

EXERCISE* MAPPING V2 TO FHIR

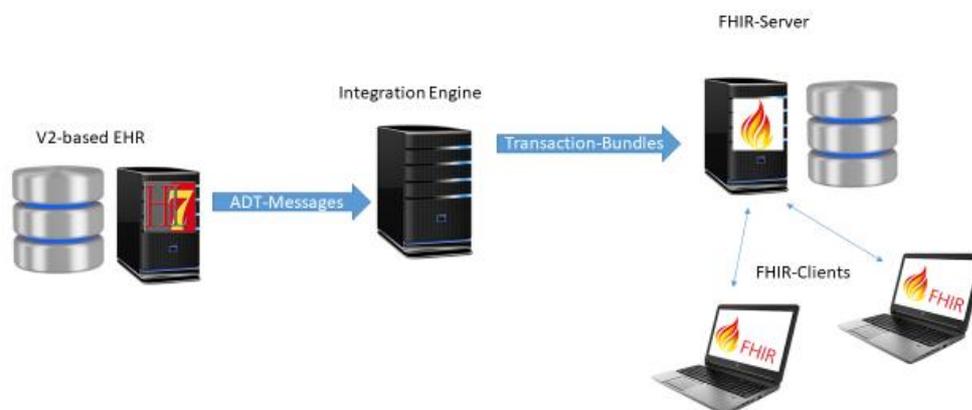
Track: Building Bridges
Tutorial: Mapping V2 to FHIR (and back)
Speaker: Simone Heckmann

The speaker will be in the hands-on area to answer your questions!

During the workshop session of the “Building Bridges” track we will explore ways of integrating V2 legacy systems with FHIR.

Scenario:

Our aim is to implement the necessary mechanisms that enable an integration engine to transform incoming HL7 V2 ADT-messages into transaction-type bundles and POST them to a FHIR server, thereby giving FHIR-Clients access to up-to-date patient demographics and keeping the data in sync with the V2 source system. We assume the FHIR-Server to be any reference implementation server, such as [HAPI](#), [Grahame's Server](#) or [VONK](#) with a full featured FHIR API but no internal business logic whatsoever.



Exercises:

1. Create a Patient resource from a HL7 V2 A28 message

Transform the following message into a Patient resource to store the patient demographic information on a FHIR server*

```
MSH|^~\&|LegacyKIS||IntegrationEngine||20171116090000||ADT^A28|0000
EVN|A28|20171116090000|
PID|1||SC937-0176CEC^^^SFSID^EI||Kirk^James^T.^.^Captain^^L||2233032
NK1|1|Kirk^George Samuel|BRO||^NET^Internet^george.kirk@deneva.ufp|
```

1. Consult the “[United Federation of Planet FHIR Implementation Guide](#)” for guidance on how to assign the appropriate identifier.system.uri for the SFSID (Starfleet Service ID)
2. Add a custom [tag](#) to mark this resource as created by your integration engine/tool**
3. Make sure that resending the same message will not create duplicates of your Patient on the server by using a [conditional update](#) based on the patient identifier and your custom tag.

Please note:

* You will find that some of the coded elements need to be mapped. These code mappings can be delegated to a FHIR terminology server, such as tx.fhir.org by feeding it a [ConceptMap](#) and invoking the [\\$translate](#) operation.

** In a productive environment, such backtracing would be accomplished by adding a [Provenance](#) resource. That however would require a lot more time and effort. For the scope of this exercise, the tags will suffice to distinguish the identical resources created by the attendees.

2. Update a Patient from a HL7 V2 A31 message

Transform the following V2 message into a [transaction](#) style [Bundle](#) to update the patient demographics and add a condition in one step.

```
MSH|^~\&|LegacyKIS||IntegrationEngine||20171117090000||ADT^A31|0000
EVN|A31|20171117090000|
PID|1||SC937-0176CEC^^^SFSID^EI||Kirk^James^T.^Admiral^L||22330322|M|
NK1|1|^Spock|DOM||^NET^Internet^spock@starfleet.ufp|N
DGL|1||A29.3^Rigelian Fever^ICD42||20171117090000|||||^McCoy^
```

1. Create the updated Patient resource and add it as Bundle.entry.resource to the Bundle
2. Create a [conditional update](#) url in order to reidentify the proper Patient resource to update, based on patient identifier and your custom tag and add it to Bundle.entry.request.url
3. Assign a uuid as Bundle.entry.fullUrl in order to be able to reference the Patient resource within the Bundle
4. Create a Condition resource that references the Patient resource and place it in the transaction Bundle. Consult the “United Federation of Planet FHIR Implementation Guide” for guidance on how to assign the appropriate code.system.uri for [ICD-42 \(Intergalactic Statistical Classification of Diseases, Revision 42\)](#).*
5. Validate your Bundle and POST it to a public test server
6. Make sure, that resending the Message will not create duplicates of the condition by using a conditional update based on the diagnosis identifier and your custom tag.
7. *optional*: Add a Provenance resource to the bundle

Please note:

* If our sole intention was to add the Condition to the Patient, we could save ourselves the trouble of mapping and including the Patient in the Transaction and use a [conditional reference](#) instead.

3. Process a A40 merge message

1. create a new Patient on the server by processing this message using the logic implemented in exercise 1 (note the typo in the SFSID!)

```
MSH|^~\&|LegacyKIS||IntegrationEngine||20171116090000||ADT^A28|0000
EVN|A28|20171116090000|
PID|1||SC973-0176CEC^^^SFSID^EI||Kirk^Jim^^^^L||22330322|M|P
```

2. create a transaction bundle to process this A40 merge message, so that
 - a) the merged Patient resource is set to "inactive"
 - b) the merged Patient resource references the active Patient through the Patient.link property

c) the active Patient resource references the merged Patient through the Patient.link property

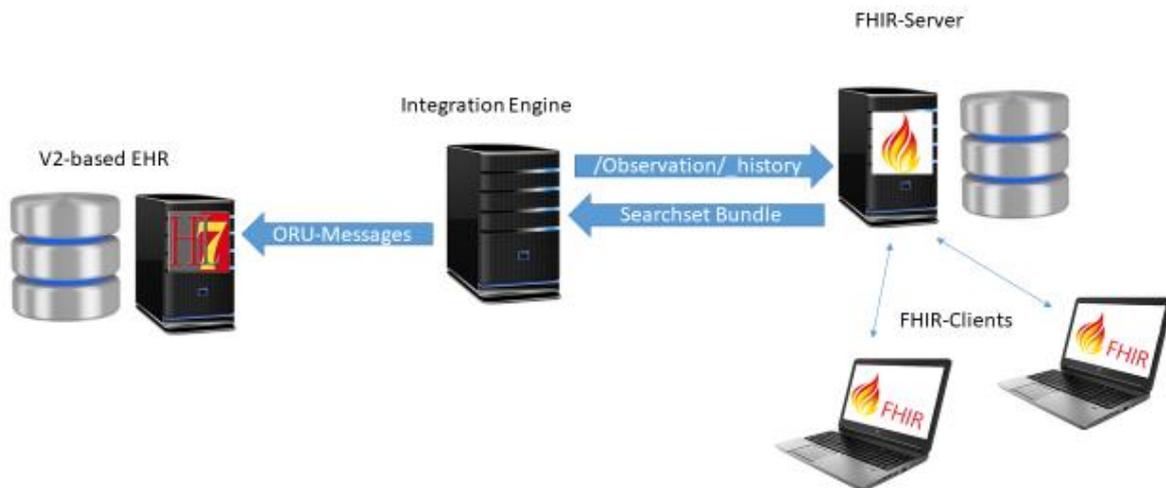
```
MSH|^~\&|LegacyKIS||IntegrationEngine||20171116110000||ADT^A40|000|
EVN|A40|20171116110000|
PID|1||SC937-0176CEC^^^SFSID^EI||Kirk^James^T.^Admiral^^L||223303|
St^^Riverside^Iowa^52327^USA^N|St^^Riverside^Iowa^52327^USA^N|||P
MRG|SC973-0176CEC
```

Please note:

* a FHIR-server may offer a \$patient-merge operation to perform the merge according to it's internal business logic (e.g. update dependent resources)

4. Update your V2 System with new Observations from the FHIR server

1. Query the server for any new Observations added today using the _history interaction.*
2. Create a Query to enrich the returned Observations with any related resources you need to construct a valid V2 ORU message by using _include parameter.
3. *optional*: Transform the resulting searchset Bundles into V2 ORU messages**



Please note:

*if you want to sync all Observations on the FHIR server with your V2 system, this might be the easiest and most reliable approach. If your focussed only on specific types of Observations or only on Observations for specific Patients, you may want to look at the [Subscription](#)

**creating a generic mapping for all types of Observations may prove challenging. For the scope of this exercise, you may want to focus on one specific type, e.g. vital signs.

5. You are already done and getting bored? Try this:

Transform a V2 MDM message into a Transaction Bundle according to the IHE MHD Profile:

[http://wiki.ihe.net/index.php/Mobile_access_to_Health_Documents_\(MHD\)](http://wiki.ihe.net/index.php/Mobile_access_to_Health_Documents_(MHD))

Solutions will be provided [here](#) after the workshop

The full solutions to this exercise will be published at www.gefyra.de/devdays17

Have fun, and remember to ask for help if you get stuck!

*This exercise will not be evaluated and no prizes are attached to any result. The exercise can only be used at HL7 FHIR DevDays 2017.