

# Transformations of the JSON Input file

## Introduction

In the context of evaluating the transformation capabilities and task complexity of an integration engine, we produced a flat JSON file (thereafter called the *input file*) that encapsulate a fictional patient that undergone an appointment to a doctor, a lab analysis of its blood, and finally a diagnostic of a sinusitis.

This document outlines the different transformations to be applied to the input file in order to output correct FHIR documents (thereafter called the *output files*).

The expected output files contain the following FHIR object:

- A Patient
- An Encounter
- An Observation
- A Condition
- A ClinicalImpression

## Scope

The goal here is to provide a input file that a human, having knowldge in FHIR resources, will be able to transform using an Integration Engine. There is no guesswork involved, as all the expected FHIR resources fields are given with their structure and values.

All the tests have been done with FHIR R4B, v4.3.0.

## How to get the input file

To access this data, you must know your API key and your secret, mentionned hereafter:

- API Key : **8BfaNUt0J3dzPd47Zeym4XGTF4cXGgdw**
- Secret : **JmuFsTZtfNt12**

Getting the input file is a two step process:

1 - POST your API Key and Secret to the *Security* enpoint

Method	Endpoint	Headers	Message Body	Expected output
POST	<a href="https://int-eng-tst.azurewebsites.net/Security">https://int-eng-tst.azurewebsites.net/Security</a>	Content-Type: application/json	{"APIKey":"xxx", "Secret":"yyy"}	JWT Token

2 - GET the file using the token

Method	Endpoint	Headers	Message Body	Expected output
GET	<a href="https://int-eng-tst.azurewebsites.net/TestData">https://int-eng-tst.azurewebsites.net/TestData</a>	Authorization: Bearer <i>JWTToken</i>		Input File

The input file and the expected transformation results are documented hereafter, grouped by output FHIR resource:

## The Patient part

Line nb	Input JSON	Output FHIR
2	"person_id" : "DoeJohn741225"	id : "DoeJohn741225"
3 - 4	"identifier_system" : "http://terminology.hl7.org/CodeSystem/v2-0203", "identifier_code": "MR"	"identifier" : [{ "use" : "usual", "type" : { "coding" : [{ "system" : "http://terminology.hl7.org/CodeSystem/v2-0203", "code" : "MR" }] } }]
5	"patient_name" : "John DOE"	"name" : [{ "use" : "official", "family" : "DOE", "given" : ["John"] }]
6	"mobile_phone" : "(03) 5555 6473"	"telecom" : [{ "use" : "mobile" }, { "system" : "phone", "value" : "(03) 5555 6473", "use" : "mobile", "rank" : 1 }]
7	"sex" : "M"	"gender" : "male"
8	"birth_date" : "25/12/1974"	"birthDate" : "1974-12-25"
9	"deceased" : 0	"deceasedBoolean" : false
10 - 11	"postal_addr" : "534 Erewhon St PeasantVille, Rainbow, Vic 3999", "postal_addr_since" : "25/12/1974"	"address" : [{ "use" : "home", "type" : "both", "text" : "534 Erewhon St PeasantVille, Rainbow, Vic 3999", "line" : ["534 Erewhon St"], "city" : "PleasantVille", "district" : "Rainbow", "state" : "Vic", "postalCode" : "3999", }]

		<pre> "period" : {   "start" : "1974-12-25" } }] </pre>
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## The Encounter part

Line nb	Input JSON	Output FHIR
12	"encounter_id" : "DoeJohnf20120130404"	"id" : "DoeJohnf20120130404"
13	"encStatus" : "finished"	"status" : "finished"
14	"category": "SS"	<pre> "class": {   "system": "http://terminology.hl7.org/CodeSystem/v3-ActCode",   "code": "SS",   "display": "short stay" } </pre>
15	<pre> "location" : "Organization/SaintJeanHospital" </pre>	<pre> "serviceProvider" : {   "reference" : "Organization/SaintJeanHospital" } </pre>
16	<pre> "handled_by" : "Practitioner/AddamsFrank680403" </pre>	<pre> "participant" : {   "individual": {     "reference": "Practitioner/AddamsFrank680403"   } } </pre>
17	<pre> "motivation" : "The patient had fever peaks over the last couple of days." </pre>	<pre> "reasonCode": [ {   "text": "The patient had fever peaks over the last couple of days." } ] </pre>

Note: the field `subject` is mandatory in the `Encounter` resource.

As it is already mentionned in the input file, it is obviously not repeated.

The expected field is as follows:

```

"subject" : {
  "reference" : "Patient/DoeJohn741225",
  "display" : "John Doe"
}

```

## The Observation part

Line nb	Input JSON	Output FHIR
18	"observation_id" : "f206"	"observationId" : "f206"
19	"observation_status" : "final"	"status" : "final"
20	"observation_date" : "2013-03-11T10:28:00+01:00"	"issued" : "2013-03-11T10:28:00+01:00"
21	"pos_results" : ["Staphylococcus aureus"]	"interpretation" : [{ "coding" : [{ "system" : "http://terminology.hl7.org/CodeSystem/v3- ObservationInterpretation", "code" : "POS", "display" : "Staphylococcus aureus" }] }]
23	"tests_performed" : ["104177"]	"code" : { "coding" : [{ "system" : "http://acmelabs.org", "code" : "104177", "display" : "Blood culture" }] }

## The Condition part

Line nb	Input JSON	Output FHIR
24	"condition_id": "2013983645"	"id": "2013983645"
25	"status_code": "active"	"clinicalStatus": { "coding": [ { "system": "http://terminology.hl7.org/CodeSystem/condition-clinical", "code": "active" } ] }

26	"verification_code" : "confirmed"	"verificationStatus": { "coding": [ { "system": "http://terminology.hl7.org/CodeSystem/condition-ver-status", "code": "confirmed" } ] }
27	"condition_codes" : ["386661006"]	"code": { "coding": [ { "system": "http://snomed.info/sct", "code": "386661006", "display": "Fever" } ] }

Note: the field `subject` is mandatory in the `Condition` resource.

The expected field is as follows:

```
"subject" : {
  "reference" : "Patient/DoeJohn741225",
  "display" : "John Doe"
}
```

## The ClinicalImpression part

Line nb	Input JSON	Output FHIR
28	"closure_status" : "completed"	"status" : "completed"
29	"closure_condition" : "This patient came due to generalized aching and proemient fiever"	"description" : "This patient came due to generalized aching and proemient fiever"
30	"closure_code" : "A54"	"finding": [ { "itemCodeableConcept": { "coding": [ { "system": "http://hl7.org/fhir/sid/icd-9", "code": "A54" } ] } ] }

		} ]
31	"closure_note" : "Patient has sinusitis"	"summary" : "Patient has a sinusits"

Note: the field `subject` is mandatory in the `ClinicalImpression` resource.

The expected field is as follows:

```
"subject" : {
  "reference" : "Patient/DoeJohn741225",
  "display" : "John Doe"
}
```