eiConsole for Healthcare – Getting Started Tutorial

https://cms.pilotfishtechnology.com/eiconsole-for-healthcare-getting-started-tutorial

Welcome to the eiConsole for Healthcare Getting Started Tutorial. In this tutorial you'll build a simple <u>interface</u> that accepts HL7 input and converts it into an XLS spreadsheet. This interface will take the average user 45-60 minutes to complete.

The <u>General Quick Start Tutorial</u> and <u>General Level I Tutorials</u> (Modules 1-12) are prerequisites before moving on to the healthcare-specific tutorials and documentation. If you have not completed these, please do so now. The Healthcare Getting Started Tutorial builds on concepts learned in the previous tutorials that are not repeated here and are required to complete this tutorial.

If you just downloaded the eiConsole for Healthcare your bundle will have all the files you need. If you have not installed the eiConsole recently, click eiConsole <u>Update</u> to download and install the latest slipstream release. Then, visit <u>eiConsole Bundles</u> to download the latest industry bundle that includes the sample files that you'll need to do the tutorial. Click here if you need help importing a <u>Bundle</u>.

The Route File Management Window

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File Edit Share Tools Help	50 × 10 × 10 × 10 × 10 × 10 × 10 × 10 ×
File Management	
Healthcare [C:\Program Files\PilotFish Technology\Healthcare]	🔽 📢 Create New 🛛 📲 Browse 🗍 🗊 Remove
Basic View	
Interface Overview: eip-root	
	Name
U General Quick Start Lutorial	
3 Healthcare Templates	
🔰 4 General Quick Start Interface	20
	Add Internace Package
S PIE	
	•
Concerning Sector Secto	Name
2	

We begin on the Route File Management window.

We have 4 eiConsole Packages in our Interface Overview grid, three from the eiConsole for Healthcare bundle and the fourth, the **4 General Quick Start Interface**, your newly created, first interface.

We'll begin our tutorial by double clicking the **2 Healthcare Getting Started Tutorial** Package row.

<u>1</u>	Route File Management				Z X X
File Edit Share Tools Help			S		
File Management					
Healthcare [C:\Program Files\PilotFish Technolo	j%Healthcare]	🔄 🔽 📢 Cre	ate New	e Browse	î Remove
Basic View					
Interface Overview: eip-root/2 Healthcare Getting Sta	ted Tutorial]
	Name				
EMB-To-Clinic					
	👫 Add Route 🦉	Add Interface Package		Configure Comm	on Modules
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🕞 🔄 PilotFish Interface Exchange	Name				
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				🚽 Quit e	iConsole 🕜

The sample interface, **EMR-To-Clinic**, appears in the **Interface Overview** grid. The blue icon indicates that this is a fully configured interface. It is the same interface you will be configuring from scratch during the course of this tutorial. You will use sample files located in the <u>Working Directory</u> (eip-root) for this interface. Note their location. Feel free to double click the sample interface to browse through the configuration screens. Or if you run into a problem in the tutorial you can always review the sample interface for reference.

Note: in order to successfully run the sample interface in the eiConsole's test mode you will need to set the polling directory for the <u>Listener</u> and <u>Transport stages</u> to point to appropriate folders in the sample tutorial that you downloaded on your computer.

We'll return to the main Working Directory, eip-root. To do so, double click anywhere in the row above **EMR-To-Clinic**.

t	Route File Manage	nent		
File Edit Share Tools Help				5
File Management				
🥑 Healthcare (C:\Program Files\PilotFish Technol	ogy(Healthcare]		💌 🛛 🎣 Create N	Jew 🧧 Browse 🛛 🛅 Remove
I Basic View				
Intenace Overview. elp-root	Nama			
A	ivanie			
🔰 👰 1 General Quick Start Tutorial				21
2 Healthcare Getting Started Tutorial				
4 General Quick Start Interface				
		🔒 Add Route 🛛 💱 Ad	id Interface Package	🥔 Configure Common Modules
				,,
I PIE				
5				Θ
PilotFish Interface Exchange	Image: A state of the state	Name		
				🚽 Quit eiConsole 🕜

The Route File Management Window opens with the 4 Packages. Next, we will want to create a new package for the interface we will be configuring. Click the **Add Interface Package** button.

Add Package	×
Enter Interface Package name	
5 Healthcare Getting Started Interface	
OK Cancel	

The **Add Interface** dialogue opens. We'll name it **"5 Healthcare Getting Started Interface"** for ease of reference. (You can name it anything you'd like.) Click **OK**.

🐮 Route Fil	e Management 🛛 🗹 🗵 🔀
File Edit Share Tools Help	9
File Management	
🔞 Healthcare [C:\Program Files\PilotFish Technology\Healthcare]	🔽 🧔 Create New 📲 Browse 🕅 Remove
Basic view	
Interface Overview: elp-root	ama
👰 1 General Quick Start Tutorial	
2 Healthcare Getting Started Tutorial 3 Healthcare Templates	
4 General Quick Start Interface	
👽 5 Healthcare Getting Started Interface	
	😤 Add Route 🛛 💡 Add Interface Package 🥔 Configure Common Modules
S PIE	
	•
PilotFish Interface Exchange	Name
	🚽 Quit eiConsole 🛛 😨

The Route File Management window opens with your new Package. Double click anywhere on the last row to open your new **Interface Package**.

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File Edit Share Tools Help	3
File Management	
😢 Healthcare [C:\Program Files\PilotFish Technology\Healthcare]	💌 📢 Create New 🛛 📲 Browse 🕅 Remove
Basic View	
Interface Overview: eip-root/5 Healthcare Getting Started Interface	
	Name
1 <u> </u>	
	R Add Route V Add Interface Package
B PIE	
	•
👁 🔄 PilotFish Interface Exchange	Name
	Quit eiConsole

Now that you have your 5 Healthcare Getting Started Interface directory selected, next, we need to add a route. Click the **Add Route** button.

	Add New
?	Enter a name: EHR-To-Clinic OK Cancel

The **Add New** dialogue window will open. To differentiate it from the sample interface EMR-To-Clinic, I'll enter the name **"EHR-To-Clinic"** (you don't need to use hyphens, spaces are OK, too) and click **OK.**

き	Route File Management	e a 🗙
File Edit Share Tools Help		S
File Management		
🕼 Healthcare [C:\Program Files\PilotFish Technolo	gy/Healthcare] 🛛 📢 Create	New 📲 Browse 🛅 Remove
Basic View		
Interface Overview: eip-root/5 Healthcare Getting Sta	rted Interface	
	Name	
EHR-TO-Clinic		
	🤱 Add Route 🛛 💚 Add Interface Package	🖉 Configure Common Modules
S PIE		
		•
PilotFish Interface Exchange	Name	
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You'll see that a new Route, **"EHR-To-Clinic"**, now appears in the Route File Management grid and it has a red icon next to it (a partially configured interface.) Next, let's look at some options for editing the Route.



Double click the Route row to open the Main Route grid, or alternatively, you can select the route, right click and then select **Edit Route** from the drop down, and double click.

Note: the available options, for example, if you'd like to copy a route, rename, delete a route, etc.

So, open the Main Route grid with whatever method you choose.

The eiConsole's Main Route Grid

The eiConsole's Main Route Grid opens.



Configuring the Listener Stage

*		PilotFish eiConsole	e [5 Healthcare Getting Started	Interface.EHR-To-Clinic]		X X X
File Route Tools Help						
	Add Source 🛛 👔	> Delete Source	🔻 Move Down 👌	Move Up 🕕 🛛 😽 Add Ta	rget 🛛 😽 Delete Ta	rget
Source System	Listener	Source Transform	Route	Target Transform	Transport	Target System
			XML			
System Unnamed	Not Defined	Relay (System Format)	EHR-To-Clinic	Relay (System Format)	Not Defined	System Unnamed
Listener C	configuration Processor Con	figuration				
	The state of the s	Listener Configuration				
		Listener Name:				
		Listener Type:	No Module Selected			
		Listener Description:	AWS S3 Database Polling (SQL) Database Table (SQL) Directory / File Document-Style Web Service Email (POP3/IMAP) Execute Command Line FTP / SFTP			

Next, we will configure the Listener. In this interface our Source will be an EHR system producing lab results and sending them out to a Target System, assumed to be an external Clinic or Practice.

We click on the **Listener** stage and then select the Listener Type from the drop down. For simplicity's sake in this tutorial, we'll just go from Directory to Directory, but any number of Listener types are available (scroll through to review the list) and they're all configured through the same pattern. Select the **Directory** /

eiConsole for Healthcare Getting Started Tutorial - 7

File listener.

Listener Configuration	Processor Configuration	
	Listener Configuration	
	Listener Name: ed Inter	rface.EHR-To-Clinic.Directory / File Listener 🗐 📗
	Listener Type: Directo	ary / File 🗾 🕐
	Listener Description:	rs a specified directory for new files.
	\varTheta Basic 🛛 Advanced	Transaction Logging \varTheta Postprocess Scheduling Criteria
	Polling interval:	30 🌩 seconds 🔍 🝺
	😌 Polling directory:	🗟
	File/folder name restriction:	
	File extension restriction:	🗟
	Specify full file path:	Disabled
	Path to file/folder:	
	Tokenizers:	

Note: when you click on any of the stages specific configuration panels for that stage appear in the bottom half of the window.

The Listener Configuration panel for the Directory listener opens at the bottom of the window. The red dots indicate the required fields. We'll need to provide the Listener with a name, and fill in the other configuration requirements.

Note: when you select a Listener Type, by default, the eiConsole pre-fills in the Listener Name	. We'll want
to change it to something more specific to our interface, though.	

Listener Configuration	Processor Configuration
	Listener Configuration
	Listener Name: HL7-File-Drop
	Listener Type: Directory / File 💽 🔞
	Listener Description:
	\varTheta Basic Advanced Transaction Loggin 🕘 Postpromes Scheduling Criteria
	Polling interval: 10 🖶 seconds 🔍 🐻
	Polling directory:
	File/folder name restriction:
	File extension restriction:
	Specify full file path: Disabled
	Path to file/folder:
	Tokenizers:

Let's call this Listener the "**HL7-File-Drop**". Type in the new Listener Name. We'll set the Polling interval to "**10**" seconds, meaning we'll poll the directory that we choose every 10 seconds for new files. (You can select from any number of polling interval options using the drop down menu.)

Next, click **Ellipsis** button to select your polling directory.

	Select polling directory
Look <u>i</u> n: 📔	5 Healthcare Getting Started Interface 🛛 💿 🙆 😫 🔛
Caracter data	
Files of <u>T</u> ype:	hnology\Healthcare\interfaces\5 Healthcare Getting Started Interface\in
	Open Cancel

Note: any location on your computer can be selected as a polling directory.

For consistency in this tutorial select /Healthcare/<u>interfaces</u>/**5 Healthcare Getting Started Interface**. Click the **New Folder** button and name the folder "**in**". Click return/enter. Then click **Open**.

Listener Configuration	rocessor Configuration
	Listener Configuration
	Listener Name: HL7-File-Drop
	Listener Type: Directory / File
	Listener Description:
	Basic Advanced Transaction Logging 😣 Postprocess Scheduling Criteria
	Polling interval: 10 🖶 seconds
	Polling directory: 5 Healthcare Getting Started InterfaceUn 🛄 🗟
	File/folder name restriction:
	File extension restriction:
	Specify full file path: Disabled
	Path to file/folder:
	Tokenizers:

This will set the Polling Directory to the **"in"** folder.

Listener Configuration	Processor Configuration			
	Listener Configuration			
	Listener Name: HL7-File	-Drop		
	Listener Type: Director	// File		
	Listener Description:	a specified directory for new files.		
	Basic		Advanced	
	Transaction Logging	Postprocess	Scheduling Criteria	
	Postprocess operation: De	lete 🔪		
	Target directory:			

Set the Postprocess operation.

Note: as you fill in the configuration items marked with the red dots, all of the red dots are gone, indicating that all the required fields have been filled out.

With the Listener stage configured we'll move on to the next stage, the <u>Source Transform</u>.

Configuring the Source Transform Stage

*		PilotFish eiConsole [5 Healthcare Getting Started	Interface.EHR-To-Clinic]		¥ 🛛 🗙
File Route Tools Help	Add Source 🙍	Delete Source 🔰 🦣	🎙 Move Down 🔥 🛛	Move Up 🕕 🛶 Add Ta	rget 🛛 😽 Delete Tai	rget
Source System	Listener	Source Transform	Route	Target Transform	Transport	Target System
			* KML	XML		
System Unnamed	HL7-File-Drop Directory / File	Relay (System Format)	EHR-To-Clinic	Relay (System Format)	Not Defined	System Unnamed
				ISC		
Format Profile	:: [Relay (System Format)	Search For	mats	Add Format	🕻 Delete Format	copy Format
System Info]
System Unn	amed					

Next, click the **Source Transform** stage.

Here we'll want to add a <u>Format</u> or Data Transformation that will convert an incoming HL7 message to XML. Click the **Add Format** button.

	Add New Format
3	Enter a name for the new ormat: HL7-to-XML OK Cancel

This opens the Add New Format dialog window.

This format will translate the inbound HL7 into an XML representation, so we'll call it "**HL7-to-XML**". Enter the name and click **OK**.

Note: as you might expect, when you create a new format the format gets added to your Working Directory <u>formats</u> folder.

Format Profile: HL7-to-XML	💌 💿 🔍 Search Formats	📑 😨 Rename Format	t 🛛 🚽 Add Format 🛛 🖊 🕻	Delete Format 🛛 📔 Copy Format 🛛 🕜
Format Info Transformation	Forking			
Transformation Module Confi	guration	Advanced	Compatibility	Conditional Execution
Transformation Module:	No Transformation	Т	o XML Settings	To XML (More)
Description:	Delimited and Fixed-Width File	XSL File:	XSLT To Common X	ML: 🗹 Use Direct Relay
Conditional Execution	HL7 (HAPI) HL7 v2.X			Browse New
Execute Transformation	JSON Microsoft Excel	Cache XSLT:]	
	Name/Value No Transformation	XSLT Engine: 8	axon - XSLT 3.1	

The Transformation Configuration panel will appear, including both the <u>Transformation Module</u> and <u>XSLT</u> Configuration. <u>Transformation Modules</u> are used to parse data from non-XML formats into an XML representation. Whereas XSLT, and the eiConsole's <u>Data Mapper</u>, are used for the logical mapping of that format onto another.

In the Transformation Module drop down choose the **HL7 v2.X** transformer. This indicates that we expect HL7 2.x input that we'll parse to XML.

Format Profile: HL7-to-XML	💌 💿 🔍 Search Formats 🛛 🌍 Rename	Format	Add I	Format 🛛 🔀 Delete Format	📔 Copy Format 🛛 🔞
Format Info Transformation Forking					
Transformation Module Configuration			Advanced	Compatibility	Conditional Execution
Transformation Module:	HL7 v2.X		T VPL File:	To XML Settings	To XML (More)
Description:	Transformer to convert HL7 input streams to XML and backwards		AGE FIIE.	XSLT To Commo	n XML: 🗹 Use Direct Relay
Basic Conditional Execution	Child Handling Message Structure Compatibility				Browse New
Rebuild format for unexpected version:			Cache XSLT:		
Use cache for HL7 Vocabularies :		;	XSLT Engine:	Saxon - XSLT 3.1	
HL7 Version to expect:	2.2				
Vocabulary Cache Size:	20				
Cache vocabularies on start:					
Folder with additional XSD files:					
Fail if component not found:					
Automatically detect segment separator					

Once we have selected the HL7 2.x Transformer, a new configuration panel opens. But before we configure it we have another step.

ORU	-LabResults h17 🔀
1	MSH ^~\& GHH LAB ELAB-3 GHH OE BLDG4 200202150930 ORU^R01 CNTRL-3456 P 2.4
2	PID 555-44-4444 EVERYWOMAN^EVE^E^^^^LJ0NES 19620320 F 153 FERNWOOD DR.^^STATESVILLE^OH^35292 (206)3345232 (206)752-121 AC55
3	0BR 1 845439^GHH 0E 1045813^GHH LAB 15545^GLUCOSE 200202150730 555-55-5555^PRIMARY^PATRICIA P^^^MD^^ 444-44-
4	0BX 1 NM 1554-5^GLUCOSE^POST 12H CFST:MCNC:PT:SER/PLAS:QN 182 mg/dl,70_105 H F

Let's take a look in the data folder (in the your current {working directory}/interfaces/2 Healthcare Getting Started Tutorial/data.) You'll see the ORU-LabResults.hl7 file. Open it. This is the input we'll expect.

Here you can see a rather typical HL7 transaction. And as you can see the transaction version is 2.4.

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1

So, in the **HL7 Version to expect** field, select **2.4** from the drop down.

Note: that even if the incoming data is not HL7 2.4, our lenient HL7 parser will do its best to parse the data into a usable XML representation.

Format Info Transformation Forking				
Transformation Module Configuration		Advanced	Compatibility	Conditional Execution
Transformation Module:	HL7 v2.X	VRI Filo:	To XML Settings	To XML (More)
Description:	Transformer to convert HL7 input streams to XML and backwards	ASE FIRE.	XSLT To Common	XML: 🗹 Use Direct Relay
Basic Conditional Execution	Child Handling Message Structure Compat	ibility		Browse New
Folder with additional XSD files:		Cache XSLT:		
Fail if component not found:		XSLT Engine:	Saxon - XSLT 3.1	-
Automatically detect segment separator:				
Ignore Unknown Z-segments:		=		
Ignore Max Occurrences:		=		
Include Empty Fields:				
Use friendly names for known elements:				
Put friendly names in attributes:				

There are a few other options we'll want to check off. We'll select the **Fail if component not found** and the **Use friendly names for known elements** check boxes.

Note: the eiConsole for Healthcare's Friendly Name option replaces cryptic HL7 names with simple, understandable synonyms derived from field descriptions in the appropriate version of the HL7 vocabulary. This is a very useful feature, especially if you are new to HL7 and not that fluent in the HL7 syntax.

We'll want to make sure the HL7default namespace in output box is unchecked.

And we'll also leave <u>unchecked</u> the **Put Friendly Names in Attributes** (this allows you to have friendly names associated with elements but not in the element name) and **Use HL7 default namespace in output.**

Note: the eiConsole can take any HL7 message, including ones that aren't quite compliant with the standard, and convert it into an XML representation.

The Route Stage

さ		PilotFish eiConsole	[5 Healthcare Getting Started Ir	nterface.EHR-To-Clinic]		2 7 🗙
File Route Tools Help						
	🅪 Add Source 🛛 📩	Delete Source 👘 🤤	💡 Move Down 👌 M	love Up 🔰 😽 Add Ta	arget 🛛 🐳 Delete Tar	get
Source System	Listener	Source Transform	Route	Target Transform	Transport	Target System
		XML	*	XML		
System Unnamed	HL7-File-Drop Directory / File	HL7-to-XML	EHR-To-Clinic	Relay (System Format)	Not Defined	System Unnamed 🗧 🗧
		General Debug Trai	ce Routing Rules Transa	ction Monitoring		

Next, click the **Route** stage. Once again when you do, you'll see a configuration panel open in the bottom half of the screen.

Ceneral Debug ha
(2)
Routing Configuration
Module Selection
Routing Module: All Targets
Module Description: All Targets Load Balancer Routing Module XPath / Attribute
Module Configuration
Module does not support or require graphical config

Then select the **Routing Rules** tab. Click the drop down. The <u>Routing Module</u> lets you select from All <u>Targets</u> and XPath / Attribute. But in our example, we have only one Target system, and we can leave the default setting of **All Targets** selected.

*		PilotFish eiConsole	[5 Healthcare Getting Started	Interface.EHR-To-Clinic]		¥ 7 ¥
File Route Tools Help	I.					
	🍲 Add Source 🛛 🙍	Delete Source	🖣 Move Down 👌	Move Up 🕴 🛶 Add Tar	rget 🛛 🛶 🙀 Delete Tai	rget
Source System	Listener	Source Transform	Route	Target Transform	Transport	Target System
	HL7-File-Drop				NetDefined	
System Unnamed	Directory / File	HL7-to-XML	EHR-To-Clinic	Relay (System Format)	Not Defined	System Unnamed
Format Profile	e: Relay (System Format)	💌 💿 🔍 Search Fo	rmats 🛛 👘 Rename Forn	nat 🛛 🕂 Add Format 🛛 🗶	🕻 Delete Format 🛛 🔳 C	Copy Format 🕜
System Info						
System Nar	System Name					
System Unr	amed					

Configuring the Target Transform Stage

Select the **Target Transform** stage. Here we'll want to map our new XML representation of HL7 onto an Excel spreadsheet. Click the **Add Format** button.



In the Add New Format dialog, enter "HL7-XML-To-XLS" and click OK.

		PilotFish eiConsole [5 Healthcare Getting Started	Interface.EHR-To-Clinic]		
<u>R</u> oute <u>T</u> ools <u>H</u> elp						
	🍲 Add Source 🛛 🙍	≽ Delete Source 🔢 🤘	🖡 Move Down 🛛 👌	Move Up 🕕 🛛 😽 Add Ta	arget 🛛 🐳 🙀 Delete Ta	irget
Source System	Listener	Source Transform	Route	Target Transform	Transport	Target System
		XML	×			
System Unnamed	HL7-File-Drop Directory / File	HL7-to-XML	EHR-To-Clinic	HL7-XML-To-XLS	Not Defined	System Unnamed
Format Profile	HI 7-XMI -To-XI S	Search For	rmats	mat Add Format	K Delete Format	Conv Format
Formatinfo	Transformation Joining					
Adv	anced Compat	bility Conditio	nal Execution	sformation Module Configuration	۱ ———	
	From XML	From XML (M	ore) Ti	ransformation Module: No Tra	nsformation	.
XSL File:	XSLT To (ommon XML: 🗌 Use Direct R	elay	escription: Perform	ns no transformation.	
		Brow	se New			
		0		Conditional Execution		
Cache X5	;LI:			Execute Transformation:		
XSLIEng	line: Saxon - XSLT 3.1					

When you click the Target Transform stage again you'll see again that a new configuration panel appears in the bottom half of the window. We have a Transformation Configuration tab, but in this case the XSLT Configuration, the logical mapping piece is first, followed by a Transformation Module, that we'll use to bind the data to the appropriate output format.

The XSLT Configuration panel on the right hand side is used when we want to apply a logical mapping to the XML that's an output of the first part. We'll be using XSLT later, so we'll leave this alone for now and we'll leave the default **Xalan Interpreted** drop down menu item as is.

First, we'll do our logical mapping.

Make sure the **Use Direct Relay** box, in the XLST configuration panel, is <u>unchecked</u> and make sure the Transformation Module is set to **No Transformation**. Then click the **New** button.

The Source Transform Stage - the Data Mapper

*	Data Mapper : New mapping	u 7 🗙
File Formats Mapping View Help		35MB of 167MB
) 🔂 📩 🖿 📑 🔂 \Lambda 🗉 🔊	• • • • • • • • • • • • • • • • • • • •	
▰◷▤▤»₽◾▫	Filter by pattern XSLT Structures XPath Functions XSLT Functions EXSLT Functions Custom Varia	▙▝▋▋▋₽፟፟፟፟፟፟፟
	stylesheet	
Former Type view		Farmat Type view
Info Notes		Info Notes
	Mapping Information	
Structure Type: None selected.	Description	Structure Type: None selected.
Element Name:	StyleSitest	Element Name:
		Datatype:
Max. Uccurrences:		Max. Occurrences:
Min. Uccurrences:		Min. Occurrences:
Sample Data:	Mapping XSLT View Testing	Sample Data:

This launches the eiConsole's Data Mapper. The Data Mapper is where we perform logical mapping between any two data formats. It has three panels, a panel on the left for our Source format, a panel on the right for our Target format, and a panel in the middle which will contain the logical mapping between the two. To start, we'll need to load our Source format and Target format, and then create the relationships between the two.

*	Data Mapper : New mapping	 2 2 X
File Formats Mapping View Help		99MB of 167MB
) 🔂 🗂 🖿 📸 🔂 I 🔊	0 🗸 📲 📲 🖉 📰 🖀 🗃 🖀 🖉 🖀 🖀 🗐 🗮 🐨 🕷 👘 👘	
	Filter by pattern XSLT Structures XPath Functions EXSLT Functions Custom Varia Pattern:	

First, we'll load the Metadata for our Source and Target. To do this, click the **Open source format** button.

	Select Format
Read Format	
Format Reader:	None selected.
Reader Description:	DTCC EDI FHIR Format Builder Component
	Flat File
	HL7 v3 HTML Form
 ✓ 	Read Format 🛛 🗱 Cancel 🛛 🥥 Help

When the Select Format dialogue appears, scroll down and select the **HL7 v2.x** format reader from the drop down.

Note: the options here for directly reading in SQXML, HL7 3.x and DICOM.

	Select Format			
Read Format				
Format Reader:	HL7 v2.x			
Reader Description:	Build the XML format for the HL7 v2.x schema.			
HL7 Version				
2.7				
2.2 2.3 2.3 1				
2.4				
2.5 2.5.1				
2.0 A 2.7				
A A A A A A A A A A A A A A A A A A A	Add Files X Remove File			
Vise Default Meta	adata File			
	Browse			
HL7 Sample File:				
🗌 🗌 Use Sample File				
	📲 Browse			
Crop format by messages from sample file				
□ Show populated elements only				
HL7 Messages:				
🗌 Use Message Ty	/pe			
ACK				
	🕈 Read Format 🛛 🖊 Cancel 🛛 🥥 Help			

When the Select Format dialog window appears choose HL7 Version 2.4, from the drop down.

	Select Format 🛛 🔀				
Read Format					
Format Reader:	HL7 v2.x				
Reader Description:	Build the XML format for the HL7 v2.x schema.				
HL7 Version					
2.4	•				
Detect version in	sample file				
Jse Friendly Elem	ent Names Where Possible				
🔲 Use default HL7 n:	amespace				
Create missing fie	lds				
🗌 Put first child value	to attribute				
Additional XSD Files					
	dd Files 🔀 Remove File				
HL7 Metadata file:	data Fila				
Dse Detault Meta					
	Browse				
HL7 Sample File:					
Dse Sample File	Se Sample File				
Tran format hy macaging from comple file					
Bhow nonulated elements only					
HI 7 Mossanos	stements only				
Use Messages.	De la				
ACK					
~	Read Format 🛛 🗶 Cancel 🛛 🎯 Help				

Check the boxes for **Use Friendly Element Names Where Possible**, **Use Default Metadata File, Use Sample File**, **Crop format by messages from sample file** and **Show populated elements only**.

Leave <u>unchecked</u> Use Default HL7 namespace and Use Message Type.

Then click the Use Sample File **Browse** button.

	Select HL7 Sample File 🔀
Look In:	data Image: Second state of the sec
File <u>N</u> ame: Files of <u>T</u> ype:	HL7 file
	7
	Select HL7 Sample File 🔀
Look In:	Select HL7 Sample File data Image: Stemplate.xls sTemplate.xml tesults.hl7 tesult.ml

When the window opens, navigate to your distribution folder, and the **data** folder, then select the HL7 sample **ORU-LabResults.hl7** and click **Open.**

		Select Form	at	X	
Read Format					
Format Reader:		HL7 v2.x		•	
Reader Descrip	tion:	Build the XML forr	mat for the HL7 v2	2.x schema.	
HL7 Version					
2.4				-	
Detect vers	sion in	sample file			
🗹 Use Friendl	y Elem	ent Names Where	Possible		
🗌 Use default	HL7 na	amespace			
Create miss	sing fie	lds			
🗌 Put first child	d value	to attribute			
Additional XSD	Files				
	A. •		Damaus Sila		
-HLZ Metadata	file:		Remove File		
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				Fowse	
HL7 Sample F	ile: —				
🗹 Use Samp	🗹 Use Sample File				
Getting Started Tutorial\data\ORU-LabResults.hl7					
Crop format by messages from sample file					
Show populated elements only					
HL7 Message	s:				
🗌 Use Messa	age Typ	De			
ACK					
		Read Format	👗 Cancel	Help	

The ORU file now appears in the Sample File window. (Make sure you checked the **Crop format by messages from sample file** box.) Click **Read Format.**

You'll be prompted to Load an XML file as Source Sample Data and click Yes.

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3 144MB of 381MB
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Info Notes
Structure Type: None selected.
Element Name:
Datatype:
Max. Occurrences:
Min. Occurrences:
Sample Data:

It will take a few seconds to process, then you'll see the full HL7 2.4 data dictionary appear in the left hand panel of the data mapper. Double click on the <u>nodes</u> to fully expand the tree.

25	Data Mapper : New mapping	
File Formats Mapping View Help		381MB of 381MB
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Format Type view		Format Type view
	Mapping Information Comments	
Structure Type: None selected.	Selected Mapping Structure:	Structure Type: None selected.
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Sample Data:		Sample Data:
	Mapping XSLT View Testing	

Now, we know that we're going to be using the ORU message, so we can scroll down to that portion of the tree and double click the node to expand it. Also double click the **MSH_Message_Header** node to expand that as well. Your panel should now resemble that shown above.

Next, we will want to load in our TargetFormat. Click the **Open Target Format** icon.

eiConsole for Healthcare Getting Started Tutorial - 22

	Select Format	¢,
Read Format		٦
Format Reader:	None selected.	
Reader Description:	NAVA Route Error Information SAP IDOC SQLXML Format Builder WSDL XHTML 1.0 XML XSD (Schema)	
	Read Format 🛛 🎉 Cancel 🛛 🎯 Help	

Select the ${\bf XML}$ format reader from the drop down.

Select Format 🔀		
Read Format		
Format Reader:	XML	
Reader Description:	Reads custom XML file(s) and builds a format description.	
	XML Files (*)	
Please s	elect file(s) for the format generation.	
lf no file	is selected, then all list will be used	
Add Remove ☑ Use as sample data source		
 ✓ 	Read Format 🛛 🗶 Cancel 🎯 Help	

Next, click the **Add** button.

	Select XML Files
Look <u>i</u> n:	data Image: OS (C:) Image: Program Files Image: PilotFish Technology Image: Pilo
File <u>N</u> ame: Files of <u>T</u> ype:	XML Files (*.xml)
7	
	Select XML Files 🛛 🔀
Look <u>i</u> n:	Select XML Files data ItsTemplate.xml Results.xml

Navigate to your distribution folder, select the data folder and then LabResultsTemplate.xml and click Open.

Select Format 🔀		
Read Format		
Format Reader:	XML 🔽	
Reads custom XML file(s) and builds a format description.		
	XML Files (*)	
Please se	lect file(s) for the format generation.	
If no file is	s selected, then all list will be used	
s\2 Healthcare Getting	Started Tutorial\data\LabResultsTemplate.xml	
•		
Add Remove		
☑ Use as sample data source		
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When the **Select Format** dialog opens, click **Read Format**.

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Max. Occurrences:		Max. Occurrences:
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Sample Data:		Rample Data:
Map	ping XSLT View Testing	Campie Data.

Your TargetFormat opens. Now we will want to expand the tree. Click the nodes.

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Structure Type: None selected. Element Name: Datatype: Max. Occurrences: Description Min. Occurrences: Imapping information Sample Data: Manning XSLT View Testing	Format Type view	Number laferen after	Format Type view
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Sample Data: Sample Data: Sample Data:	Min. Occurrences:		Min. Occurrences:
	Sample Data:	Mapping XSLT View Testing	Sample Data:

Expanding the tree you'll see that we have a simple XML representation of a single Excel spreadsheet with rows representing basic patient information, physician information and test results.

Now we need to create a mapping between our HL7 format and our spreadsheet. The easiest way to begin a mapping is to choose Formats.

2		Data Mapper : New mapping	¥ 7 ×
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3	🚽 Open Source Format	. / 🖬 🖬 📾 🐘 📾 🔚 🛤 😫 😒 🖌 📾 🕸 🖷 💷 🗉	
2	🛃 Open Target Format		
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	E View Target Sample Data		
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	Ctrl+Alt-F		o- 🕒 State
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From the **Formats** menu select **Add Target Sample Data As Template.** (While you are at it, browse the drop down to view all the other options through this menu.)

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Or you can use Add Target Sample Data As Template button on the main toolbar.



When prompted to add sample data to the mapping, click Yes. The sample data will load quickly.



You'll see the center populated with a large number of green nodes.



These green nodes provide the structure of the file that we'll want to create. Now, our job is to map values from the Source file onto this template. Use the scroll bar (right) to review the mapping.



Scroll back to the top of the mapping. Make sure your **XCSExcelBook**, **XCSExcelSheet** nodes are expanded and that you can see the **XCSExcelRow** element (you'll want to be sure that the **Columns** element is NOT expanded). Select the **Flow Control** sub-tab underneath the XSLT Structures tab.



We'll want to create an Excel row for each patient result in our HL7 file (ORU_R01.PATIENT_RESULT+).

To accomplish this, click and drag the yellow **"for-each"** node on top of the **XCSExcelSheet** element, but don't release your mouse until you are almost at the bottom of the element.

TIP: You'll see a gray bar and yellow highlight appear, which tells you when to release your mouse on the node.



Now if your mapping looks like that above, that is, the **for-each** node appears directly under the **Text : Lab** eiConsole for Healthcare Getting Started Tutorial - 29 **Results** node (rather than all the way at the bottom), simply select the node, right click to open the drop down and select **Delete.** Then repeat previous step again. This time make sure you drag & drop the **for-each** onto the bottom portion of the **XCSExcelSheet** element.



The for-each node will appear at the bottom of your mapping. You'll need to scroll down to view this.



Now scroll up and collapse the **XCSExcelRow** element. This will allow you to see both the **for-each** and the **XCSExcelRow**.

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	insert as value of	
Format Type view		Format Type view
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Structure Type: Element	Selected Mapping Structure: [@select]:?	Structure Type: None selected.
Element Name: ORU_R01.PATIENT_RES	Description Attributes : stylesheet	Element Name:
Datatype: ORU_R01.PATIENT_RES	Select a mapping structure to see a description of	Datatype:
Max. Occurrences: Unbounded		Max. Occurrences:
Min. Occurrences: 1		Min. Occurrences:
Sample Data:	Mapping XSLT View Testing	Sample Data:

Since we want to generate a row for each instance of a patient result, we'll now drag the **ORU_R01.PATIENT_RESULT+** element onto the select node of the **for-each** (watch for the yellow highlight) and then release the mouse.

*	Data Mapper : New mapping	Z X X
File Formats Mapping View Help		3 239MB of 438MB
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Now, we'll want to make the row a child of the for-each node. Left click the **XCSExcelRow** element (the text will get bolder as you do this) and drop it on top of the **for-each**.

2	Data Mapper : New mapping	2 🛛 🔀
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Scroll down and you'll see the system will generate a row for each patient result.



Let's go ahead and drag and drop to populate a few additional pieces of information. Expand the **Patient_Name** node.

Data Mapper : New mapping		
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Element Name: ORU R01 PATIENT REG	Description	Element Name:
	This mapping structure represents a 'XCSExcelRow'	
Max Occurrences:	LiteralResult Element	Max Occurrences:
Min Occurrences: 1		Min Occurrences:
Sample Data:	Mapping XSLT View Testing	Sample Data:

You'll see a Text node called: Insert Patient Name.



Select **Insert Patient Name**, right click, and select **Delete** from the drop down. Your mapping should now look like the above.

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Sample Data. Mapping XSLT View Testing	Sample Data:		

Next, we are going expand the nodes in our left column. So, we will want to expand the column to get a better view without needing to scroll.

TIP: You can widen your columns by clicking and dragging the vertical column bars, until you see the black line, as above. Release your mouse when you have reached the desired column width.

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 PID.7_Date_Time_of_Birth PID.8_Sex PID.11_Patient_Address+ PID.13_Phone_NumberHome PID.14_Patient_Account_Number PID.18_Patient_Account_Number PID.20_Driver_s_License_Numbt ORU_R01.0RDER_OBSERVATION+ 	Original Control Contro Control Control Control Control Control Control Control Control C	Patient_DOB Address1 Address2 State State ZIP Physician Date_Ot_Test
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Structure Type: Element	Selected Mapping Structure: Text : Insert Patient Nan	Structure Type: None selected.
Element Name: ORU_R01.PATIENT_RESU	Description Attributes stylesheet	Element Name:
Datatype: ORU_R01.PATIENT_RESU	This mapping structure represents result text value.	Datatype:
Max. Occurrences: Unbounded		Max. Occurrences:
Min. Occurrences: 1		Min. Occurrences:
Sample Data:	Mapping XSLT View Testing	Sample Data:

After you have widened the column, next, expand the **ORU_RO1.PATIENT_RESULT** + Node, **ORU_RO1.PATIENT** node, and **PID_Patient_Identification** node to reveal the patient name.



Then, expand the **PID.5_Patient_Name+** where you'll see the **XPN.1_family_name, XPN.2_given_name,** etc.

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Format Type view		Format Type view
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	Mapping Information Comments	
Structure Type: Element	Selected Mapping Structure: ne/XPN.2_given_name	Structure Type: None selected.
Element Name: XPN.2_given_name	Description Attributes stylesheet	Element Name:
Datatype: XPN.2.CONTENT	text node in the result tree.	Datatype:
Max. Occurrences: 1		Max. Occurrences:
Min. Occurrences: 0		Min. Occurrences:
Sample Data: EVE	Mapping XSLT View Testing	Sample Data:

Drag the **XPN.2_given_name** onto the **Patient_Name** node in the center panel. Now, your mapping should look like that above.

A blue node with the path to the **Patient_Name** should appear underneath the **Patient_Name** node in the center panel.

*	Data Mapper : New mapping	Z X
File Formats Mapping View Help		3 154MB of 430MB
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MSH.6_Receiving_Facility MSH.6_Receiving_Facility MSH.7_Date_Time_Of_Message MSH.10_Message_Type MSH.10_Message_Control_D MSH.11_Processing_ID MSH.12_Version_ID ORU_R01.PATIENT_RESULT+ ORU_R01.PATIENT_(identification) ORU_R01.PATIENT PID_3_Patient_identifier_List+ PID_5_Patient_Mame+ XPN.3_second_and_further_c XPN.4_family_name XPN.5_prefix_e.gDR_ XPN.5_prefix_e.gDR_ XPN.5_prefix_e.gDR_ XPN.8_degree_e.gMD_ XPN.8_degree_e.gMD_ XPN.8_me_type_code XPN.10_name_context YPN.10_name_context YPN.11_name_assembly_orc PID.6_Mother_s_Maiden_Name+ DID 7_Dote Time_of Pitth	Filter by pattern XSLT Structures XPath Functions XSLT Functions EXSLT Functions C Template Flow Control Output Variable Import Uncategorized choose for-each if otherwise sort when fallback choose for-each if choose for-each if for-each if otherwise for-each if otherwise for-each if otherwise for-each if otherwise @index=1 exect exect Patient_Name @index=1 exect @index=1 exect @index=1 @index=1 exect @index=1 @index=1 exect @index=1 @index=1 @index=1 @index=	Image: Second system Image: Second system Image: Second
Format Type view	State ZIP V	Format Type view
INULUS HL/	Mapping Information	NOTES
Structure Type: Element	Selected Mapping Structure: ne/XPN.2_given_name	Structure Type: None selected
Element Name: VDN 2 given name	Description Attributes	Flomont blomo:
Previous and the second	The xstvalue-of element is instantiated to create a	
Datatype: XPN.2.CONTENT	text node in the result tree.	Datatype:
Max. Occurrences: 1		Max. Occurrences:
Min. Occurrences: 0		Min. Occurrences:
Sample Data: EVE		Sample Data:
	Mapping XSLT View Testing	

To see if this works click on the **Testing** tab at the bottom of the screen.

*	Data Mapper : New mapping	🗹 🗡 🔀
File Formats Mapping View Help		332MB of 430MB
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 MSH 6_Receiving_Facility MSH.7_Date_Time_Of_IMessage MSH.3_Message_Type MSH.10_Message_Control_ID MSH.11_Processing_ID MSH.12_Version_ID ORU_R01.PATIENT_RESULT+ ORU_R01.PATIENT_RESULT+ ORU_R01.PATient_Identification PID.3_Patient_Identifier_List+ PID.5_Patient_Name+ XPN.1_family_name XPN.3_second_and_further_0 XPN.4_suffix_e.gR_0T_III_ XPN.5_degree_e.g_MD_ XPN.5_name_tontext XPN.10_name_validity_range XPN.20_name_context XPN.20_name_conte	Concert Collected Sequences of the set of th	XCSExcelBook ScelCount XCSExcelSheet Warne Columns Columns Columns Work count Work count
Info Notes HL7		Info Notes
Structure Type: Element Element Name: XPN.2_given_name Datatype: XPN.2.CONTENT Max. Occurrences: 1 Min. Occurrences: 0 Sample Data: EVE		Structure Type: None selected. Element Name: Datatype: Max. Occurrences: Min. Occurrences: Sample Data:
	Mapping XSLI View Testing	

The Testing panel opens.

You'll see that the text area for the Source data has been pre-populated with an XML representation of our HL7 message. Click the **Gear** icon to run our transformation.

Data Mapper : New mapping		
File Formats Mapping View Help	263MB of 431MB	
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MSH.10_Message_Control_ID MSH.11_Processing_ID MSH.12_Version_ID	I w name - I rowCount	
• • ORU_R01.PATIENT_RESULT+ • • ORU_R01.PATIENT • • ORU_R01.PATIENT • • • ORU_R01.PATIENT • • • • ORU_R01.PATIENT • • • • • • • • • • • • • • •	Q Count Q count Q Column+	
	 Q Index Q XCSExcelRow Q index 	
♥ XPN.1 tamily_name - ₩ XPN.2 given_name - N XPN.3 second and further_c	o- ♥ Patient_Name o- ♥ Patient_DOB o- ♥ Address1	
- ● XPN4_suffix_e.gUR_or_III_ - ● XPN5_prefix_e.gDR_ - ● XPN.6_degree_e.g_MD_	o- ♥ Address2 o- ♥ City o- ♥ State	
 → XPN.7_name_type_code → XPN.8_Name_Representation → XPN.9_name_context XPN.9_name_context XPN.9_name_context XPN.9_name_context XPN.9_name_context 	o- ♥ ZIP o- ♥ Physician o- ♥ Date_Of_Test	
	o- ♥ Test_Performed o- ♥ Test_Result	
PID.7_Date_Time_of_Bith S		
Format Type view Format Type view S >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Format Type view	
Structure Type: Element	Structure Type: None selected	
Element Name: XPN.2_given_name Using XSLT engine "XALAN_INTERPRETED".	Element Name:	
Datatype: XPN.2.CONTENT	Max Occurrences:	
Min. Occurrences: 0	Min. Occurrences:	
Sample Data: EVE Mapping XSLT View Testing	Sample Data:	

The results of the transformation will appear in the panel below. Clicking the **View Results** icon in the upper right will make this easier to read.



Here we see the panel opens up and indeed we get a better view.

13		»» »» «Column index="9">Date Of Test ¶	1	
14		>> >> <column index="10">Test Performed<th></th></column>		
15		» » <column ·index="11">Test Result</column> 1		
16		»		
17		→ XCSExcelRow index="1">I		
18		>> ->> <patient index="1" name="">EVE</patient> T		
19		<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>		
20		>> >> <address1 ·index="3">Insert ·Address1</address1> 1		
21		>> >>> < Address2 ·index="4">Insert ·Address2		
22		<pre>>> <city index="5">Insert City</city>II</pre>		
23		>> >> <state 'index="6">Insert 'State</state> 1		
24		>> ->> <zip index="7">Insert ZIP</zip>		
25		>> >> <physician ·index="8">Insert ·Physician</physician> []		
26		>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>		
27		>> >> <test index="10" performed="">Insert Test Name</test> 1		
28		>> >> <test index="11" result="">Insert Test Result</test> 1		
29		»		
30	→ ¶			
31	<th>SExcelBook>I</th> <th></th>	SExcelBook>I		
32	I			

Scrolling down to line 18, we can see that the **Patient_Name** has been populated with the value "**EVE**", which was in fact the patient's first name or given name from the HL7 message.

Info Notes HL7]	1:1	; Info Notes
Structure Type:	Element		Structure Type: None selected.
Element Name:	XPN.2_given_name	Output Using XSI Tengine "XALAN_INTERPRETED"	Element Name:
Datatype:	XPN.2.CONTENT		Datatype:
Max. Occurrences:	1		Max. Occurrences:
Min. Occurrences:	0		Min. Occurrences:
Sample Data:	EVE		Sample Data:
		mapping ASLIVIEW Testing	

We can return back to the graphical mapping view by clicking the **Mapping** tab.

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Let's map a few more fields. Expand the **Patient_DOB** node.



Left click the node **Text: Insert DOB**, when the text gets bolder indicating it is selected, right click, and choose **Delete** from the context menu.



Scroll down and expand the **PID.7_Dat_Time_of_Birth** node to get a better view. This time, let's drag the **PID.7_Date_Time_of_Birth** onto the **Patient_DOB** node.

Once we've done that, drag & drop the **PID.7_Date_Time_of_Birth** onto the **Patient_DOB** node. Your mapping should now match that above.



Again, you can click on the Testing tab.



Once the panel opens click the Gear icon.

Resu	Results		
B			
		al	
1	<pre><?xml version="1.0" encoding="UTF-8"?></pre>	HI	
2	<xcsexcelbook sheetcount="1">1</xcsexcelbook>		
3	>> <xcsexcelsheet name="Lab Results" rowcount="2">1</xcsexcelsheet>		
4	>> >> <columns ·count="11">1</columns>		
5	>> >> >> Column index="1">Patient_Name		
6	>> >> >> Column index="2">Patient_DOB1		
7	>> >> >> Column ·index="3">Address1		
8	>> >> <> >> <t< th=""><th></th></t<>		
9	>> >> <>		
10	>> >> Column index="6">State		
11	>> >> Column index="7">ZIP		
12	>> >> <> <column ·index="8">Physician</column> 1		
13	>> >> >> <column ·index="9">Date_Of_Test</column> #		
14	>> >>		
15	>> >> >> Column index="11">Test Result	-	
16	» » <th></th>		
17	>> >> XCSExcelRow ·index="1">I		
18	>> >> >> <patient index="1" name="">EVE</patient> 1		
19	>> >> >> <patient dob="" index="2">19620320</patient>		
20	>> <t< th=""><th></th></t<>		
21	>> >> <>> <address2 ·index="4">Insert ·Address2</address2> 1		
22	>> >> <> >> <>>	Ð	
1:1			

The **Patient_DOB** element appears as expected.



But note! In the toolbar at the top of the mapper you can see the **tooltip** icon indicating that it "enables or disables apply template for complex types". If it's selected and the value (**PID.7_Date_Time_of_Birth**) is draged, your mapping would look like above.

Resu	lts	
۲		
1	xml version="1.0" encoding="UTF-8"?	
2	<xcsexcelbook ·sheetcount="1">I</xcsexcelbook>	
3	>> <xcsexcelsheet< b=""> name="Lab Results" rowCount="2"></xcsexcelsheet<>	
4		
5	<pre>>> >> << <column index="1">Patient_Name</column>#</pre>	
6	>> >> <> <column index="2">Patient_DOB</column> 1	
7	>> >> >> >>	
8	>> >> <> >>	
9	>> >> >>	
10	>> >> >>	
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12	>> >> >>	
13	<pre>>> >> <</pre> Column index="9">Date_Of_Test1	
14	<pre>>> >> << Column index="10">Test_Performed1</pre>	
15	>> >> >> <column ·index="11">Test_Result</column> 1	
16	»» »» ∭	
17	>> >> XCSExcelRow index="1">	
18	<pre>>> >> <patient_name index="1">EVE</patient_name>II</pre>	
19	>> >> <patient_dob ·="" ·index="2"></patient_dob> I	
20	D D Address1 index="3">Insert Address1	
21	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	
22	<pre>>> >> <city index="5">Insert City</city>II</pre>	-
1:1		

In this case, after running the test you'd see that the patient date of birth was not populated.

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Let's take a look at what happened.

PID.7_Date_Time_of_Birth is a complex node that has 2 children underneath it. If the **Enable or disable apply template for complex types** button is selected, the data mapping expects one-to-one mappings to be handled with leaf nodes of the tree. We'll want to disable this behavior so that we can take the full value of the **Date_Time_of_Birth element** and use it to populate **Patient_DOB**. So check the condition of the **tooltip** icon.

*	Data Mapper : New mapping	2 X X
File Formats Mapping View Help		3 222MB of 431MB
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 ORU_R01.PATIENT_RESULT+	Choose for-each fo	■ XCSExcelBook
 XPN.3_second_and_further_gi XPN.4_suffix_e.g.JR_or_III_ XPN.5_prefix_e.g.JR_ XPN.6_degree_e.g.MD_ XPN.7_name_type_code 		♥ Column+ ■ Column+ ■ Mathematical Science ♥ XCSExcelRow ■ Patient, Name ■ Patient, Name
 APN.8_Name_context APN.9_name_context APN.10_name_validity_range XPN.11_name_validity_range XPN.11_name_ssembly_ord PID.6_Mother_s_Maiden_Name+ PID.7_Date_Time_of_Bith 	Patient_Name @index=1 ORU_R01.PATIENT/PID_Patient_Identification/PID.5_Patient_Name/XPN.2_given @eselect]:ORU_R01.PATIENT/PID_Patient_Identification/PID.5_Patient_Name	0 ■ Patient_DOB 0 ■ Address1 0 ■ Address2 0 ■ City 0 ■ State 0 ■ City
 ■ 13.2_degree_of_precision ■ PID.8_Sex ● PID.11_Patient_Address+ ● PID.13_Phone_NumberHome+ ● PID.14_Phone_NumberBusine_ 	Patient_DOB @index=2 ORU_R01.PATIENT.PID_Patient_Identification.PID.7_Date_Time_of_Birth @select;ORU_R01.PATIENT/PID_Patient_Identification/PID.7_Date_Time_of	o- ♥ Date_O_Test o- ♥ Test_Performed o- ♥ Test_Result
Format Type view	Address1	Format Type view
Info Notes HL7	Mapping Information	Info Notes
Structure Type: Element	Selected Mapping Structure: 7_Date_Time_of_Birth	Structure Type: None selected.
Element Name: PID.7_Date_Time_of_Birth	Description Attributes stylesheet	Element Name:
Datatype: PID.7.CONTENT	The xsl/value-of element is instantiated to create a	Datatype:
Max. Occurrences: 1		Max. Occurrences:
Min. Occurrences: 0		Min. Occurrences:
Sample Data: 19620320	Mapping XSLT View Testing	Sample Data:

Now the tooltip icon is deselected and our mapping looks like above.

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Let's says we want to add some formatting to the Patient_DOB. Click the **Mapping** tab to go back to the Data Mapper.

File Formats Mapping View Help		334MB of 429MB
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	n XSLT Structures XPath Functions XSLT Functions EXSLT Functions Custom	Image: Construction of the co
 XPN.2_juke_name XPN.3_second_and_fur XPN.4_suffix_e.gJR_0 XPN.5_prefix_e.gDR_1 XPN.6_degree_e.gMD XPN.7_name_type_codi XPN.8_Name_Represe 	Columns for-each (@select]:ORU_R01.PATIENT_RESULT XCSExcelRow (@index=1	
 ◆ XPN.10_name_validity_ ◆ XPN.11_name_validity_ ◆ XPN.11_name_assemt ◆ PID.6_Mother_s_Maiden_N ♦ PID.7 Date Time of Bith ● TS.1_time_of_an_event ■ TS.2_degree_of_precisi ● PID.8 Sex 	Autor Total Context Conte	Address2 Address2 State State Dete_Of_Test Test E Test Performed
PID.11_Patient_Address+ PID.13_Phone_Number PID.14_Phone_Number PID.14_Phone_Number Format Type view	ORU_R01.PATIENT/PID_Patient_Identification/PID.7_Date_Time_of_Birth I@select;ORU_R01.PATIENT/PID_Patient_Identification/PID.7_Date_Time_of_Birth Address1 Address2	Format Type view

Now, navigate to the **Custom** tab, you will need to scroll to the right. And then select the **Date** sub-tab.



Again, scroll over so you can choose the **Date/Time Formatter** and drag it onto the newly created blue node for the **Date_Time_of_Birth (the second blue node).** Here watch for a yellow bar above the node to make sure you are mapping to the right location. Once it's dropped in the correct position it will launch the **Add Date/Time formatter** dialogue.

Add Date/Ti	me formatter 🛛 🔀		
Value :			
ORU_R01.PATIENT/PID_Patient_Iden	tification/PID.7_Date_Time_of_Birth		
Input pattern			
yyyyMMdd	20170118		
Output pattern			
yyyy-MM-dd	2017-01-18		
Validate dates			
Validate date input			
Help	. Ok Cancel		

The formatter dialogue opens. The **Add Date/Time formatter** dialogue is where we can add our expected input pattern **"yyyyMMdd"** and our desired output pattern **"yyyy-MM-dd"**. Enter the text as shown, then click **OK**.

🐉 Data Mapper : New mapping	2 X X
File Formats Mapping View Help	3 166MB of 429MB
Image: Contrast C	XCSExcelBook SheetCount XCSExcelSheet name rowCount Column+ Column+ index Column+ index VCSExcelRow index Patient_Name Patient_Name Address1 Address2 City State ZIP Physician Date_O_Test Test_Result
	Format Type view
Intermet Element Structure Type: Element Element Name: PID.7_Date_Time_of_E Datatype: PID.7_CONTENT Max. Occurrences: 1 Min. Occurrences: 0 Sample Data: 19620320 Mapping Information Comments Mapping Information Comments Selected Mapping Structure: Intributes Select a mapping structure to see a description of its stylesheet Mapping Information Select a mapping structure to see a description of its Manoping XSLT View	Notes Structure Type: None selected. Element Name:

You'll see that the blue node is replaced by a yellow node indicating that we're doing some special work with that value.

One more time we'll click on the **Testing** tab.

<u>8</u>	Data Mapper : New mapping	¥ X 🗙
File Formats Mapping View Help		3 287MB of 429MB
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eiConsole for Healthcare Getting Started Tutorial - 45

And then click the **Gear** icon to run the test again.

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1	xm</th <th>l version="</th> <th>1.0" enco</th> <th>ding="UTF-8" ?>T</th>	l version="	1.0" enco	ding="UTF-8" ?>T
2	<xcs< th=""><th>ExcelBook s</th><th>heetCount</th><th>≔"1">¶</th></xcs<>	ExcelBook s	heetCount	≔"1">¶
3		CCSExce1Sh	eet name=	="Lab Results" rowCount="2">1
4		⇒ ≪Column	s ·count="	11">T
5		>> >> <<co< b=""></co<>	1umn ·inde	x="1">Patient_Name1
6		>> >> <<co< b=""></co<>	1umn ·inde	x="2">Patient_DOB[]
7		>> >> <<co< b=""></co<>	1umn ·inde	x="3">Address11
8		>> >> <co< b=""></co<>	1umn ·inde	x="4">Address21
9		⇒ ⇒ <co< b=""></co<>	lumn inde	x="5">City1
10		>> >> ~Co	lumn inde	x="6">State[]
11		>> >> ~Co	lumn inde	x="7">ZIP1
12		>> >> ~Co	lumn inde	x="8">Physician[]
13		>> >> ~Co	lumn inde	x="9">Date_Of_Test1
14		>> >> ~Co	lumn inde	x="10">Test_Performed1
15		>> >> ~Co	lumn inde	x="11">Test_Result1
16		⇒ 	ns≻ ∏	
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20		>> >> < Ad	dress1 in	ndex="3">Insert Address11
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22		->> -> ~Ci	ty index=	="5">Insert City
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Using	J XSET	engine "XALA	NN_INTERP	RETED'.
Марр	ing	XSLT View	Testing	

You'll see that we've formatted the Patient_DOB, **1962-03-20**. Next, click the Mapping tab to return to the Data Mapper.



Back at the Data Mapper, feel free to continue to map additional fields as you see fit. When you're done, click the **Save current mapping** icon.

	Save File 🥜
3	Enter the name you the file under: HL7-To-Spreadsheet
	OK Cancel

Once the **Save File** dialog opens give the mapping a name. We'll call this **"HL7-To-Spreadsheet"** and click **OK**.

Note: these get stored in your Working Directory "formats" folder.

😕 🛛 🕹 Data Mapper : C:\Program	Files/PilotFish Technology/HealthcareVinterfaces/5 Healthcare Getting Started InterfaceVormats/HL7-XML-To-XLS/HL7-To-Spreadsheet 📃 🎴
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	Filter by pattern XSLT Structures XPath Functions XSLT Functions Custom Image: Custo
 PID.3_Patient_identifier_Lis PID.5_Patient_identifier_Lis XPN.2_given_name XPN.2_given_name XPN.4_suffix_e gR_0 XPN.5_prefix_e gR_0 XPN.5_prefix_e gR_0 XPN.5_prefix_e gR_0 XPN.7_name_validity_ XPN.9_name_validity_ XPN.11_name_assemt PID.6_Mother_s_Maiden_N PID.13_Phone_Number PID.14_Phone_Number PID.14_Phone_Num	Image: Select CRU Image: Select CRU
Info Notes HL7	

Next, click the **Return to Console** icon.

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HL7-To-Spreadshee	xsit 💿 Brov	vse Edit	Conditional Execution		
Cache XSLT:			Execute Transformation: 📝		
XSLT Engine: Xalan (Interpreted) - XS	LT 1.0				

When the Main Route Grid opens you'll see the name of the newly created HL7 file appears in the XSLT Configuration area. Make sure that the **Xalan interpreted** drop down menu item is selected.

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<u>File Route Tools H</u> elp						
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Now, the output of our data mapping will be an XML representation of an Excel spreadsheet, but we need to actually convert that into the XLS binary format. To do this, we'll choose the **Microsoft Excel** transformer from the **Transformation Module** drop down.

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<u>File R</u> oute <u>T</u> ools <u>H</u> elp									
	Add Source 👔	Delete Source		👌 Move	Up 🖌 🐳	😪 Add Target	+ Delete Target		
Source System	Listener	Source Transform	Route		Target Trans	sform	Transport	Targe	t System
		XML	XML		XML			-	
System Unnamed	HL7-File-Drop Directory / File	HL7-to-XML	EHR-To-Clinic	c 🕹	HL7-XML-To	-XLS	Not Defined	System	Unnamed
Format Profi	le: HL7-XML-To-XLS	💽 💽 🔍 Search F	ormats	ne Format) 👍 Add Forr	nat 🔀 De	elete Format	Format 🕜	v
Format Info	Transformation Joining								
A	dvanced Compa	ibility Conditio	nal Execution	Transform	tion Module Con	figuration			
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XSEFIN	xSLT To	Common XML: 🗌 Use Direct I	Relay	Descrip	tion:	Transformer t input streams	to convert Microsoft Excel Wo s to and from XML	orksheet	
	HL7-To-Spreadsheet	xsit 💿 Bro	wse Edit	Bas	c Conditio	nal Execution	XML to Excel		
Cache	XSLT:			XMLE	ncoding Type:	JTF-8			
XSLT E	ngine: Xalan (Interpreted) - XS	LT 1.0 💌 🖬		Excel	File Format:	97 (.xls)	•		

Select this, no further configuration is required.

The Transport Stage

		PilotFish eiConsole	[5 Healthcare Getting Started	Interface.EHR-To-Clinic]		<u> </u>
File Route Tools Help						
	🖌 earung bhé 冬	💫 Delete Source	Move Down	Movelin i 🍂 Addit:	arnet 💦 Nelete Ta	rnet
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Source System	Listener	Source Transform	Route	Target Transform	Transport	Target System
		× ×	XML	XML		-
System Unnamed	HL7-File-Drop Directory / File	HL7-to-XML	EHR-To-Clinic	HL7-XML-To-XLS	Not Defined	System Unnamed
Process Transpo	or Configuration Transport rt Configuration Retry Conf	Configuration Post-Processors iguration Transport Configuration				
		Transport Name: Transport Type:	No Module Selected			
		Use Common Transport	No Module Selected	•		
		Transport Description:	No module selected.			

Next, click on the Transport stage. Here we'll configure how we'd like to Transport the data to our Target system. In this case we're just going to be dropping a file into a directory.

Processor Configuration	Transport Configu	uration Post-Processors	
Transport Configuration	Retry Configuration	on	
	ſ	Transport Configuration –	
		Transport Name:	
		Transport Type:	No Module Selected
		Use Common Transport	Ant Avvs s3
		Transport Description:	BaseXXML Database
			Database Table (SQL)
			Directory / File
			Email (SMTP)
			Execute Command Line
C			

From the **Transport Type** drop down choose **Directory / File**.

Processor Configuration Transport Co	onfiguration Post-Processor	s
Transport Configuration Retry Config	uration	
	Transport Configuration	
	Transport Name:	d Interface.EHR-To-Clinic.Directory / File Transport
	Transport Type:	Directory / File
	Use Common Transport	No Module Selected
	Transport Description:	Stores data as files in a specified directory.
	😑 Basic 🛛 Advan	ced
	Target directory:	
	😑 Target file name:	
	Target file extension:	
	Specify full file path:	Disabled 💽 🗟
	Path to file:	
	If file exists:	Create New
	Maximum File Size:	-1 🔿 Bytes 🔍 🔳

This opens the **Transport Configuration** panel. Once it opens we'll fill in the required information, but first, click the **Ellipsis** button next to the Target directory.

	Select target directory
Look <u>I</u> n: Cal data Cal format Cal icons Cal in Cal lib Cal out Cal routes	 5 Healthcare Getting Started Interface OS (C:) Program Files PilotFish Technology Healthcare interfaces 5 Healthcare Getting Started Int DATA (D:)
Files of <u>T</u> y	nology\Healthcare\interfaces\5 Healthcare Getting Started Interface\out oe: All Files Open Cancel

	Select target directory
Look <u>I</u> n: 🧧	5 Healthcare Getting Started Interface 🛛 🖄 🔯 🔛
🗀 data	
🗀 formats	
icons	
🚞 in	
lib 🦰	
i roules	
	nology\Healthcare\interfaces\5 Healthcare Getting Started Interface\out
Files of <u>T</u> ype:	All Files
	Open Cancel

For consistency in this tutorial select {working directory}/interfaces/5 Healthcare Getting Started Interface. Click the New Folder button and create a new folder naming it "out". Select it and click Open.

Processor Configuration	Transport Configuration	Post-Processors	
Transport Configuration	Retry Configuration		
	Trans	port Configuration —	
	Trans	port Name:	EHR-To-Clinic.Directory / File Transport
	Trans	port Type:	Directory / File 🔍 💷 🕜
	Use (common Transport	No Module Selected
	Trans	port Description:	Stores data as files in a specified directory.
		Basic Advance	a
	т	arget directory:	Healthcare Getting Started Interface\out
	Т	arget file name:	Spreadsheet
	Т	arget file extension:	xls
	s	pecify full file path: [Disa, d
	P	ath to file:	
	lf	file exists:	Create New
	M	aximum File Size:	-1 🐳 Bytes 🔍 🔳

The path to your **Target directory** now appears in the field **Target file name**, let's just call it "**Spreadsheet**". Enter that in the **Target file name** configuration item field.

We also need to enter a **Target file extension**. Let's enter **"xls,"** since this is a spreadsheet.

Adding Source and Target Names



Now, we can go back and add the names of our Source and Target system. Click on the **Source** System icon and in the System Name configuration area call this **EHR**. Click on the **Choose Source Icon** button.



Select the Healthcare category, choose any of the EHR icons and click Select.



Now click on the Target system. We'll name it Practice. And again click on the Choose Target Icon button.



Select the File Types category, choose any of the XLSX icons and click on Select.



Now the main grid of the eiConsole should look like the one shown above.



We now have a completely configured interface. In this interface an HL7 system produces HL7 data, the HL7 file gets picked up by a Listener, that HL7 file is converted to XML. It is routed to 1 defined Target system, which converts the HL7 XML to an Excel spreadsheet format, and then drops the results in a directory.

Now that we've configured it, let's see if it works. From the File menu, select Save Current Route.

2		
<u>F</u> ile	Route Tools Help	
	💿 🗊 Editing Mode	
	🔾 🎲 Testing Mode	Ctrl-T
	🔾 🕸 Debug Mode	Ctrl-D
	🗟 Define Stage Listeners	
	📴 Define Route Health Rules	
	じ Clone Target	
	😪 Define Transaction Time To Live	
	Define Custom web.xml	
	🙈 Local eiPlatform Emulator	Ctrl-E
	🖵 Define Global Transaction Monitor	'S
	Configure HTTP Settings	
	Configure Data Sources	Alt+Shift-D
	E Define Module Classes	Ctrl-M
	Reload Custom Libraries	F5
	Generate Environment Properties	
	🍓 Environment Properties	Alt-P

Then, in the Route menu, select **Testing Mode**.

迭		PilotFish eiConsole	[5 Healthcare Getting Started In	terface.EHR-To-Clinic]		Z X X
File Route Tools Help						
		🚯 Execute Test	💣 Test Mode Configuration	Clear Test Config		
Source System	Listener	Source Transform	Route	Target Transform	Transport	Target System
EHR	HL7-File-Drop Directory/File	HL7-to-XML	EHR-To-Clinic	HL7-XML-TO-XLS	EHR-To-Clinic.Directory / File Transport	Practice
A.Y.		Format N	Aetadata Fag Name Tag Va	lue	ble	Ţ

The eiConsole's inline **Testing Mode** opens. Here, we see our same route topology, Source System, Listener, Source Transform, etc., but this time our icons are replaced with question marks and arrows indicating stages of a test we can run and the path that it's configured to execute.

2	PilotFish eiConsole [5 Healthcare Getting Started Interface.EHR-To-Clinic]									
File Route Tools Help										
		💮 Execute Test	💣 Test Mode Configuration	Clear Test Config						
Source System	Listener	Source Transform	Route	Target Transform	Transport	Target System				
	HI 7-Eile-Dron	▶ ?	▶ ?)	EHR-To-Clinic Directory (File	XLSX				
EHR	Directory / File	HL7-to-XML	EHR-To-Clinic	HL7-XML-To-XLS	Transport	Practice				
A.V.			Waiting for Listener Listener started, waiting for Stop	★ data		Ţ				
			netauata Fag Name Tag V:	alue						

We'll start our test at the Listener stage, indicated by the green arrow.

Click the **Execute Test** button to start your test.

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The Listener will start polling every 10 seconds waiting for an HL7 file to appear in the input folder that you designated.



In your distribution folder, one more time find the **ORU_LabResults.hl7** sample file (in the **data** folder) and copy it.

Then, paste it into the "in" folder of your Working Directory.

Within 10 seconds the file will disappear.



As each stage completes the question marks turn into **green check marks**. What a beautiful sight! Or, if you had a failure you will see a **red X**.

Here, we can take a look at how the data appeared at each point.

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File Route Tools Help							
		🚳 Execute Test	💣 Test Mode Co	nfiguration	Clear Test Config		
Source System	Listener	Source Transform	Route		Target Transform	Transport	Target System
EHR	EHR Directory/File				HL7-XML-TO-XLS	EHR-To-Clinic.Directory / File	×LSX Practice
 Objects wi	thin selected stage:			Testing Corr	figuration		
St	age Status St	age Name St	tage Type	Stage Conf	iguration		
				🗹 Start Te:	st Here	🗌 Skip This Stage	
	HL7-File-D	rop Listener		🗌 Trace P	oint After Here	🗌 End Test After Here	
				Alternate T	esting Data		
				Source	Using Listener		•
				Stage Tran	saction Attributes		
					Key	Value	
				Editi	or 🔰 Import From File	e 🛛 🔇 Remove 🛛 🗶 Re	emove All
				Test Results	;		
				TX ID 2	Stage End Sta 13:12:05.641 00:00:0	ige Time Percent 0.060 15,50	Status Success
					View S	Stage Output	

You can click on the **Listener** stage and double click the **HL7-File-Drop** stage name (in the Objects within selected stage grid.)

						Stage Outpu	ıt Viewer		¥ 7 🗙
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1 2 3 4	MSH ^~ PID OBR 1 OBX 1	4 6 GHH 1555-44- 345439/ DK 1554	LAB ELAF -4444 E\ -670H -0E : L-5^GLUCO	3-3 GHH /ERYWOM L045813/ DSE ^POST	0E BLDG4 21 N^EVE^E GHH - LAB 15 - 12H - CFST : 1	00202150930 OR ^L JONES 196203 545^GLUCOSE 2 MCNC:PT:SER/PLA	U^R01 CNTRL-3456 20 F 153 FERNYD 00202150730 S:QN 182 mg/dl 7	P 2.4¶ OD →DR.^^STATESV 555-55-5555^ 0_105 H F	TLLE^OH^35292 (206)334 PRIMARY^PATRICIA ·P^^^^M
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Here you can see the unaltered HL7 file as it was acquired.

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Irce System	Listener	Source Transform	Route	Target Transform	Transnort	Tarnet System
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	HL7-File-Drop				EHR-To-Clinic.Directory/File	XLSX
EHR	Directory / File	HL7-to-XML	EHR-To-Clini	c HL7-XML-To-XLS	Transport	Practice
Objects	within selected stage:	togo Nomo	T	esting Configuration		
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Next, you can click on the Source Transform stage and double click on the HL7 v2.x Transformer row or on

the View Stage Output. Here you can see the parsed HL7 message.

<u>8</u>		PilotFish eiConsol	e [5 Healthcare Getting Started	Interface.EHR-To-Clinic]		¥ 7 X
File Route Tools Help		🚯 Execute Test	💣 Test Mode Configuration	Clear Test Config		
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EHR	HL7-File-Drop		EHR-To-Clinic	HL7-XML-TO-XLS	EHR-To-Clinic.Directory / File	
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Nothing new to see in the **Route** stage.

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1	xml version="1.0" encoding="UTF-8"? 1	
2	<xcsexcelbook sheetcount="1">T</xcsexcelbook>	
3	>> <xcsexcelsheet name="Lab Results" rowcount="2">T</xcsexcelsheet>	
4	>> >> ≺Columns count="11">¶	
0 6	>> >> >> <Column 'index="1">Patient Name /column 1	
0 7	>> >> >> <column 'index="2">Patient_DUB</column> 1	
, 1 8	>> >> >> << Column 'index=" 3" >Addressi	
q	<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>	
10	>> >> >> >> >> >> >> >> >> >> >> >> >>	
11	S S Column index= 0 State (Column)	
12	<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>	
13	>> >> >>	
14	>> >> < <pre>Column index="10">Test Performed<!--/column-->[]</pre>	
15	>> >> >> <column index="11">Test Result</column> 1	
16		
17	>> >> XCSExcelRow index="1"> ¶	
18	<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>	
19	>> >> >> >> Patient DOB index="2">1962-03-20>	
20	>> >> >> <address1 ·index="3">Insert ·Address1</address1>	
21	>> >> >> >> <address2 ·index="4">Insert ·Address2</address2> 1	
22	<pre>>> >> <city index="5">Insert City</city>#</pre>	
23	>> >> <state index="6">Insert State</state> T	
24	>> >> <> <zip 'index=" 7">Insert 'ZIP</zip> T	
25	>> >> >> <physician index="8">Insert Physician</physician> {	
20	>> >> >> >> >> >> >> >> >> >> >> >> >>	
21	>> >> <test index="10" performed="">insert Test Name</test> 1	
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30		
31	// CSEvcelBook>//	
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33		
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We then move on to the **Target Transform** stage. Here we can double click the **XSLT** row or the **View Stage Output** to see the output of our transformation.

You can see the two fields that we've mapped, the **Patient_Name** and the **Patient_DOB** appear in the output.

All of the other fields are defaulted to the same information that we had in the sample Excel spreadsheet.

2				PilotFis	h eiConsole	[5 Healthcare Get	ting Started I	nterface.EHR-To-Clin	ic]			L 7 X
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3	Insert ZIPDInsert PhysicianDInsert Test DateDInsert Test NameDInsert Test ResultDDDYDDDDD
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Next, the **Microsoft Excel Transformation** row. You can see it did its job. Double click the row and view the binary form of the Excel spreadsheet itself. It's an ugly sight!

*	PilotFish elConsole (5 Healthcare Getting Started Interface.EHR-To-Clinic)								2 X X		
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	View Stage Output										

Finally, we can click on the **Transport** stage where we can see that the file was successfully dropped in a directory.

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FAVORITES DEVICES	xLs Spreadsheet.xls	

If we navigate to the **out** folder of our Working Directory, we'll see a newly created file called **spreadsheet.xls**.

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4														
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9 10 11														

If we open the spreadsheet we can see cells populated with our mapped data.



Now, you've completed your first interface using the eiConsole for Healthcare. Now that you have completed testing your interface, select **File Management** from the File menu.

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The icon next to **EHR-To-Clinic** is now blue indicating it is a fully configured interface. Typically, the final step is to deploy the interface to production. This can be done by copying the configuration files that now exist in the Working Directory, or by connecting to an eiPlatform server, and dragging & dropping into an eiPlatform panel, accessed via a tab next to the <u>PIE</u> tab.

Note: an eiPlatform server needs to be configured in order for this option to be visible in this window.

That's all there is to it. You've successfully built your first HL7 interface using the PilotFish eiConsole for Healthcare. Browse through the demos available on the PilotFish Product Online Resource Center's Healthcare page to learn more about how you can leverage the HL7 specific features and components of the eiConsole for Healthcare. Also check out Levels I-IV for advanced topics to handle virtually any integration scenario with the eiConsole.