

以下内容来自 <https://www.outcomehealthcare.com/sample-mirth-connect-project-hl7-2-x-transformation-2-3-to-2-4/>

从 1.x 开始，我们一直在使用 Mirth，围绕如何进行从 HL7 2.x 到 2.x 的基本转换，出现了许多常见问题。经典用例是将医院内的消息从一个系统映射到另一个系统，实现系统间集成和数据交互。

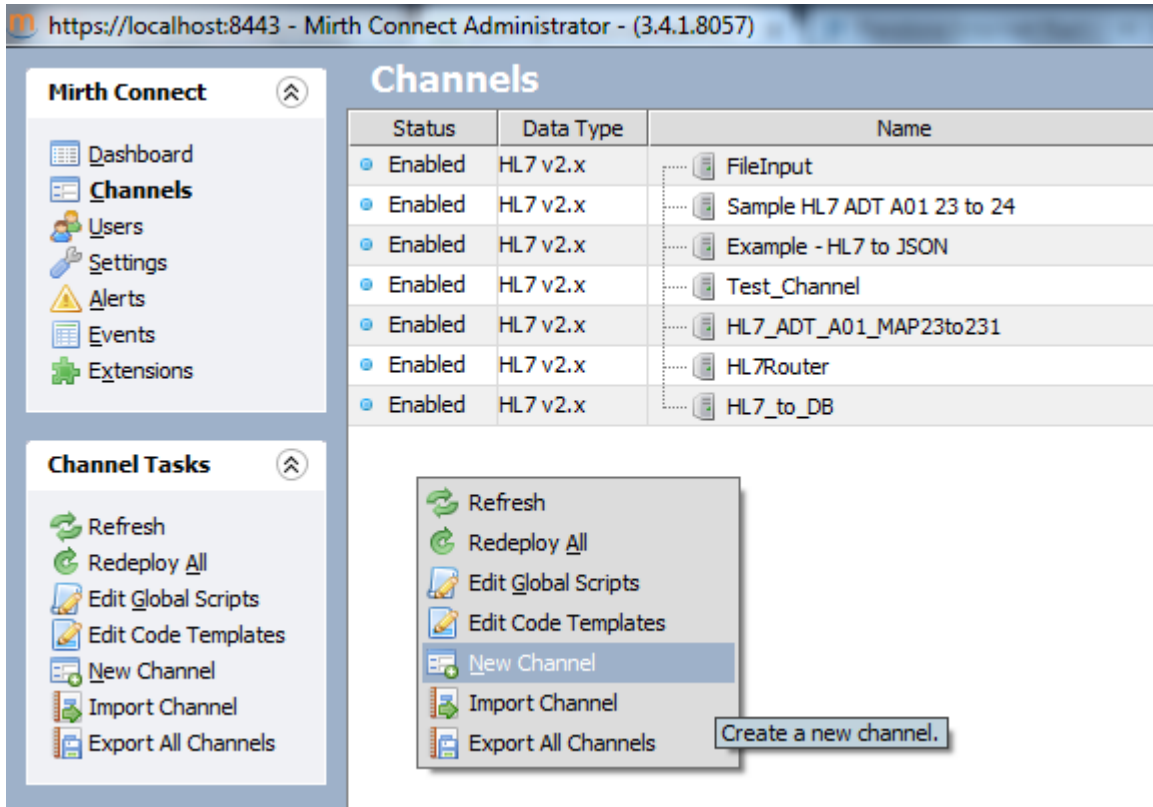
下面，我们逐步介绍从 HL7 2.3 消息映射到 2.4 消息的基本过程。在此过程中，我们将对数据进行一些更改，以满足目标系统的要求。

与市场上的其他集成/接口引擎相比，Mirth 在一些方面有所不同：

- Mirth 通常处理 HL7 消息，例如带分隔符的文本，引用段和字段，例如“msg [MSH] [MSH.3] [MSH.3.1]”（请注意，内部消息被解析为 XML 结构
- 从数据读取值时，请使用以下标记：var X = msg [MSH] [MSH.3] [MSH.3.1]。toString（）；
- 将值写入段时，请使用以下标记：msg [MSH] [MSH.3] [MSH.3.1] = var Y；
- 没有一种简单的方法可以直观地从源格式映射到目标格式。大多数时候，映射是作为代码完成的

如您在下方的示例中看到的那样，我们解决转换的方法是一次获取一个输入消息并对其进行修改，一个字段一次转换步骤。

首先，打开 **Mirth Connect Administrator** 并转到 **Channels**。右键单击并创建一个新频道。



在“摘要”选项卡中，为其命名并设置您在下面看到的选项。大多数应该是默认值

https://localhost:8443 - Mirth Connect Administrator - (3.4.1.8057)

Edit Channel - Sample HL7 ADT A01 23 to 24

Summary | Source | Destinations | Scripts

Channel Properties

Name: ☒ Enabled

Data Types: ☒ Clear global channel map on deploy

Dependencies:

Initial State:

Attachment: ☐ Store Attachments

Message Storage

Development

Content: All

Metadata: All

Durable Message Delivery: On

Performance:

☐ Encrypt message content

☐ Remove content on completion ☐ Filtered only

☐ Remove attachments on completion

Message Pruning

Metadata:

☒ Store indefinitely

☐ Prune metadata older than days

Content:

☒ Prune when message metadata is removed

☐ Prune content older than days

☒ Allow message archiving

(incomplete, errored, and queued messages will not be pruned)

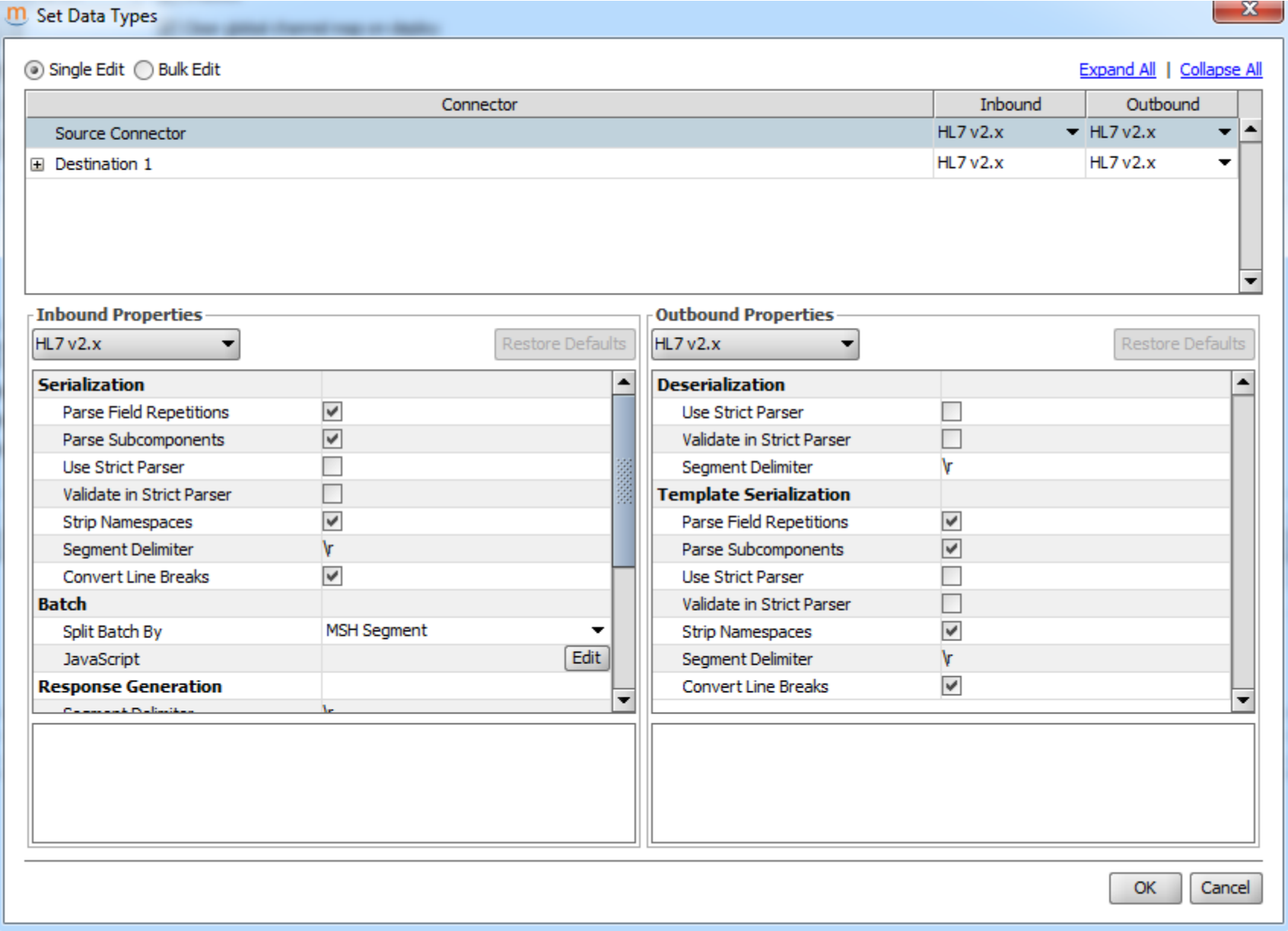
Channel Tags

Tag

Custom Metadata

Column Name
SOURCE

单击数据类型按钮，并验证所有数据类型均为 **HL7v2.x**。



接下来，我们将设置源连接器。为简单起见，我们将选择一个带有 **HL7** 消息的文件。在现实世界中，我们很可能会通过 **TCP / IP** 来接收它。

单击“源”选项卡，按照下面看到的设置，创建一个‘File Raader’通道。我们需要在本地磁盘上创建一个文件夹 C:\Development\Mirth\In，将输入文件拖放到该文件夹中。

下一步还需要一个目标文件夹 C:\Development\Mirth\Out。

https://localhost:8443 - Mirth Connect Administrator - (3.4.1.8057)

Mirth Connect

- Dashboard
- Channels
- Users
- Settings
- Alerts
- Events
- Extensions

Channel Tasks

- Validate Connector
- Edit Filter
- Edit Transformer
- Import Connector
- Export Connector
- Export Channel
- Deploy Channel

Other

- Notifications
- View User API
- View Client API
- Help
- About Mirth Connect
- Visit mirthcorp.com
- Report Issue
- Logout

Edit Channel - Sample HL7 ADT A01 23 to 24

Summary | Source | Destinations | Scripts

Connector Type: **File Reader**

Polling Settings

Schedule Type: **Interval** Next poll at: Wednesday, Aug 10, 4:17:35 PM

Poll Once on Start: ☐ Yes ☒ No

Interval: **seconds**

Source Settings

Source Queue: **OFF (Respond after processing)**

Queue Buffer Size:

Response: **None**

Process Batch: ☐ Yes ☒ No

Batch Response: ☐ First ☒ Last

Max Processing Threads:

File Reader Settings

Method: **file** **Test Read**

Advanced Options: **<None>**

Directory:

ftp:// /

Filename Filter Pattern: ☐ Regular Expression

Include All Subdirectories: ☐ Yes ☒ No

Ignore . files: ☒ Yes ☐ No

Anonymous: ☒ Yes ☐ No

Username:

Password:

Timeout (ms):

Secure Mode: ☒ Yes ☐ No

Passive Mode: ☒ Yes ☐ No

Validate Connection: ☒ Yes ☐ No

After Processing Action: **Delete**

将目标连接器设置为‘**File Writer**’。将文件夹指定为 **C:\Development\Mirth\Out**。在此示例中，我们还使用 **Mirth** 呈现的变量定义了输出文件名。确保您的模板与以下内容匹配至关重要。

接下来，单击左侧菜单上的“Edit Transformer”。这是我们定义转换规则的地方。

https://localhost:8443 - Mirth Connect Administrator - (3.4.1.8057)

Mirth Connect

- Dashboard
- Channels
- Users
- Settings
- Alerts
- Events
- Extensions

Channel Tasks

- Validate Connector
- New Destination
- Delete Destination
- Clone Destination
- Disable Destination
- Edit Filter
- Edit Transformer (1)
- Edit Response
- Import Connector
- Export Connector
- Export Channel
- Deploy Channel

Other

- Notifications
- View User API
- View Client API
- Help
- About Mirth Connect
- Visit mirthcorp.com
- Report Issue
- Logout

Edit Channel - Sample HL7 ADT A01 23 to 24

Summary | Source | Destinations | Scripts

Status	Destination	Id	Connector Type
<input checked="" type="radio"/> Enabled	Destination 1	1	File Writer

Connector Type: ☐ Wait for previous destination

Destination Settings

Queue Messages: ☒ Never ☐ On Failure ☐ Always

Advanced Queue Settings: Retries

Validate Response: ☐ Yes ☒ No

File Writer Settings

Method:

Advanced Options: <None>

Directory:

ftp:// /

File Name:

Anonymous: ☒ Yes ☐ No

Username:

Password:

Timeout (ms):

Secure Mode: ☒ Yes ☐ No

Passive Mode: ☒ Yes ☐ No

Validate Connection: ☒ Yes ☐ No

File Exists: ☒ Append ☐ Overwrite ☐ Error

Create Temp File: ☐ Yes ☒ No

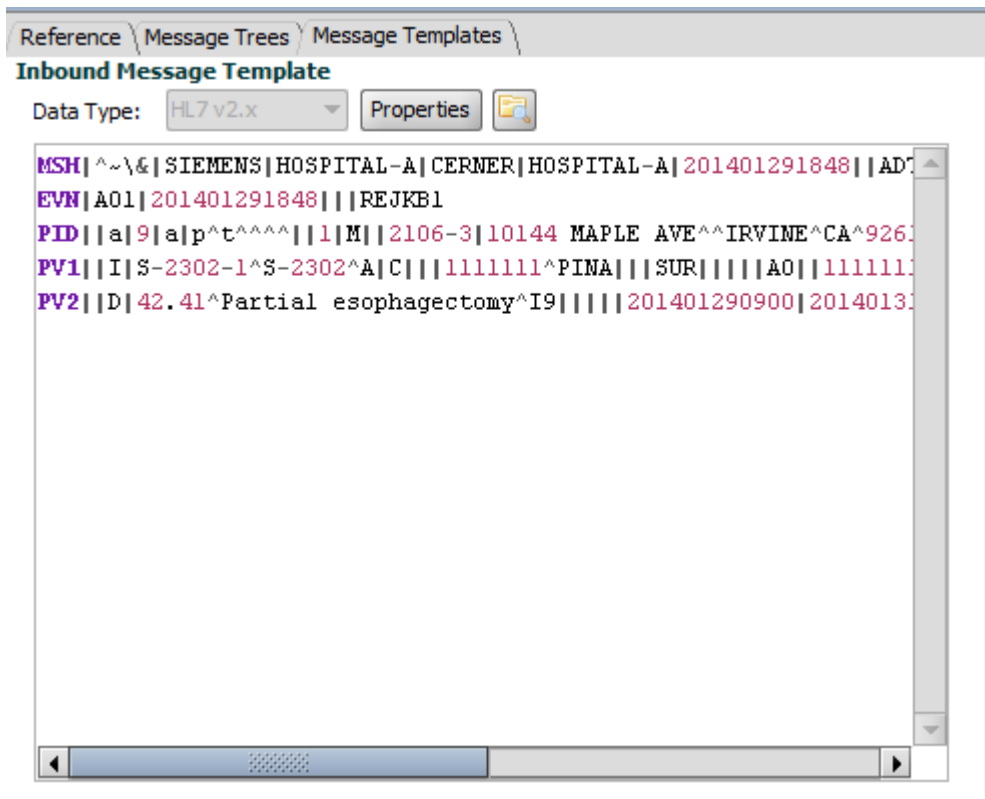
File Type: ☐ Binary ☒ Text

Encoding:

Template:

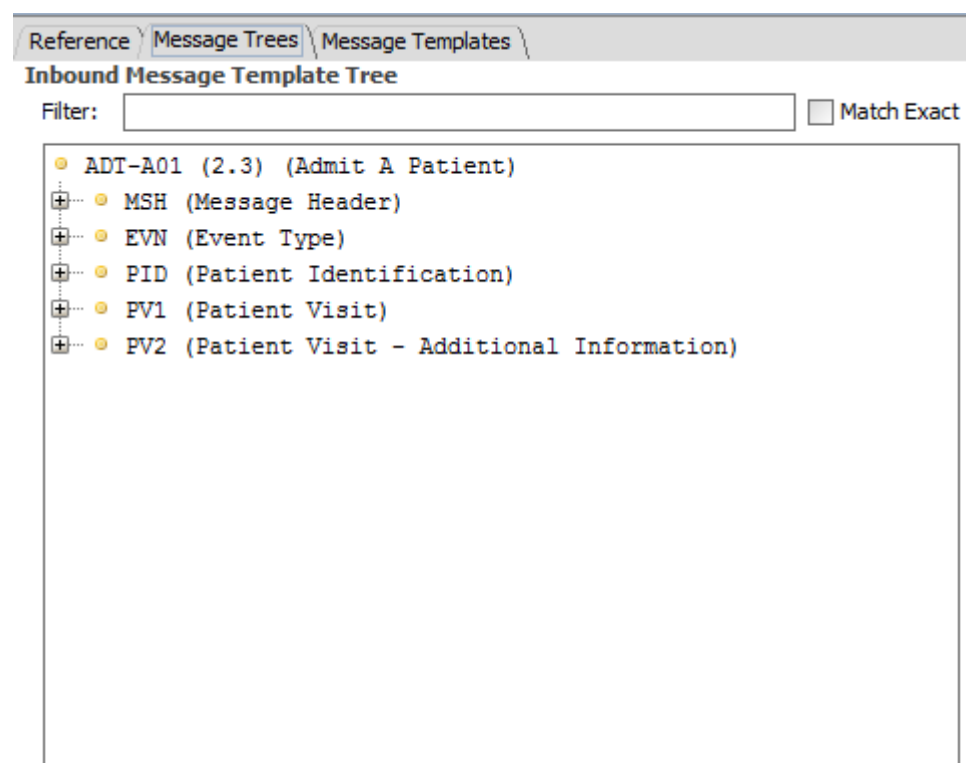
我们需要添加一个入站消息模板作为消息格式的参考。单击右侧的“**Message Templates**”选项卡，然后使用以下示例：

MSH|^~\&|SIEMENS|HOSPITAL-A|CERNER|HOSPITAL-A|201401291848||ADT^A01|1912340911|P|2.3|||AL|NE|
EVN|A01|201401291848|||REJKB1
PID||ABC123|987654|ALT789|PETTY^TOM^^^|19781218|M||2106-3|10144 MAPLE AVE^^IRVINE^CA^92614||(949)123-1234||||0053820452|220675537||AME||||1||||
PV1|||S-2302-1^S-2302^A|C|||1111111^PINA|||SUR||||A0||1111111^PINA|S||S|P|||||||||||IAH||||201401291848|
PV2||D|42.41^Partial esophagectomy^I9||||201401290900|201401310900|3|3|||||||||||||||||



现在，单击“**Message Trees**”选项卡以解析的结构查看该数据。当您展开各个细分字段时，**Mirth** 会分解样本数据并向您显示树形结构：

我们这样做的原因是可以拖放要访问的字段的正确名称。您可以将带有绿点的字段拖到编码窗口中。



让我们谈谈本次的测试用例。在此转换中，我们必须完成几件事：

- 将 HL7 版本设置为 2.4
- 将发件人 ID 重新分配给 Mirth
- 将日期和时间更新为 MSH 段中的当前日期和时间
- 在 EVN 区域中将日期和时间用 00 填充几秒钟

强制为目的地添加性别列表。本质上，如果遇到意外的性别，我们将其分配为“ O”。以下列表被翻译为代码：

3.4.2.8 PID-8 Administrative Sex (IS) 00111

Definition: This field contains the patient's sex. Refer to *User-defined Table 0001 - Administrative Sex* for suggested values.

User-defined Table 0001 - Administrative Sex

Value	Description	Comment
F	Female	
M	Male	
O	Other	
U	Unknown	
A	Ambiguous	
N	Not applicable	

下面的代码说明了如何满足要求：

```
// revise to version 2.4
msg['MSH']['MSH.12']['MSH.12.1'] = '2.4';

// sender id
msg['MSH']['MSH.3']['MSH.3.1'] = 'MIRTH';

// update datetime
msg['MSH']['MSH.7']['MSH.7.1'] = DateUtil.getCurrentDate('yyyyMMddhhmmss');

// Add two digits of seconds if they aren't there.
if (msg['EVN']['EVN.2']['EVN.2.1'].toString().length <= 12)
{
    msg['EVN']['EVN.2']['EVN.2.1'] = PadString('00000000000000', msg['EVN']['EVN.2']['EVN.2.1'].toString(), 0);
}

// Check whether or not gender meets requirements of the destination system. Set to 'O' if not.
switch(msg['PID']['PID.8']['PID.8.1'].toString().toUpperCase())
{
    case 'F':
        msg['PID']['PID.8']['PID.8.1'] = 'F';
        break;
    case 'M':
        msg['PID']['PID.8']['PID.8.1'] = 'M';
        break;
    case 'O':
        msg['PID']['PID.8']['PID.8.1'] = 'O';
        break;
```



```
case 'U':
msg['PID']['PID.8']['PID.8.1'] = 'U';
break;
case 'A':
msg['PID']['PID.8']['PID.8.1'] = 'A';
break;
case 'N':
msg['PID']['PID.8']['PID.8.1'] = 'N';
break;






default: msg['PID']['PID.8']['PID.8.1'] = 'O';
}

// Set admit reason to all upper case
msg['PV2']['PV2.3']['PV2.3.2'] = msg['PV2']['PV2.3']['PV2.3.2'].toString().toUpperCase();
```









Mirth Views

[Back to Channel](#)

Transformer Tasks

-  Add New Step
-  Delete Step
-  Import Transformer
-  Export Transformer
-  Validate Script

Other

-  Notifications
-  View User API
-  View Client API
-  Help
-  About Mirth Connect
-  Visit mirthcorp.com
-  Report Issue
-  Logout

Edit Channel - Sample HL7 ADT A01 23 to 24 - Destination 1 Transformer

#	Name	Type
0	Set MSH, EVN and PID Fields	JavaScript

Step
<pre>1 // revise to version 2.4 2 msg['MSH']['MSH.12']['MSH.12.1'] = '2.4'; 3 4 // sender id 5 msg['MSH']['MSH.3']['MSH.3.1'] = 'MIRTH'; 6 7 // update datetime 8 msg['MSH']['MSH.7']['MSH.7.1'] = DateUtil.getCurrentDate('yyyyMMddhhmmss'); 9 10 // Add two digits of seconds if they aren't there. 11 if (msg['EVN']['EVN.2']['EVN.2.1'].toString().length <= 12) 12 { 13 msg['EVN']['EVN.2']['EVN.2.1'] = PadString('000000000000', msg['EVN']['EVN.2']['EVN.2.1'].toString(), 0); 14 } 15 16 // Check whether or not gender meets requirements of the destination system. Set to 'O' if not. 17 switch(msg['PID']['PID.8']['PID.8.1'].toString().toUpperCase()) 18 { 19 case 'F': 20 msg['PID']['PID.8']['PID.8.1'] = 'F'; 21 break; 22 case 'M': 23 msg['PID']['PID.8']['PID.8.1'] = 'M'; 24 break; 25 case 'O': 26 msg['PID']['PID.8']['PID.8.1'] = 'O'; 27 break; 28 case 'U': 29 msg['PID']['PID.8']['PID.8.1'] = 'U'; 30 break; 31 case 'A': 32 msg['PID']['PID.8']['PID.8.1'] = 'A'; 33 break; 34 case 'N': 35 msg['PID']['PID.8']['PID.8.1'] = 'N'; 36 break; 37 38 default: msg['PID']['PID.8']['PID.8.1'] = 'O'; 39 } 40 41 // Set admit reason to all upper case 42 msg['PV2']['PV2.3']['PV2.3.2'] = msg['PV2']['PV2.3']['PV2.3.2'].toString().toUpperCase(); 43 //</pre>

在第 **13** 行，您会注意到我们调用了名为 **PadString** 的函数。函数使我们可以所有通道之间重用代码：

要创建该功能，请返回主通道菜单 **Channels** 并选择菜单 **Edit Code Templates**,首先选择菜单 **New Library** 创建一个代码模板库，然后选择 **New Code Template** 添加以下模板功能：

```
/**
Modify the description here. Modify the function name and parameters as needed. One function per
template is recommended; create a new code template for each new function.

@padchars Example '0000000000' – pad with 0's to 10 digits total
@str your input string
@padLeft 1 for left or 0 for right

@return {String} return description
*/
function PadString(padchars, str, padLeft)
{
if (typeof str === 'undefined')
return padchars;
if (padLeft) {
return (padchars + str).slice(-padchars.length);
} else {
return (str + padchars).substring(0, padchars.length);
}
}
```

https://localhost:8443 - Mirth Connect Administrator - (3.4.1.8057)

Mirth Connect

- Dashboard
- Channels
- Users
- Settings
- Alerts
- Events
- Extensions

Code Template Ta...

- Refresh
- New Code Template
- New Library
- Import Code Templ...
- Import Libraries
- Export Code Template
- Delete Code Template
- Validate Script

Other

- Notifications
- View User API
- View Client API
- Help
- About Mirth Connect
- Visit mirthcorp.com
- Report Issue
- Logout

Code Templates

Name	Description	Revision	Last Modified
Code Template Lib		4	2016-08-10 15:42
PadString		2	2016-08-10 15:56

1 Library, 1 Code Template

Filter:

Library: Code Template Lib

Type: Function

Code:

```
1 /**
2  * Modify the description here. Modify the function name and parameters as needed. One function per
3  * template is recommended; create a new code template for each new function.
4  *
5  * @padchars Example '0000000000' - pad with 0's to 10 digits total
6  * @str your input string
7  * @padLeft 1 for left or 0 for right
8  *
9  * @return {String} return description
10 */
11 function PadString(padchars, str, padLeft)
12 {
13   if (typeof str === 'undefined')
14     return padchars;
15   if (padLeft) {
16     return (padchars + str).slice(-padchars.length);
17   } else {
18     return (str + padchars).substring(0, padchars.length);
19   }
20 }
21
```

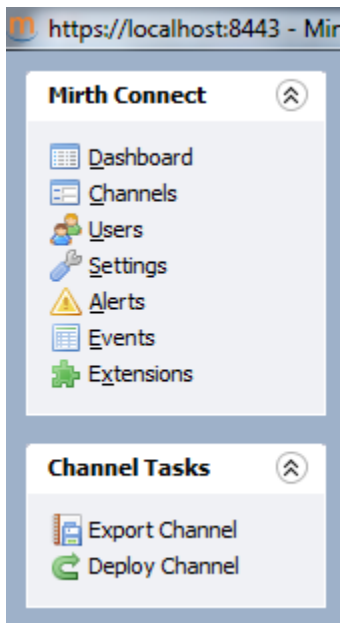
Update JSDoc

Context

[Select All](#) | [Deselect All](#)

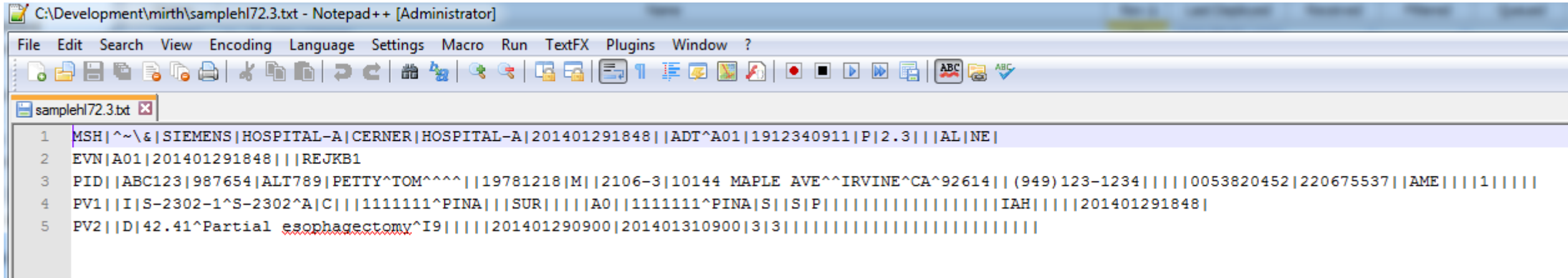
Context
<input type="checkbox"/> Global Scripts
<input type="checkbox"/> Deploy Script
<input type="checkbox"/> Undeploy Script
<input type="checkbox"/> Preprocessor Script
<input type="checkbox"/> Postprocessor Script
<input type="checkbox"/> Channel Scripts
<input type="checkbox"/> Deploy Script
<input type="checkbox"/> Undeploy Script
<input type="checkbox"/> Preprocessor Script
<input type="checkbox"/> Postprocessor Script
<input type="checkbox"/> Attachment Script
<input type="checkbox"/> Batch Script
<input checked="" type="checkbox"/> Source Connector
<input checked="" type="checkbox"/> Receiver Script(s)
<input checked="" type="checkbox"/> Filter / Transformer Script
<input checked="" type="checkbox"/> Destination Connector
<input checked="" type="checkbox"/> Filter / Transformer Script
<input checked="" type="checkbox"/> Dispatcher Script
<input checked="" type="checkbox"/> Response Transformer Script

现在，让我们回到我们的返回主通道菜单 **Channels** 并部署它：

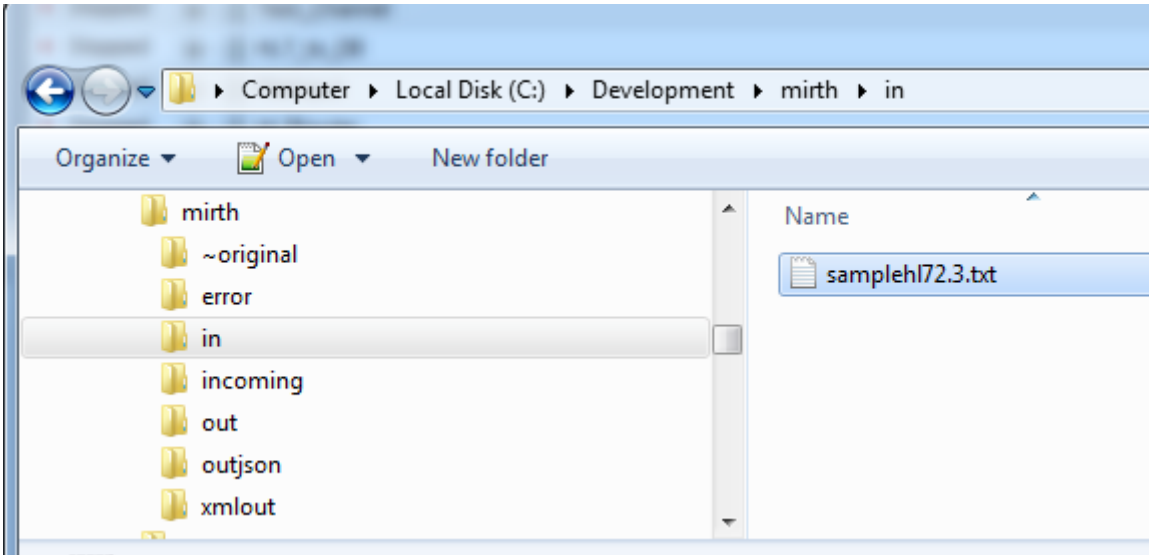


在您的 **C:\Development\Mirth** 目录中设置一个名为 **SampleHL723.txt** 的示例文件。在内部，使用以下文本：

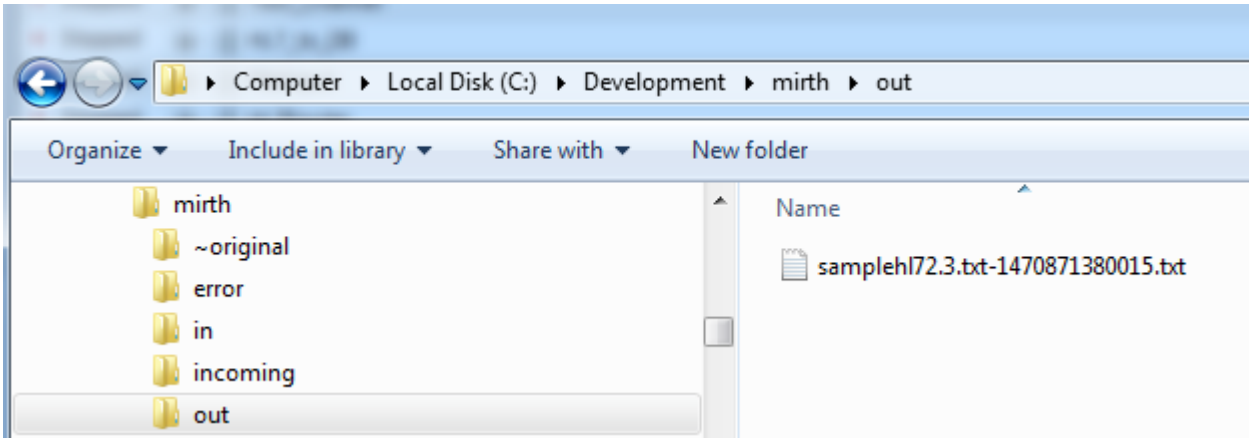
```
MSH|^~\&|SIEMENS|HOSPITAL-A|CERNER|HOSPITAL-A|201401291848||ADT^A01|1912340911|P|2.3||AL|NE|
EVN|A01|201401291848||REJKB1
PID||ABC123|987654|ALT789|PETTY^TOM^^^|19781218|M||2106-3|10144 MAPLE AVE^^IRVINE^CA^92614||(949)123-1234||||0053820452|220675537||AME||||1||||
PV1|||S-2302-1^S-2302^A|C||1111111^PINA||SUR||||A0||1111111^PINA|S||S|P||||||||||||IAH||||201401291848|
PV2||D|42.41^Partial esophagectomy^I9||||201401290900|201401310900|3|3|||||||||||||||||
```



要测试此信道，请将您创建的文件复制到 **C:\Development\Mirth\in** 它将被读取并删除：



导航到您的 **Out** 文件夹以查看结果：



如我们所见，我们的测试用例消息转换已正确执行：

- 我们在 MSH 段中看到的版本是 2.4。
- 发件人 ID 现在很美
- 我们已将 MSH 细分中的日期和时间更新为当前日期
- 我们在 EVN 细分中将日期和时间用 00 填充了几秒钟
- 由于性别为 M，因此保持不变。要测试此功能，请在我们的输入文件中将“性别”更改为“Z”，然后再次进行测试。输出将为“O”。
- 现在承认原因“PARTIAL ESOPHAGECTOMY”全部为大写

C:\Development\mirth\out\sampleh72.3.txt-1470871380015.txt - Notepad++ [Administrator]

File Edit Search View Encoding Language Settings Macro Run TextFX Plugins Window ?

sampleh72.3.txt-1470871380015.txt

```
1 MSH|^~\&|MIRTH|HOSPITAL-A|CERNER|HOSPITAL-A|20160810042300||ADT^A01|1912340911|P|2.4|||AL|NE|
2 EVN|A01|20140129184800|||REJKB1
3 PID|ABC123|987654|ALT789|PETTY^TOM^^^|19781218|M||2106-3|10144 MAPLE AVE^^IRVINE^CA^92614|||(949)123-1234|||0053820452|220675537||AME|||1|||
4 PV1||I|S-2302-1^S-2302^A|C|||1111111^PINA||SUR|||A0||1111111^PINA|S||S|P|||||||||IAH||||201401291848|
5 PV2||D|42.41^PARTIAL ESOPHAGECTOMY^I9|||201401290900|201401310900|3|3|||||||||
6
```