

Article

[Jeffrey Drumm](#) · Jan 7, 2020 3m read

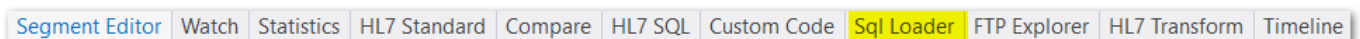
Load Ensemble Messages into HL7 Spy v2020.1

I'm always on the lookout for tools that make the development and testing of my interfaces more efficient. A couple of years ago I came across HL7 Spy, from [Inner Harbour Software](#). It quickly became my go-to tool for running message comparison reports for interface engine migrations, message statistics gathering, and troubleshooting message receipt and delivery. It also offered enhanced functionality for things like fetching messages via sftp that other tools don't provide.

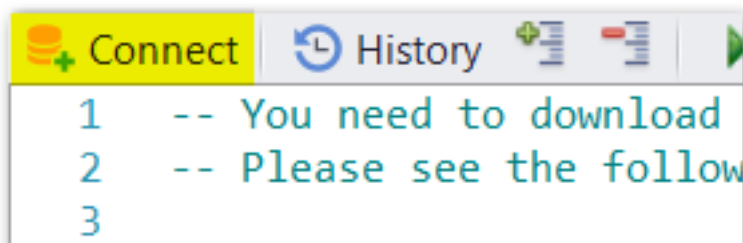
I've recently been working with HL7 Spy's author, Jon Reis, to enable support for fetching messages directly from the Ensemble message store. Its SQL Loader feature now has native Caché/IRIS support, and I've contributed a small server-side class to support the extraction of messages using it.

Version 2020.1 and higher, [downloadable from this page](#), includes this native support along with a sampling of SQL Loader queries that facilitate the retrieval of messages from Ensemble. This article provides a walk-through for configuring the latest release and shows some selected queries.

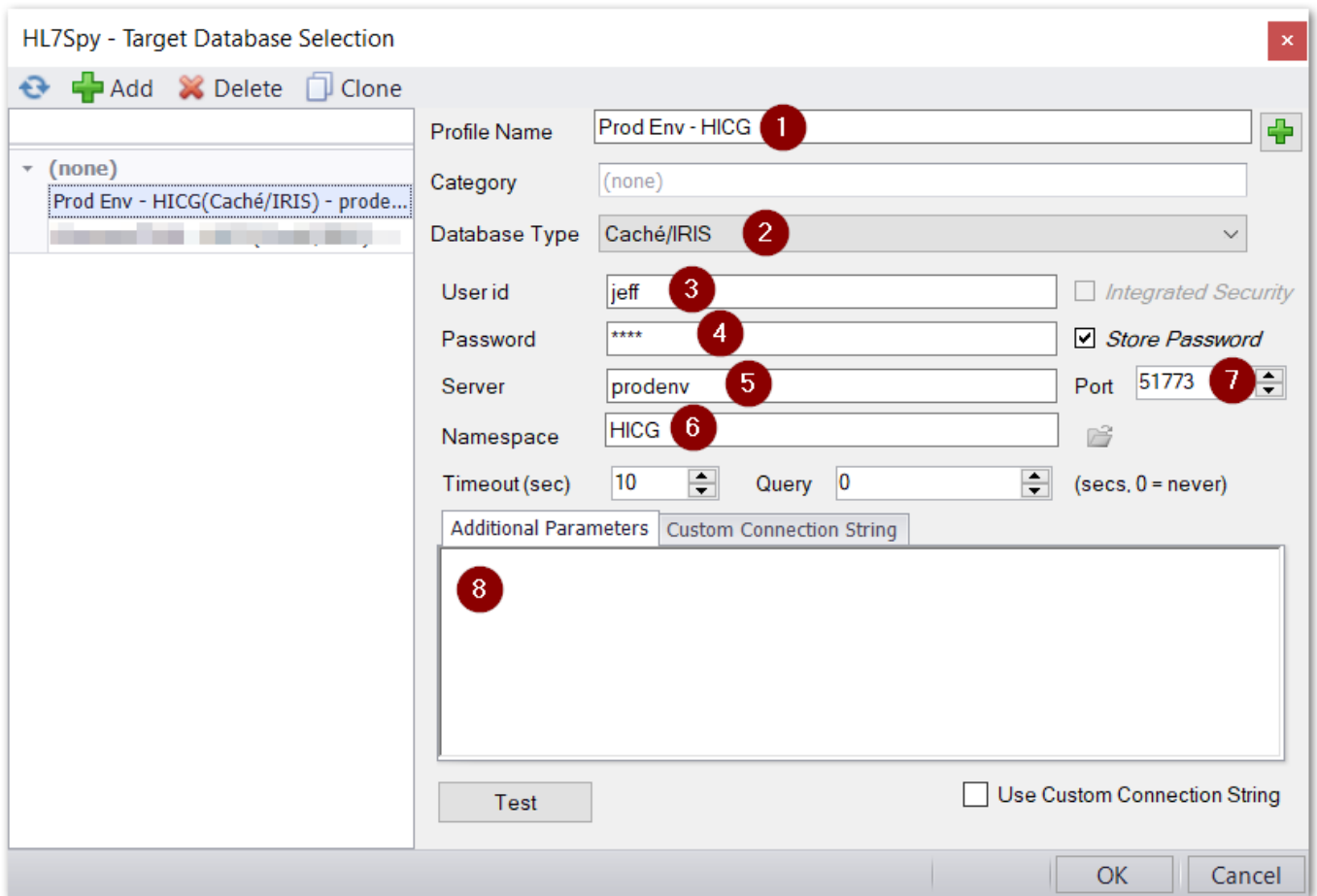
Once you've installed the beta, locate the SQL Loader tab at the bottom of the window and select it:



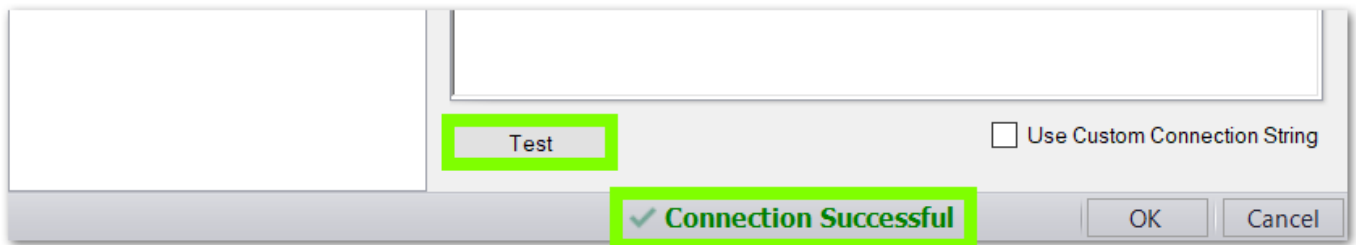
The bottom pane will change to an SQL editor window with a Connect button in the upper left corner:



Click Connect, then create a new connection profile by clicking the Add button, and filling in the form. Note: If your admin has implemented SSL/TLS security on the SuperServer port, include the string `Ssl=True` in the Additional Parameters text box (#8 in the image below); also, the default ports (#7) are 51773 for IRIS and 1972 for Caché:



Next, click the Test button to verify that the connection works:



Finally, download the class [HICG_HL7.xml](#), import it to your production namespace using Studio, and compile it. This class provides a SQL custom function called HICG.GetMsg() that takes a message body ID as its argument and populates a field in the returned result set with that ID's HL7 message.

That's it for installation and configuration. You can now take advantage of IRIS/Caché SQL to select messages based on values in Ens.MessageHeader or EnsLib.HL7.Message. A few examples:

1. Messages delivered to a Routing Process from a Service within a specified time frame

Click on each row in the bottom pane and HL7 Spy will display the related message in the upper pane.

The screenshot shows the HL7Spy Beta - Sql Loader application interface. The top menu bar includes File, Home, and various tool options. The main window displays a SQL query in the editor and its results in a table below.

SQL Query:

```

12 -- region 2 - Select by date/time range for messages between two hosts
13 SELECT SourceConfigName, TargetConfigName, TimeCreated, HICG.GetMsg(MessageBodyId) As Message FROM Ens.MessageHeader
14 WHERE
15     MessageBodyClassName = 'EnsLib.HL7.Message'
16     AND ID >= (SELECT TOP 1 ID FROM Ens.MessageHeader WHERE TimeCreated >='2020-01-03 00:00:00.000' ORDER BY TimeCreated ASC)
17     AND ID <= (SELECT TOP 1 ID FROM Ens.MessageHeader WHERE TimeCreated <='2020-01-05 00:00:00.000' ORDER BY TimeCreated DESC)
18     AND SourceConfigName = 'HL7SpyInbound'
19     AND TargetConfigName = 'ADTRouter'
20 -- endregion
    
```

Results Table:

SourceConfigName	TargetConfigName	TimeCreated	Message
HL7SpyInbound	ADTRouter	2020-01-04 16:20:14.02	
HL7SpyInbound	ADTRouter	2020-01-04 16:20:14.03	
HL7SpyInbound	ADTRouter	2020-01-04 16:20:14.04	
HL7SpyInbound	ADTRouter	2020-01-04 16:20:14.05	
HL7SpyInbound	ADTRouter	2020-01-04 16:20:14.06	
HL7SpyInbound	ADTRouter	2020-01-04 16:20:14.07	

The interface also shows a toolbar with various actions like Connect, History, Execute, and Distinct. The status bar at the bottom indicates 223 / 614 rows.

2. Suspended Messages

The screenshot shows the HL7Spy Beta - Sql Loader application. The top toolbar includes various file and editing tools. The main window displays a text editor with HL7 message data and a SQL query editor. The SQL query is as follows:

```

4  -- region 1 - Get Suspended messages
5  -- Status Values:
6  -- Created 1
7  -- Queued 2
8  -- Delivered 3
9  -- Discarded 4
10 -- Suspended 5
11 -- Deferred 6
12 -- Aborted 7
13 -- Error 8
14 -- Completed 9
15
16 SELECT SourceConfigName, TargetConfigName, TimeCreated, HICG.GetMsg(MessageBodyId) As Message FROM Ens.MessageHeader
17 WHERE
18     MessageBodyClassName = 'EnsLib.HL7.Message'
19     AND Status = 5
20 ORDER BY TargetConfigName ASC, TimeCreated ASC
21 -- endregion
    
```

The results pane shows a table with 5 rows of data:

SourceConfigName	TargetConfigName	TimeCreated	Message
ADTRouter	ADTBucket	2020-01-06 09:49:23.40	
ADTRouter	ADTBucket	2020-01-06 09:49:23.41	
ADTRouter	ADTBucket	2020-01-06 09:49:23.43	
ADTRouter	ADTBucket	2020-01-06 09:49:23.51	
ADTRouter	ADTBucket	2020-01-06 09:49:23.52	

The bottom status bar indicates the current position is 223 / 658.

3. Grouping

You can drag column headers to the grey bar at the top of the table pane, and records will be grouped/sub-grouped by the distinct values in those columns:

HL7Spy Beta - Sql Loader

```

1 MSH|^~\&||BgCtyChldrnUrgntCar^1231231234^NPI||201002201000||ADT^A04^ADT_A01|NIST-SS-001.11|P|2.5.1|||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.
2 EVN||201002200900||||BgCtyChldrnUrgntCar^1231231234^NPI
3 PID|1||11111^MR||^S||M||2076-8^CDCREC|^02130^25025|||||2186-5^CDCREC
4 PV1|1|||||1111_001^VN|||||201002200830
5 OBX|1|CWE|SS003^PHINQUESTION||261QU0200X^Urgent Care^NUCC||||F
6 OBX|2|NM|21612-7^LN|0|a^UCUM||||F
7 OBX|3|CWE|8661-1^LN|^Fever, cough||||F
8 DGL|1||4871^Influenza with other respiratory manifestations^I9CDX||W
    
```

SQL Loader - Prod Env - HICG(Caché/IRIS) - prodenv\HICG

```

23 -- region 2 - Select by date/time range for all inbound message destinations
24 SELECT SourceConfigName, TargetConfigName, TimeCreated, HICG.GetMsg(MessageBodyId) As Message FROM Ens.MessageHeader
25 WHERE
26     MessageBodyClassName = 'EnsLib.HL7.Message'
27     AND ID >= (SELECT TOP 1 ID FROM Ens.MessageHeader WHERE TimeCreated >='2020-01-03 00:00:00.000' ORDER BY TimeCreated ASC)
28     AND ID <= (SELECT TOP 1 ID FROM Ens.MessageHeader WHERE TimeCreated <='2020-01-05 00:00:00.000' ORDER BY TimeCreated DESC)
29     AND SourceConfigName = 'HL7SpyInbound'
30 -- endregion
    
```

Results

SourceConfigName	TargetConfigName	TimeCreated	Message
TargetConfigName : ADTRouter (count= 27)			
TargetConfigName : ChargeRouter (count= 27)			
HL7SpyInbound	ADTRouter	2020-01-04 16:20:14.02	
HL7SpyInbound	ADTRouter	2020-01-04 16:20:14.03	
HL7SpyInbound	ADTRouter	2020-01-04 16:20:14.04	

4. Selecting by both Message Header and Body Properties

HL7Spy Beta - (6) Sql Loader

```

1 MSH|^~\&||WatrRgnlMedCntr^1231231235^NPI||201207171730||ADT^A08^ADT_A01|NIST-SS-002.21|P|2.5.1|||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.
2 EVN||201207171720||||WatrRgnlMedCntr^1231231235^NPI
3 PID|1||222^MR||^S||F||2106-3^CDCREC|^060601
4 PV1|1|||||20120709_0064^VN|||||201207171700
5 OBX|1|CWE|SS003^PHINQUESTION||261QE0002X^Emergency Care^NUCC||||F
6 OBX|2|NM|21612-7^LN|35|a^UCUM||||F
7 OBX|3|CWE|8661-1^LN|^E8126^Other motor vehicle traffic accident involving collision with motor vehicle injuring pedal cyclist^I9CDX||||F
8 DGL|1||80145^Closed fracture of base of skull with intracranial injury of other and unspecified nature, with prolonged [more than 24 hours] loss o
9 f consciousness, without return to pre-existing conscious level^I9CDX||W
    
```

SQL Loader - Prod Env - HICG(Caché/IRIS) - prodenv\HICG

```

54 -- region 6 - Get messages by message body name (derived from MSH:9)
55 SELECT
56     body.ID As BodyId,
57     head.SourceConfigName As Source,
58     body.DocType as DocumentType,
59     body.Name as BodyName,
60     body.FullSize as Size,
61     HICG.GetMsg(body.ID) As Message
62 FROM Ens.MessageHeader head
63 INNER JOIN EnsLib.HL7.Message body
64 ON head.MessageBodyId = body.%ID
65 WHERE head.ID > 0
66 AND head.MessageBodyClassName = 'EnsLib.HL7.Message'
67 AND head.TargetConfigName = 'ADTRouter'
68 AND body.Name = 'ADT_A08'
69 -- endregion
    
```

Results

BodyId	Source	DocumentType	BodyName	Size	Message
5755	HL7SpyInbound	2.5.1:ADT_A01	ADT_A08	581	
5756	HL7SpyInbound	2.5.1:ADT_A01	ADT_A08	640	
5763	HL7SpyInbound	2.5.1:ADT_A01	ADT_A08	614	
5764	HL7SpyInbound	2.5.1:ADT_A01	ADT_A08	621	

Tips and Cauts

- Selecting messages by body (EnsLib.HL7.Message) properties seems to require a bit of a hack. You must provide a WHERE clause that starts with a selection by ID, even something as simple as ID > 0; in the case of a JOIN, that can be either the Header or Body ID.
- There's no reasonably performant option for selection by body content (other than the Identifier and Name properties, which are derived from MSH:10 and MSH:9 respectively). You should use IDs and other indexed properties such as SourceConfigName/TargetConfigName and Status to fetch the messages, then use HL7 Spy's powerful selection and filtering tools to find the specific message(s) you're looking for.
 - EDIT (10 January 2020): This is still generally a good idea, but I've incorporated the ability to do SearchTable queries as part of the message selection SQL query. That can speed things up ... see the comment below this article.
- Searching by a Date/Time range using TimeCreated is much faster if you use the method shown in example #1.

Finally ... I'll be updating this article as new discoveries are made and features added.

Thanks for reading 😊

[#HL7](#) [#Interoperability](#) [#Ensemble](#) [#InterSystems IRIS for Health](#)

Source URL: <https://community.intersystems.com/post/load-ensemble-messages-hl7-spy-v20201>