar, and a 'Company' dropdown menu. The 'Contact Us' option in the dropdown is circled in red. Below the dropdown, a red box highlights a contact form with fields for First Name, Last Name, Company, Phone, Email, City, State/Province, Product/Service Interest, and a Details section. The main content area features a large image of two men looking at a screen, with text welcoming visitors to the 'NEW' website and describing the company's commitment to providing premier solutions and support. The left sidebar contains links to VitalCenter, Blog, Wiki, Events/Webcasts, and Developer Forum.

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For the Galen take on industry news, EHR developments, interesting solutions we have developed, and new Galen products check out our blog...

A screenshot of the Galen Healthcare Solutions blog homepage. The header features the Galen logo, the tagline 'embrace the new world of healthcare', the word 'blog', and navigation links for 'Wiki', 'VitalCenter', and 'Galen Healthcare Solutions'. The main content area displays an article titled 'The Three Types of Organizations that Need New EHRs' by Christopher Libby, dated February 18, 2013. The article text discusses the challenges of EHR adoption and mentions that only around 20% of providers are attesting to Meaningful Use in the US. Below the text is a pie chart titled 'The New EHR Adopter' showing that 38% of unregistered professionals and 43% of Medicare registrants are adopting EHRs. To the right of the article is a 'Sign up' section with an email input field and a 'Submit' button, and a 'Search for:' section with a search input field and a 'Search' button. Below these are 'Tags' for various topics like 'Allscripts', 'Enterprise EHR', and 'Business Intelligence Clinical'.

blog.galenhealthcare.com

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Questions?

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