IRIS R18

Contents

Introduction

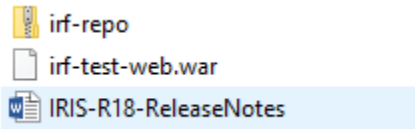
IRIS R18 is a lightweight, REST standards based solution that uses OFS message format to communicate with T24. This document helps to configure and deploy IRIS R18 Provider APIs.

Prerequisites

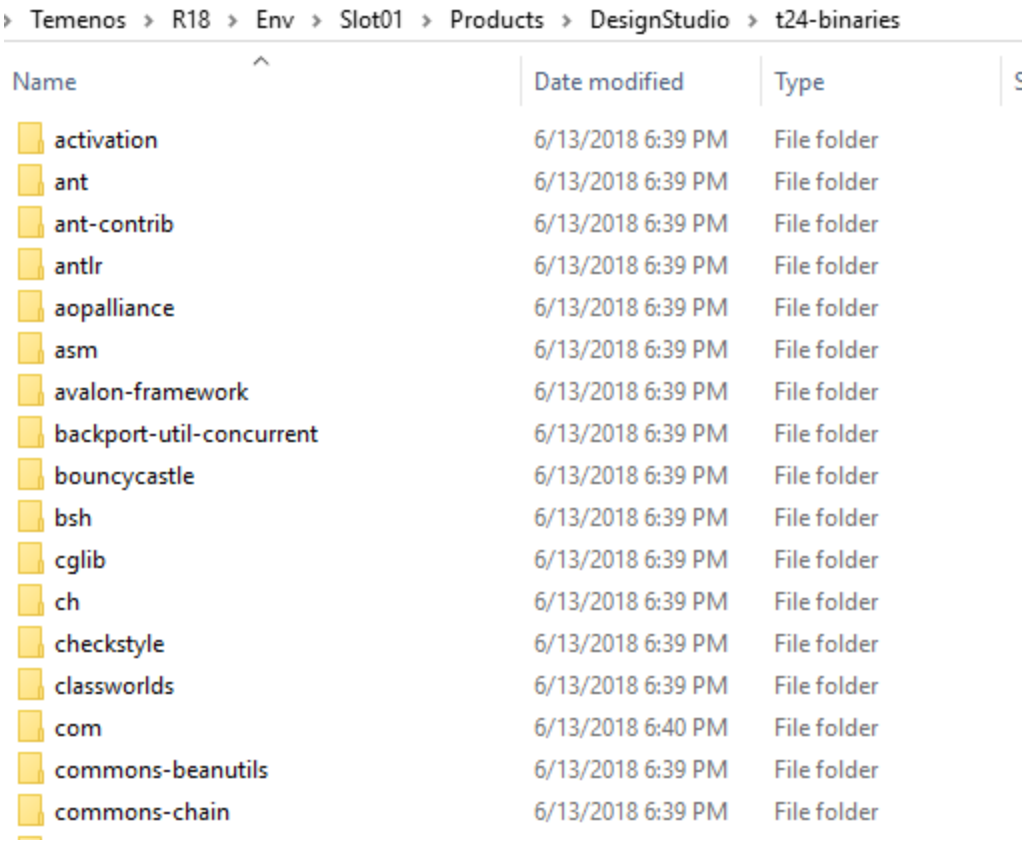
- Apache Camel
- Maven
- Spring
- Open API Spec, fka Swagger
- Postman
- Eclipse
- Junit
- Java 8
- T24 Application

Setup

1) Request IRIS R18 Package from Distribution, The package will have the below components.



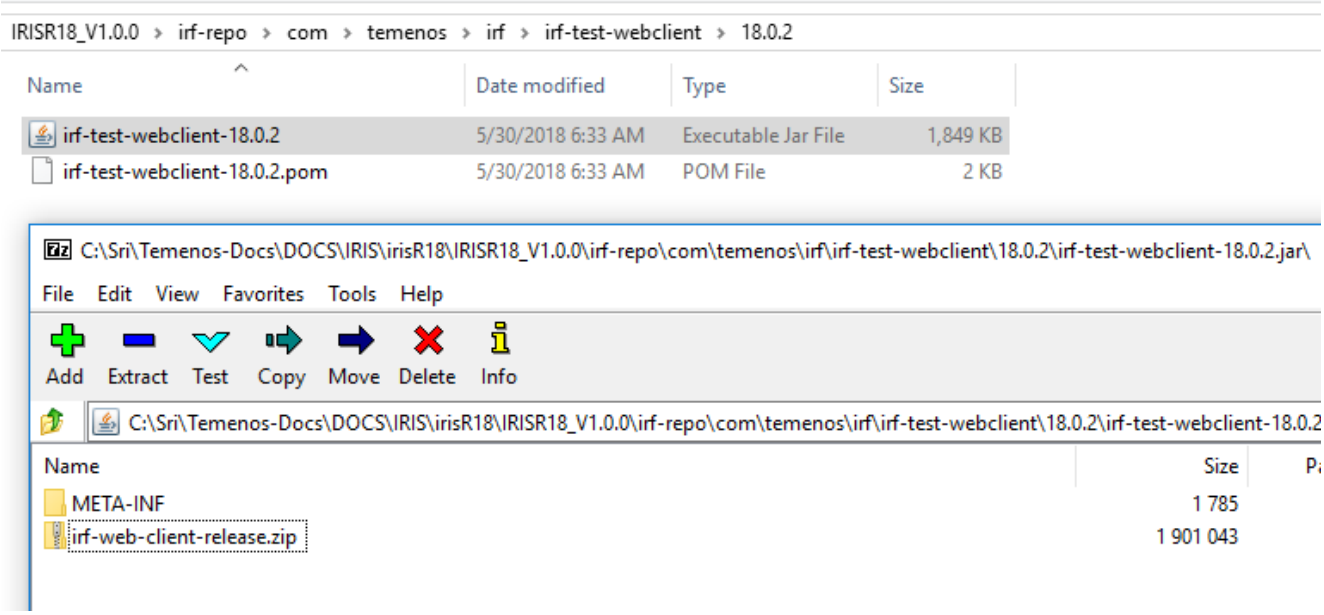
2) Unzip the irf-repo.zip and copy the contents into DesignStudio -> t24binaries as given in the below sample,



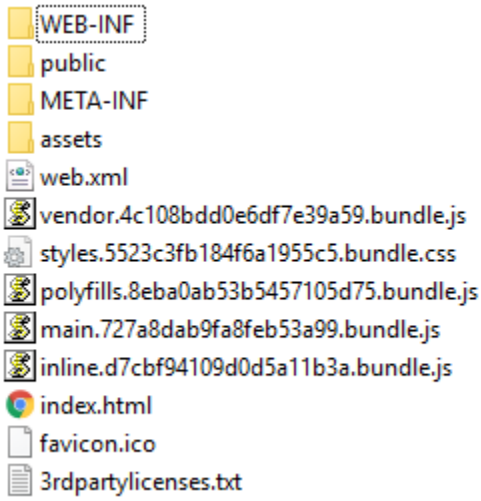
3) Copy the archetype-catalog.xml provided along with the release notes to the root of your local maven repository (in our scenario it is t24binaries directory). Below given is the sample archetype-catalog.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<archetype-catalog
   xsi:schemaLocation="http://maven.apache.org/plugins/maven-archetype-
plugin/archetype-catalog/1.0.0          http://maven.apache.org/xsd/archetype-catalog-
1.0.0.xsd"
   xmlns="http://maven.apache.org/plugins/maven-archetype-plugin/archetype-
catalog/1.0.0"
   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
   <archetypes>
      <archetype>
         <groupId>com.temenos.irf</groupId>
         <artifactId>irf-service-archetype</artifactId>
         <version>18.0.2</version>
      </archetype>
      <archetype>
         <groupId>com.temenos.irf</groupId>
         <artifactId>irf-service-container-archetype</artifactId>
         <version>18.0.2</version>
      </archetype>
   </archetypes>
    </archetype-catalog>
```

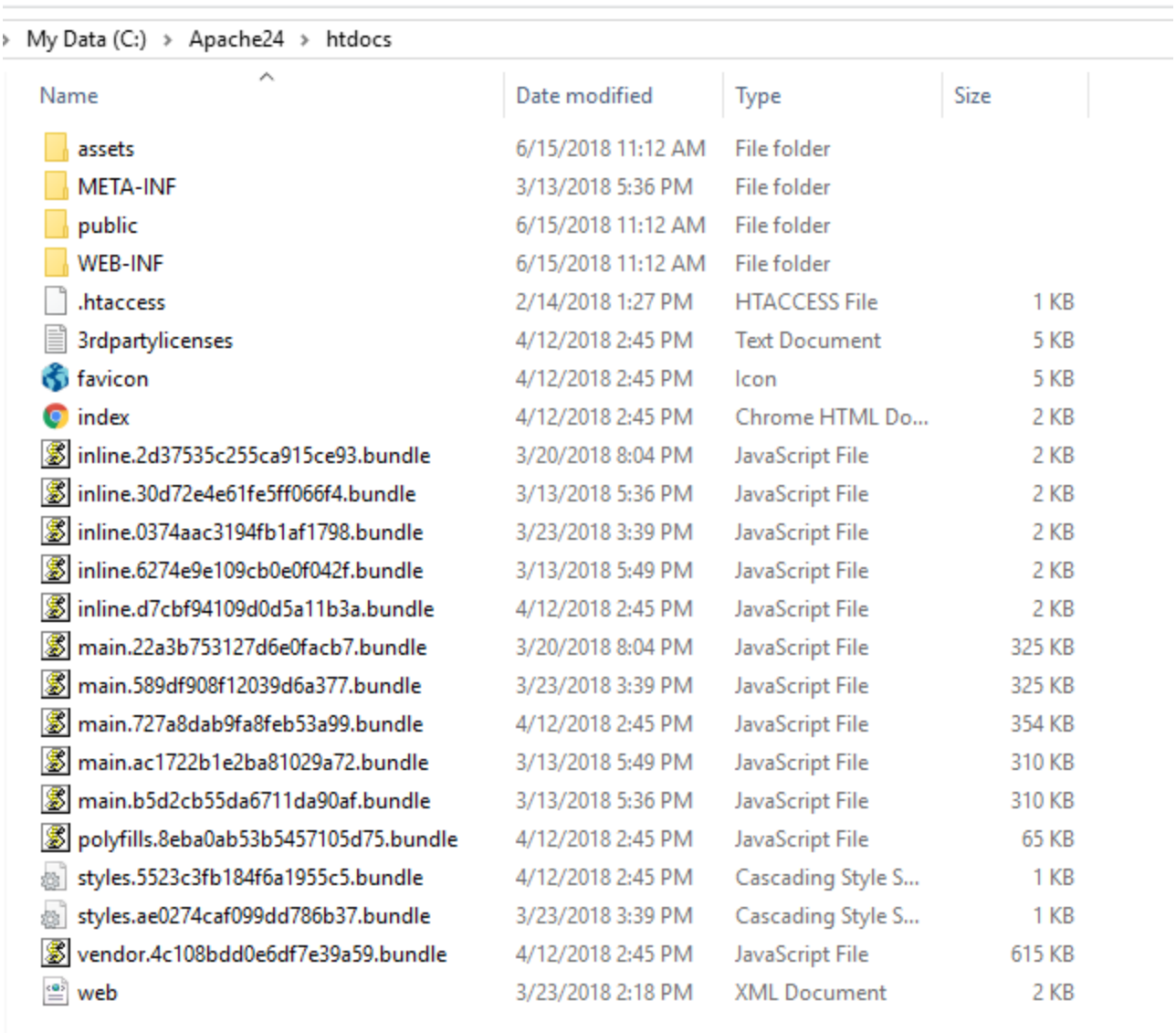
4) Workbench binaries are available as irf-web-client-release.zip bundle in as irf-web-client-release-x-x-x.jar.



Extract the contents of this zip file and copy it into <Apache HTTP Server Installation Home >\ht-docs folder



<Apache HTTP Server Installation Home >\ht-docs folder



My Data (C:) › Apache24 › htdocs

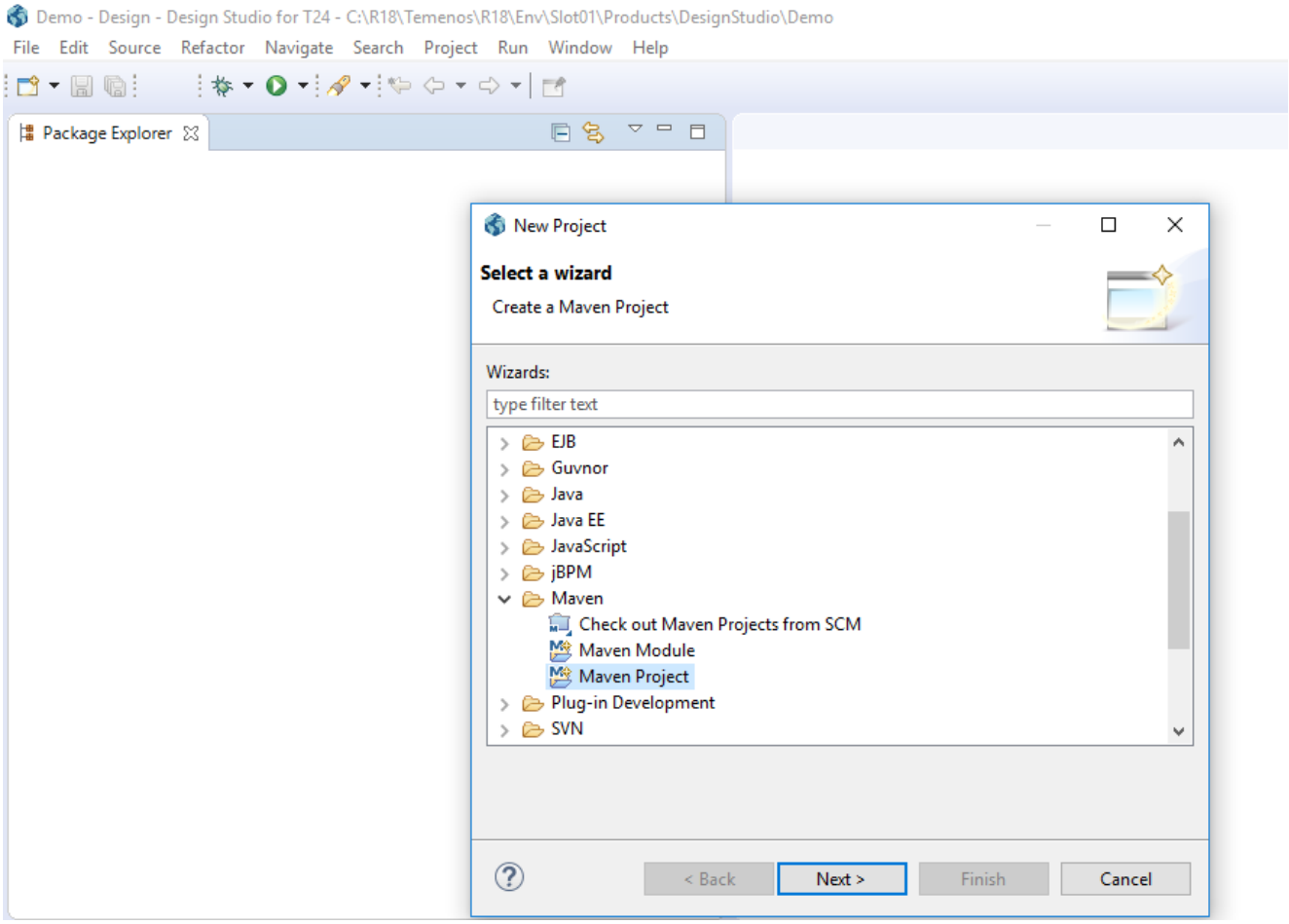
Name	Date modified	Type	Size
assets	6/15/2018 11:12 AM	File folder	
META-INF	3/13/2018 5:36 PM	File folder	
public	6/15/2018 11:12 AM	File folder	
WEB-INF	6/15/2018 11:12 AM	File folder	
.htaccess	2/14/2018 1:27 PM	HTACCESS File	1 KB
3rdpartylicenses	4/12/2018 2:45 PM	Text Document	5 KB
favicon	4/12/2018 2:45 PM	Icon	5 KB
index	4/12/2018 2:45 PM	Chrome HTML Do...	2 KB
inline.2d37535c255ca915ce93.bundle	3/20/2018 8:04 PM	JavaScript File	2 KB
inline.30d72e4e61fe5ff066f4.bundle	3/13/2018 5:36 PM	JavaScript File	2 KB
inline.0374aac3194fb1af1798.bundle	3/23/2018 3:39 PM	JavaScript File	2 KB
inline.6274e9e109cb0e0f042f.bundle	3/13/2018 5:49 PM	JavaScript File	2 KB
inline.d7cbf94109d0d5a11b3a.bundle	4/12/2018 2:45 PM	JavaScript File	2 KB
main.22a3b753127d6e0facb7.bundle	3/20/2018 8:04 PM	JavaScript File	325 KB
main.589df908f12039d6a377.bundle	3/23/2018 3:39 PM	JavaScript File	325 KB
main.727a8dab9fa8feb53a99.bundle	4/12/2018 2:45 PM	JavaScript File	354 KB
main.ac1722b1e2ba81029a72.bundle	3/13/2018 5:49 PM	JavaScript File	310 KB
main.b5d2cb55da6711da90af.bundle	3/13/2018 5:36 PM	JavaScript File	310 KB
polyfills.8eba0ab53b5457105d75.bundle	4/12/2018 2:45 PM	JavaScript File	65 KB
styles.5523c3fb184f6a1955c5.bundle	4/12/2018 2:45 PM	Cascading Style S...	1 KB
styles.ae0274caf099dd786b37.bundle	3/23/2018 3:39 PM	Cascading Style S...	1 KB
vendor.4c108bdd0e6df7e39a59.bundle	4/12/2018 2:45 PM	JavaScript File	615 KB
web	3/23/2018 2:18 PM	XML Document	2 KB

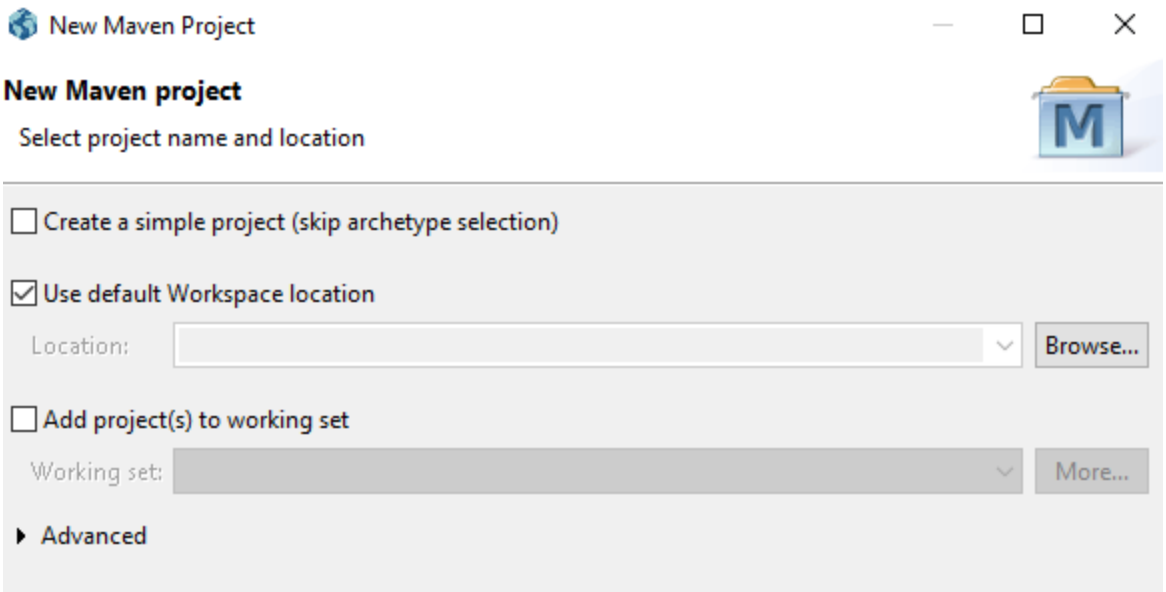
5) With this, all the setup related to IRIS R18 Build and Design time is done.

Create Service Project

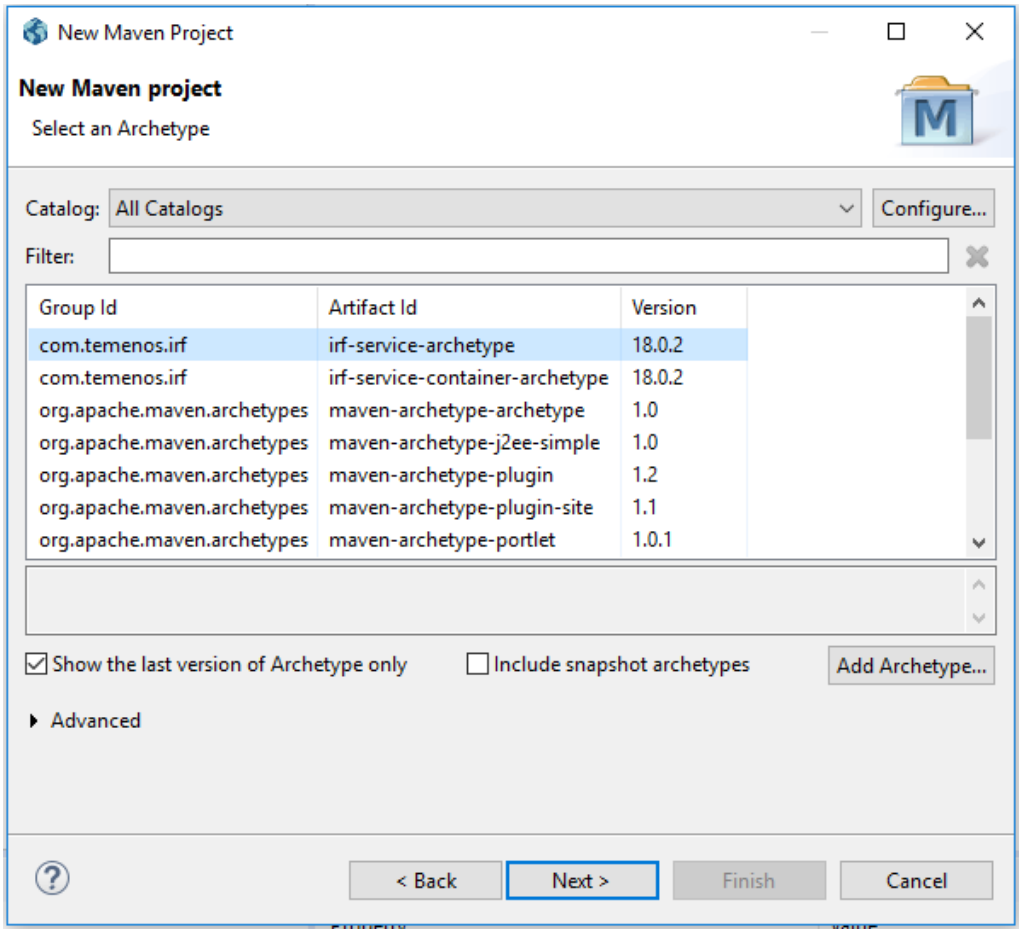
Create a service project using the irf-service-archetype. It contains the default directories and set of model data. It basically acts as a platform where developers can build and run the required APIs

1) Open the Design Studio and Click on File -> New -> Maven Project

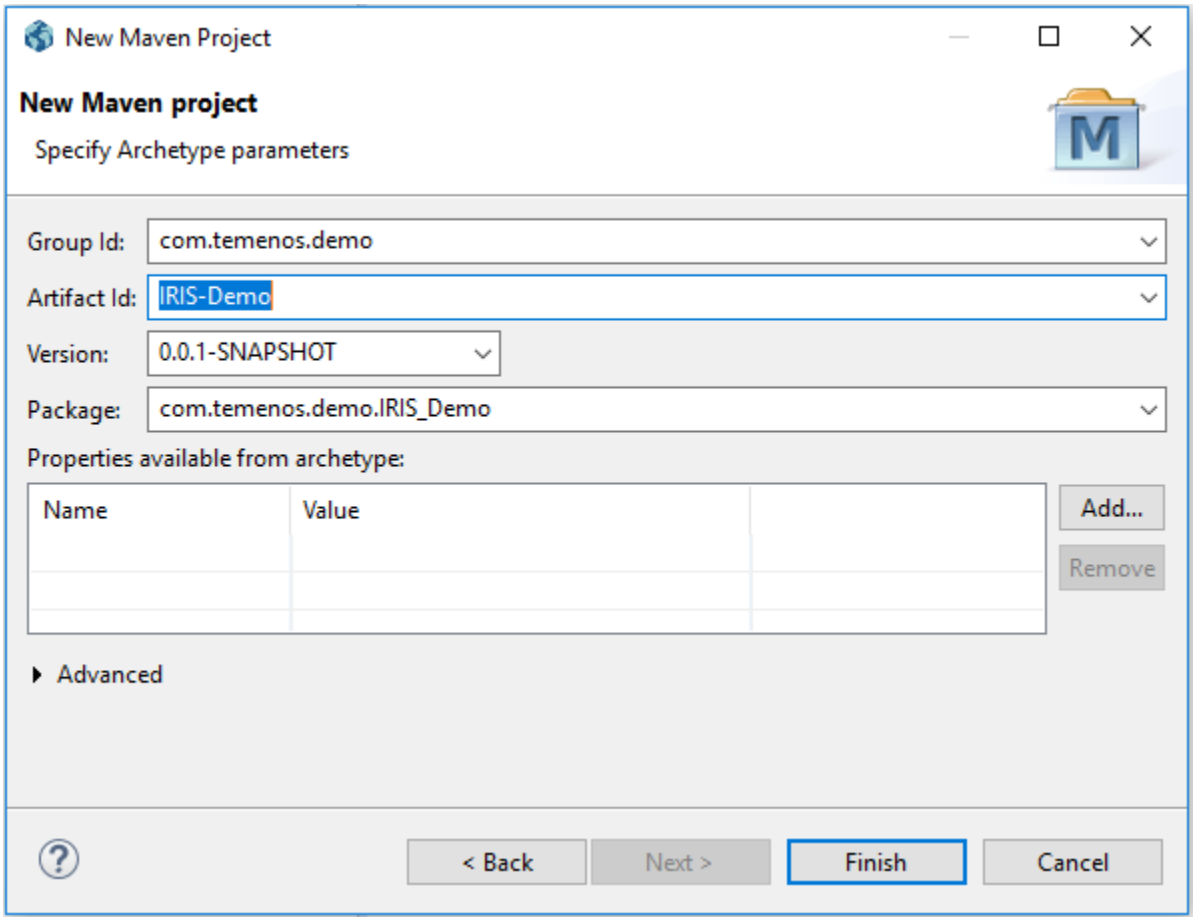




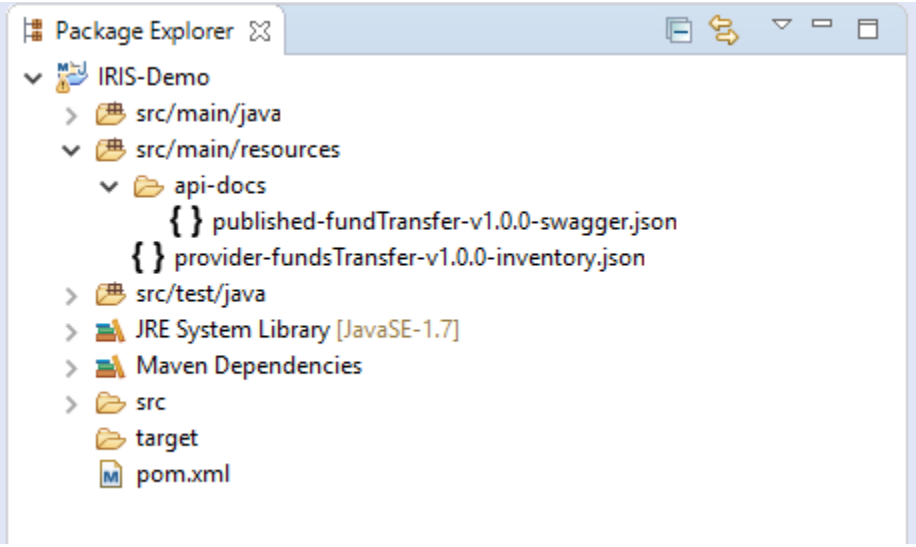
2) Select irf-service-archetype and the appropriate version delivered (in this example 18.0.2), if com.temenos.irf is not displayed then configure it by clicking on the configure option displayed in the wizard and select the archetype-catalog.xml (available in t24binaries directory).



Enter Group Id, Artifact Id, Version and Package, an example is given below,



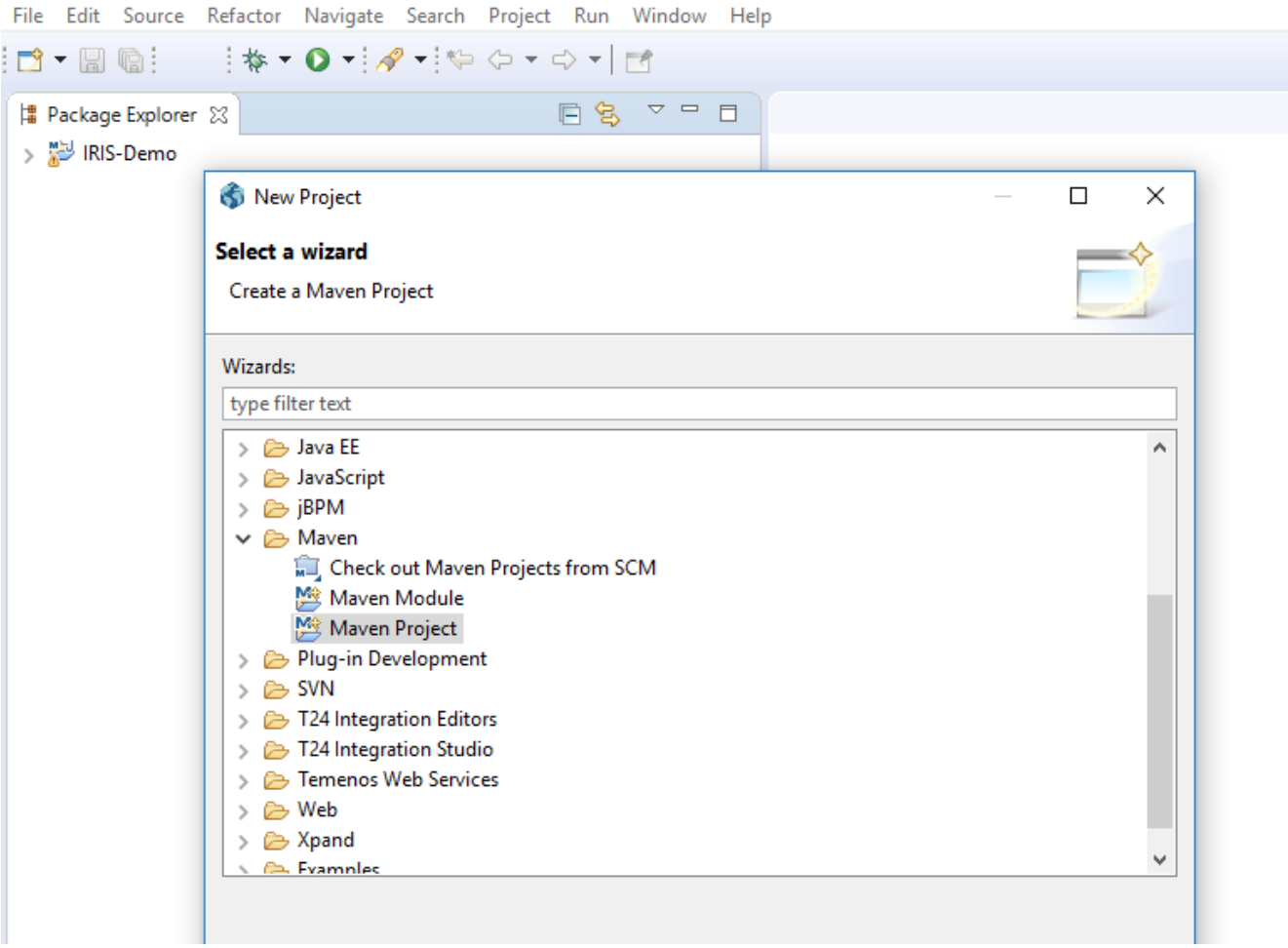
6) Click on Finish. It will generate the folder structure as shown below,

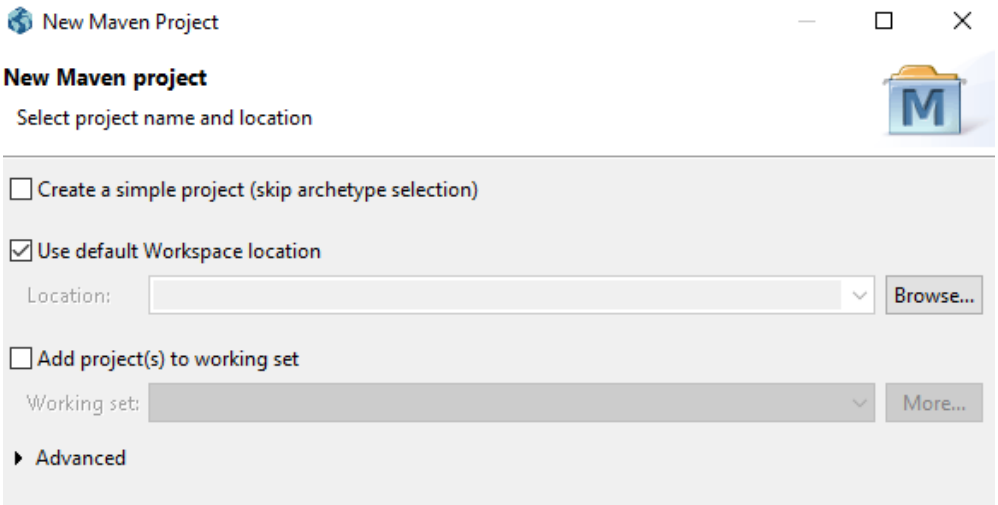


Create Service Container Project

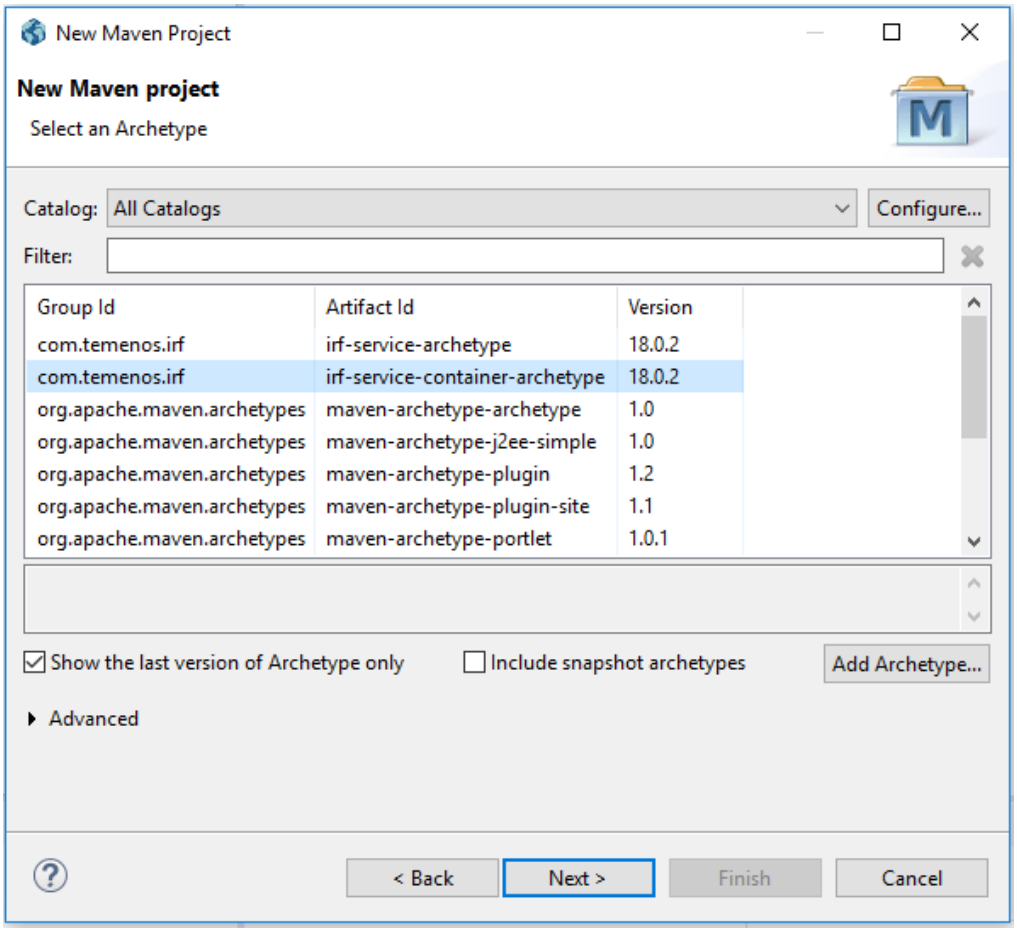
In order to run any API projects, you should have a service container. A service container hosts one or more service projects. It is also a runtime container that hosts the camel runtime and configuration required to connect to downstream systems, i.e.T24

1) Open the Design Studio and Click on File -> New -> Maven Project

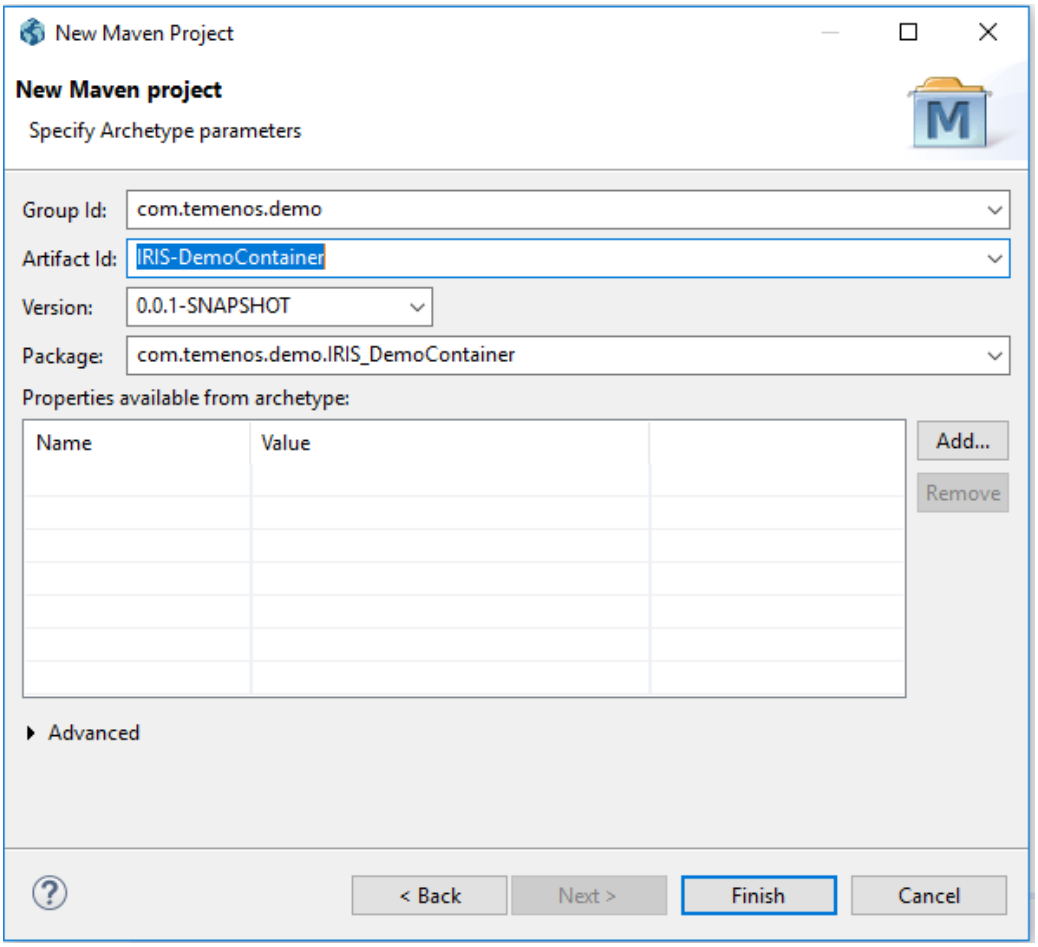




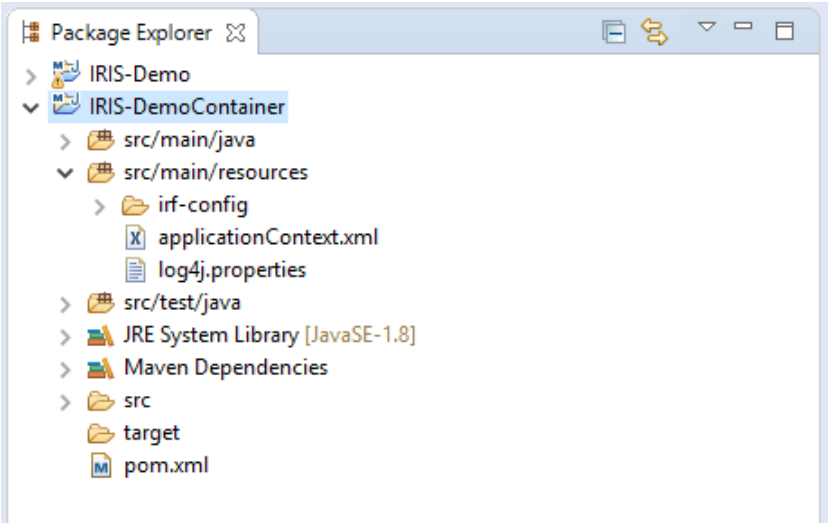
3) Select irf-service-container-archetype and the appropriate version delivered (in this example 18.0.2). if com.temenos.irf is not displayed then configure it by clicking on the configure option displayed in the wizard and select the archetype-catalog.xml (available in t24binaries directory).



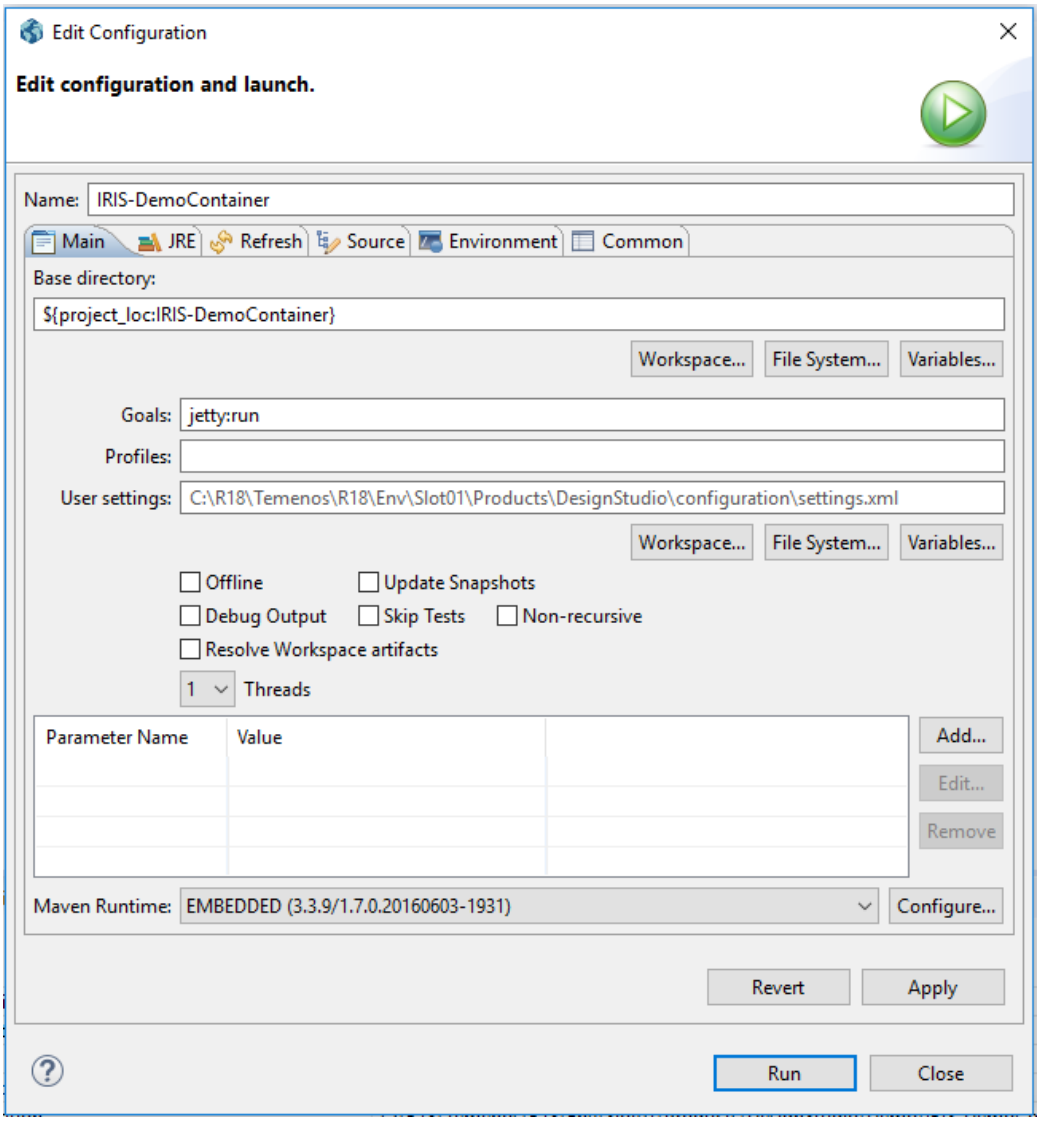
Fill in the Group Id, Artifact Id and Version fields, and click the Finish button.



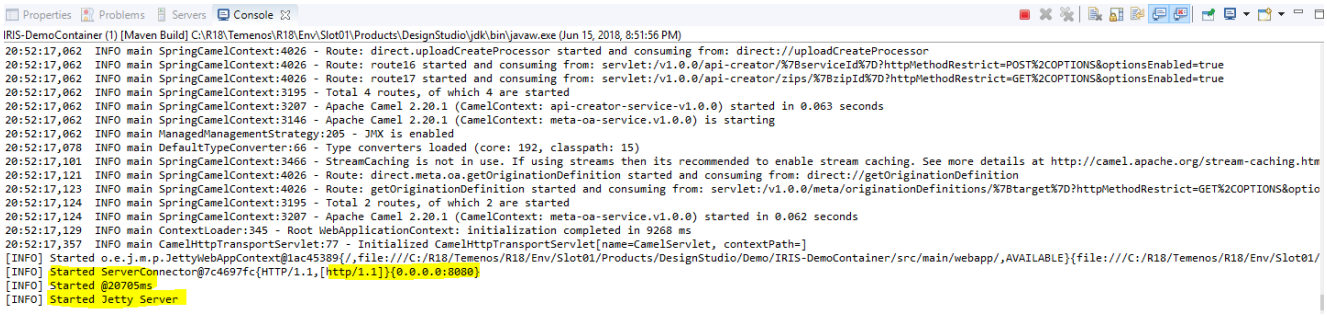
4) You should see a project created with the following structure:



5) Right Click and Run As -> Maven Build and set the Goals as jetty:run



From the Design Studio Console, you would see the message as shown below, Started Jetty server,



Creation of Artefacts in T24

Artefacts need to be created to expose the core banking features to external parties. In IRIS R18, T24 Versions and Enquiries are used as base artefacts to expose the core banking features through API development.

Note: If you have existing artefacts, then you can skip this step.

In order for T24 Version and Enquiry artefacts to be used in the Interaction Framework, certain rules must be followed. These rules provide a simple and effective governance framework that,

1) Clearly identifies that a given T24 artefact is used in an API
2) Allows simple versioning control to be applied to the T24 artefact following semantic versioning
3) Provides data type meta data to ensure clean conversion of data from T24 to internet standard data types.
4) Provides meaningful operation names

The following rules must be followed:

ID Naming Convention

For Enquiry, the following ID naming convention must be followed:

XX.API.ACCOUNT.BALANCE.Major.Minor.Patch

API is a mandatory keyword in the name of the T24 Enquiry or Version.

Example : EB.API.ACCT.BAL.1.0.0

For Version the following ID naming convention must be followed:

APPLICATION,XX.API.VERB.RESOURCEID.Major.Minor.Patch

Example: FUNDS.TRANSFER, AC.API.CREATE.TRANSFER.1.0.0

Field data typing

Each Enquiry column and Version field must have a data type defined. For Enquiry, this is the

FIELD.DISP.TYPE field, for Version the TOOL.TIP field is used. Fields are considered to be alphanumeric unless they are set as Date or Amount. Amount and date fields must be unformatted, e.g. 20170123 and

1234.56

Description

Each Enquiry and Version must have a description. For Enquiry, this is the DESCRIPT field, for Version the

DESCRIPTION field is used.

Restrictions on Enquiry

Header fields should not be used in API enquiries.

Naming should be in standard vocabulary

The standard Temenos vocabulary exists to bring consistent naming across all API initiatives. Field / main

resource / sub resource names should exist in the standard vocabulary.

In this example, we create the enquiry **BIL.API.ACCT.BAL.1.0.0**

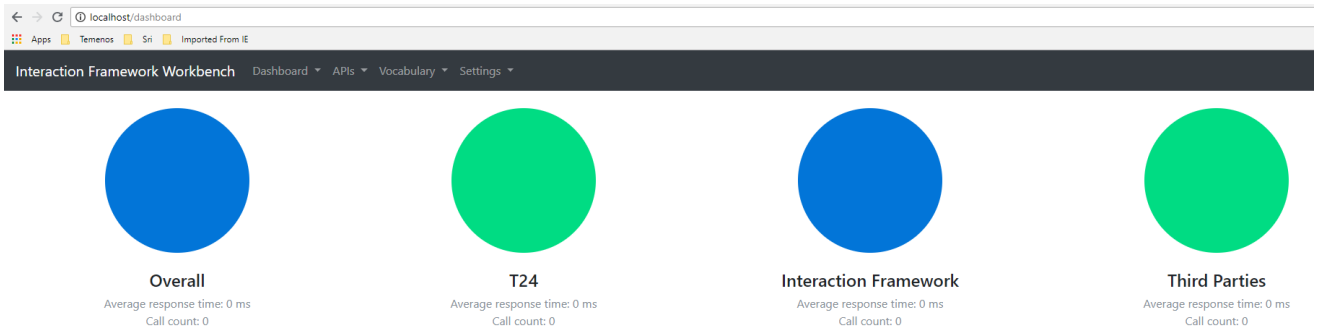
Creation of Provider API

Provider APIs expose core-banking capabilities as RESTful APIs. The key concept is that each Provider API is driven from an inventory that defines the contents of the API in core banking terms. The inventory is used to create the Swagger specification of the API. Together, the inventory file and the generated swagger specification are used to create the service implementation.

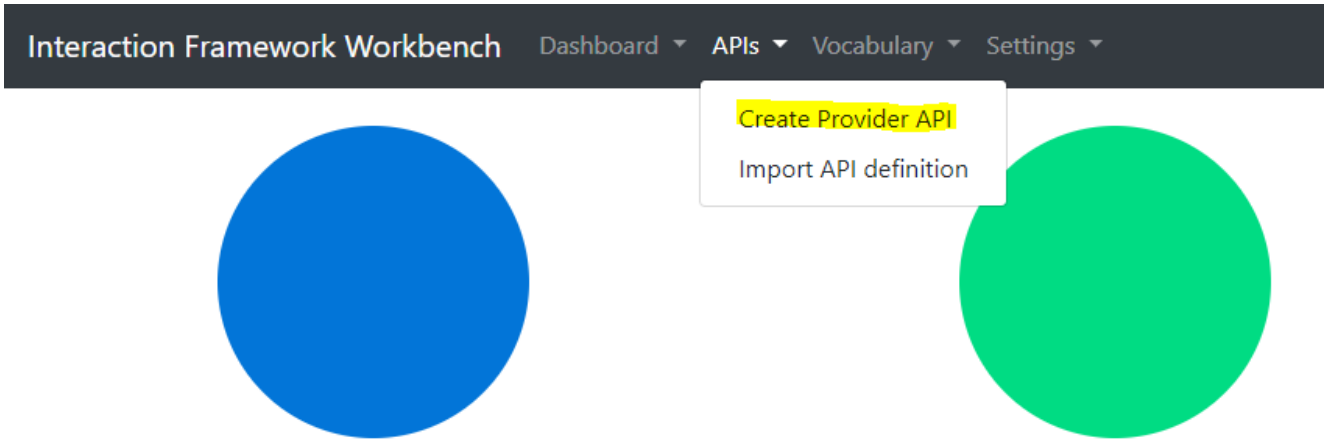
Creating an Inventory using Interaction Framework Workbench

The easiest mechanism to create a Provider API is to use the Interaction Framework Workbench.

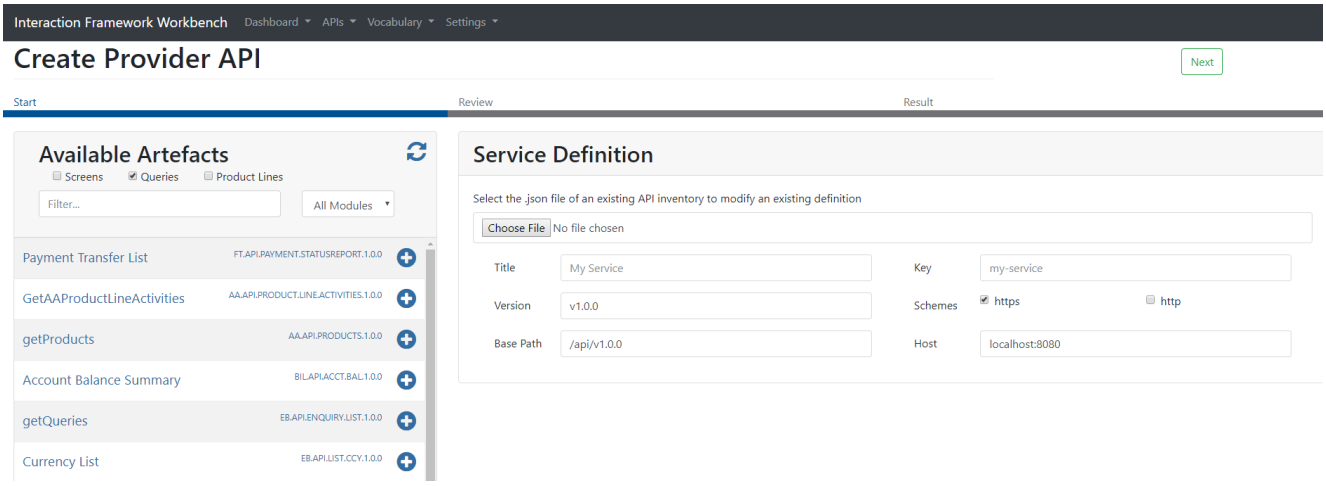
1) Run the Apache server and Open the Interaction Framework Workbench using the URL http://localhost or http://localhost:8080/dashboard



2) Select APIs -> Create Provider API

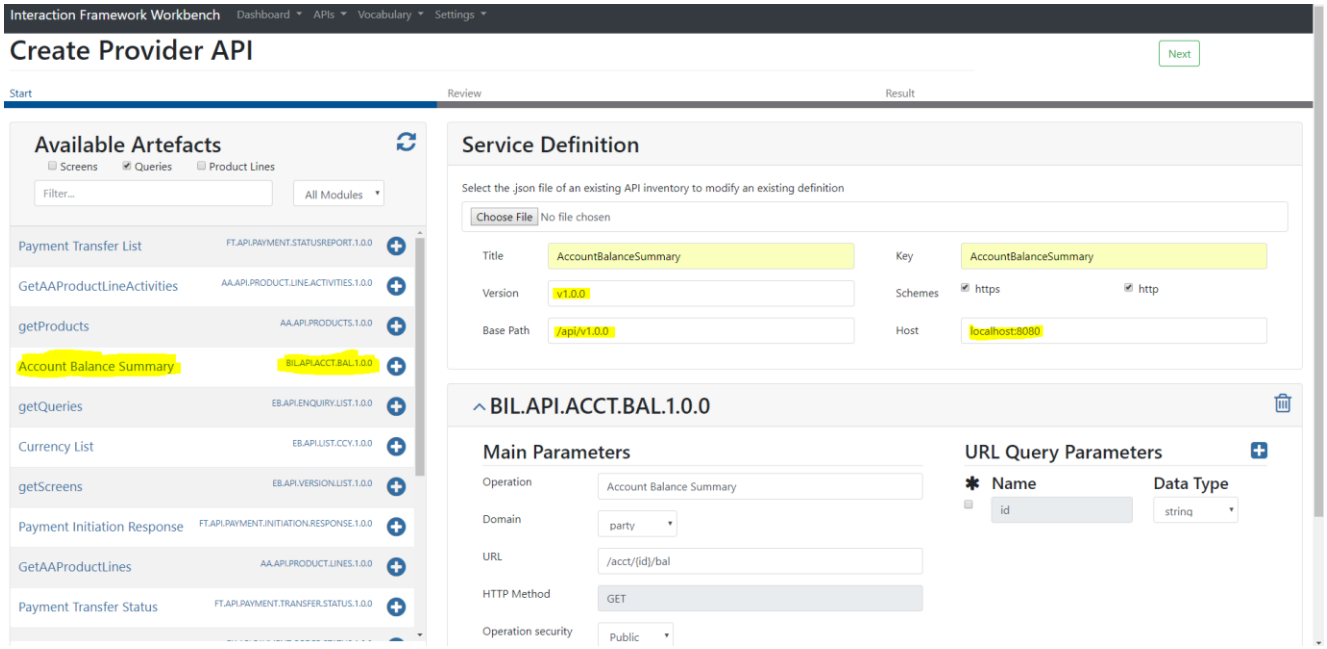


This will connect to T24 using Jetty server and list the artefacts created in T24 for provider APIs as shown below.



3) Select the artefact, in this example we have used Account Balance Summary BIL.API.ACCT.BAL.1.0.0, (created under the section **Creation of Artefacts in T24**)

Fill the Title, Key, Version, schemes, Base Path and Host



4) Fill the Main Parameters,

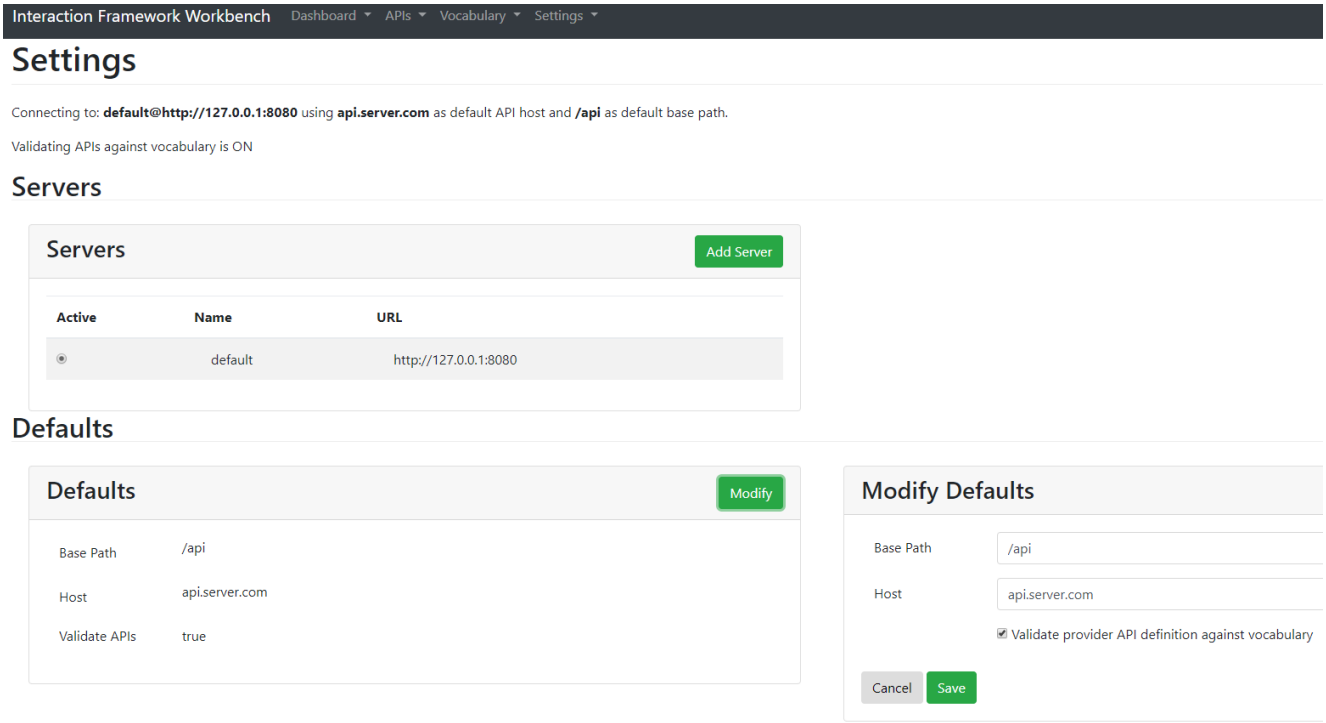
- Operation
- Domain
- URL

URL Query Parameters,

- Name
- Data Type

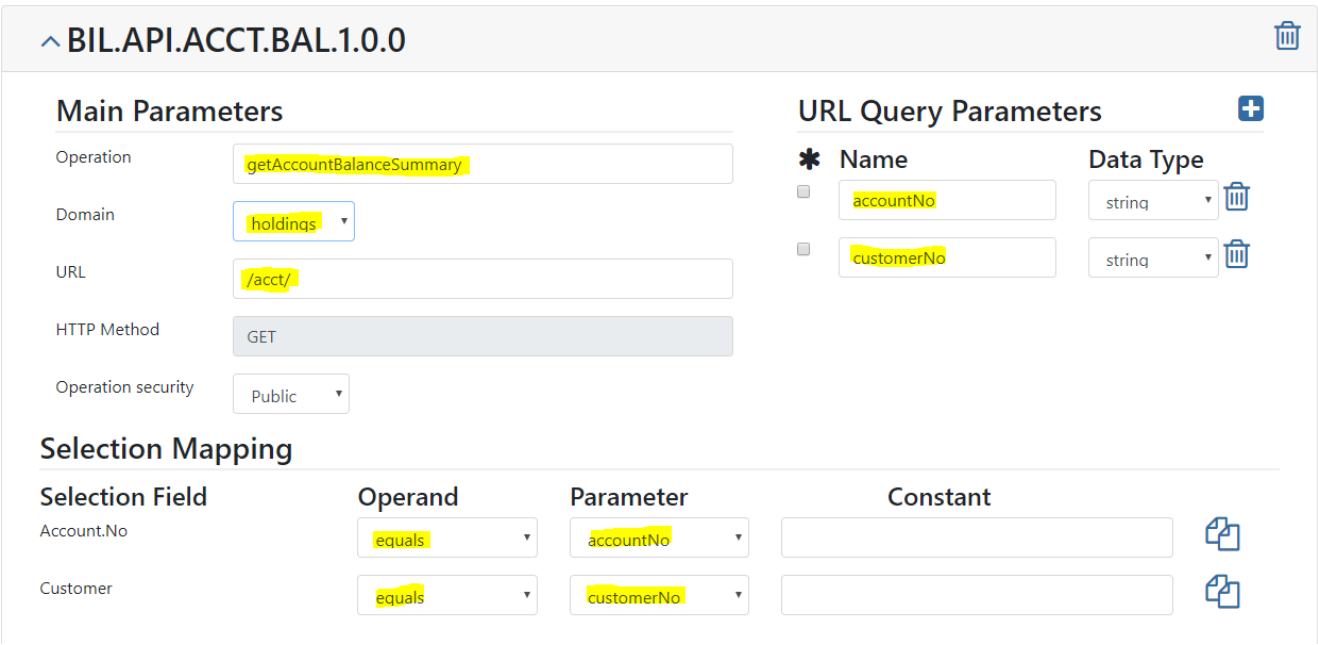
Do the Selection field Mapping with the field names provided in URL Query Parameters (these are the field names used by consumer) against the T24 selection fields.

Note: Check all the values against the Vocabulary defined in the workbench. Goto Settings and disable the Vocabulary, if it is not needed.



If T24 VERSION is selected, only the method is required to be set. The payload will be configured in Swagger directly from the T24 Model. POST should be used to create new resources, PUT to amend an existing resource, GET for viewing a resource and DELETE for removing a resource.

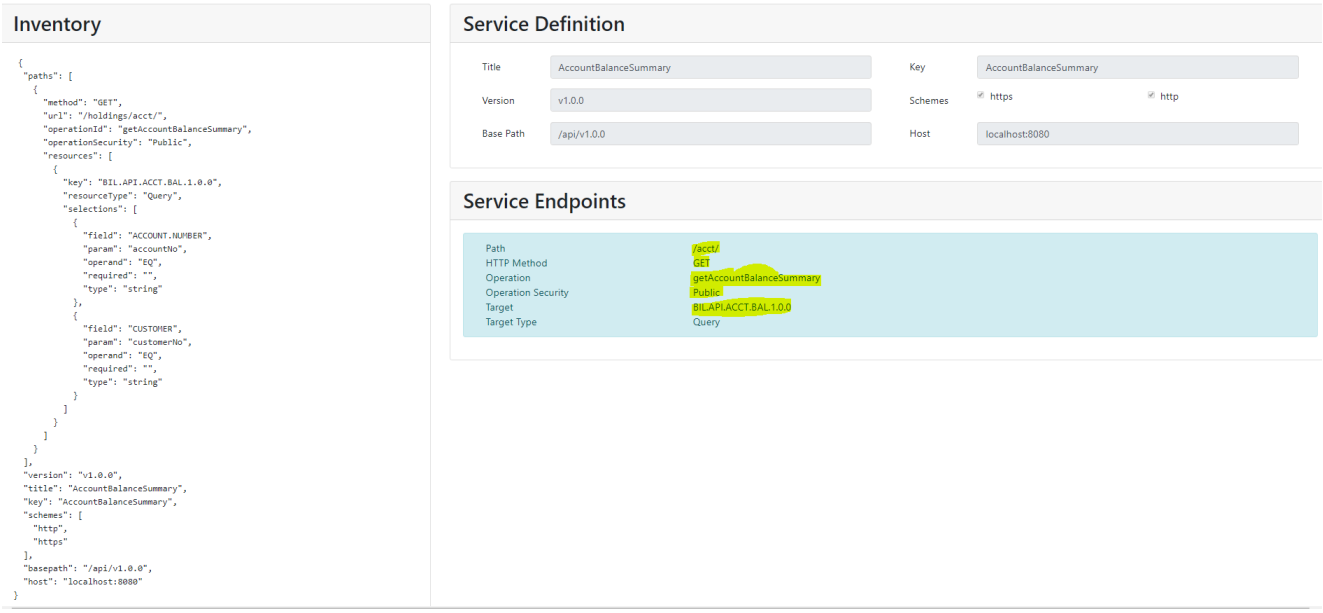
If T24 ENQUIRY is selected, the URL parameters need to be mapped to the ENQUIRY selection fields.



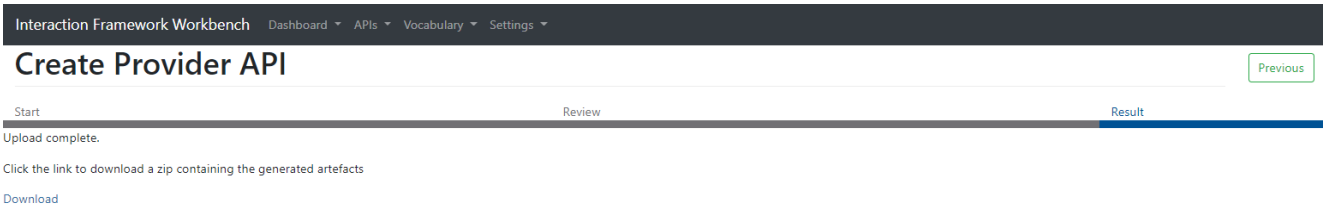
In the above example, the T24 Selection fields Account.No is mapped against accountNo and the field Customer is mapped against customerNo.

5) Check the box in URL Query Parameters, if you want to make the field as Mandatory field.

Click Next

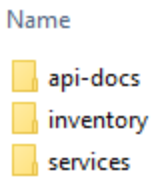


6) Verify the details in Service Definition and Service Endpoints.
7) Click Finish to submit the provider API. The result provides a link to download a zip file containing the swagger spec, Camel routes, mappings and mock responses.

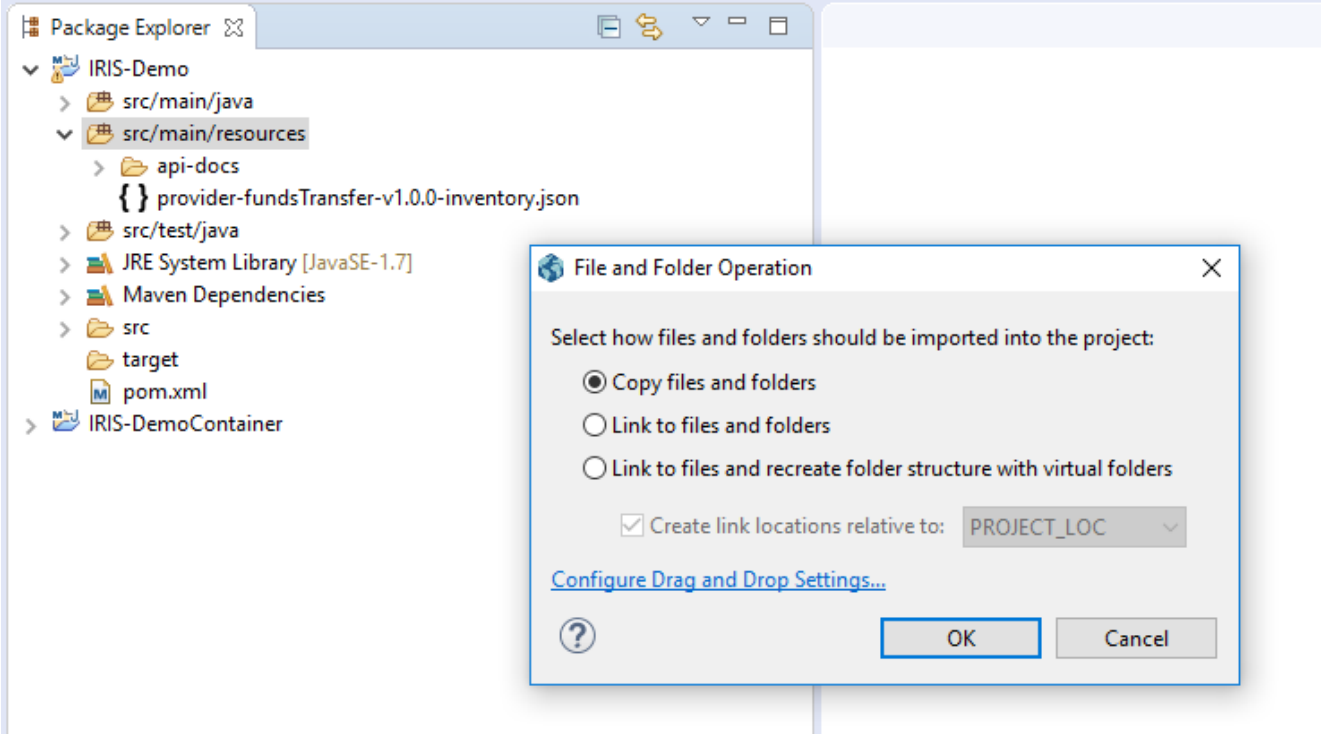


Build Service Project

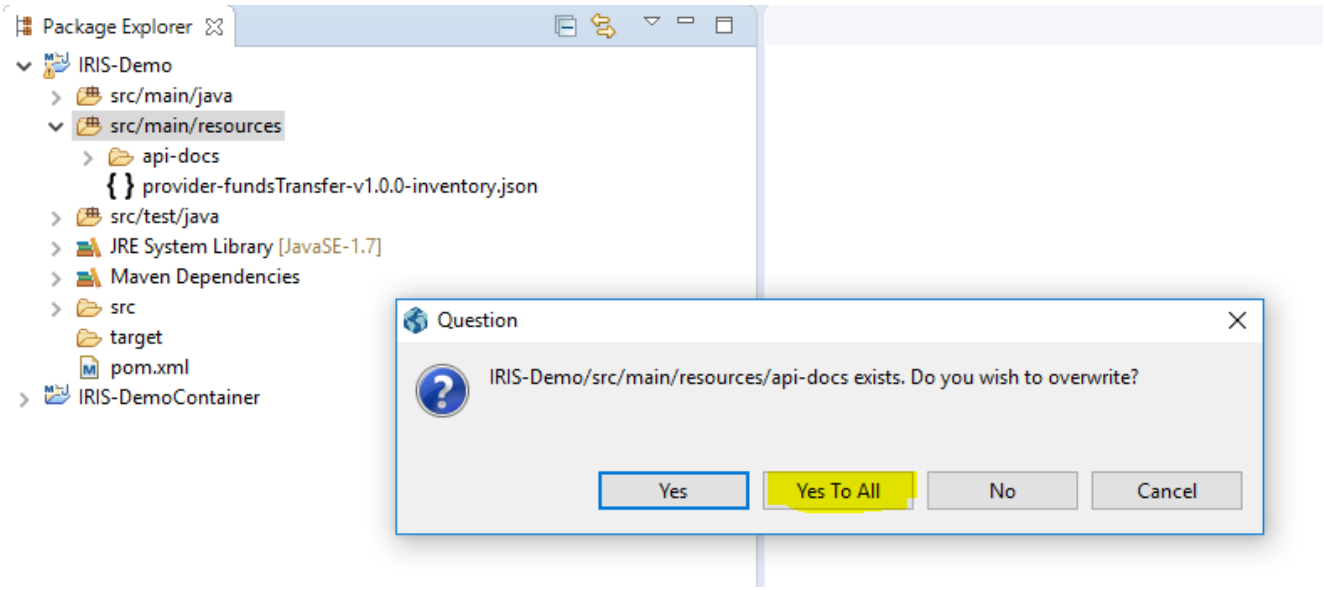
1) Extract the components (which was created and downloaded in the previous step), you would see the 3 folders as shown below,



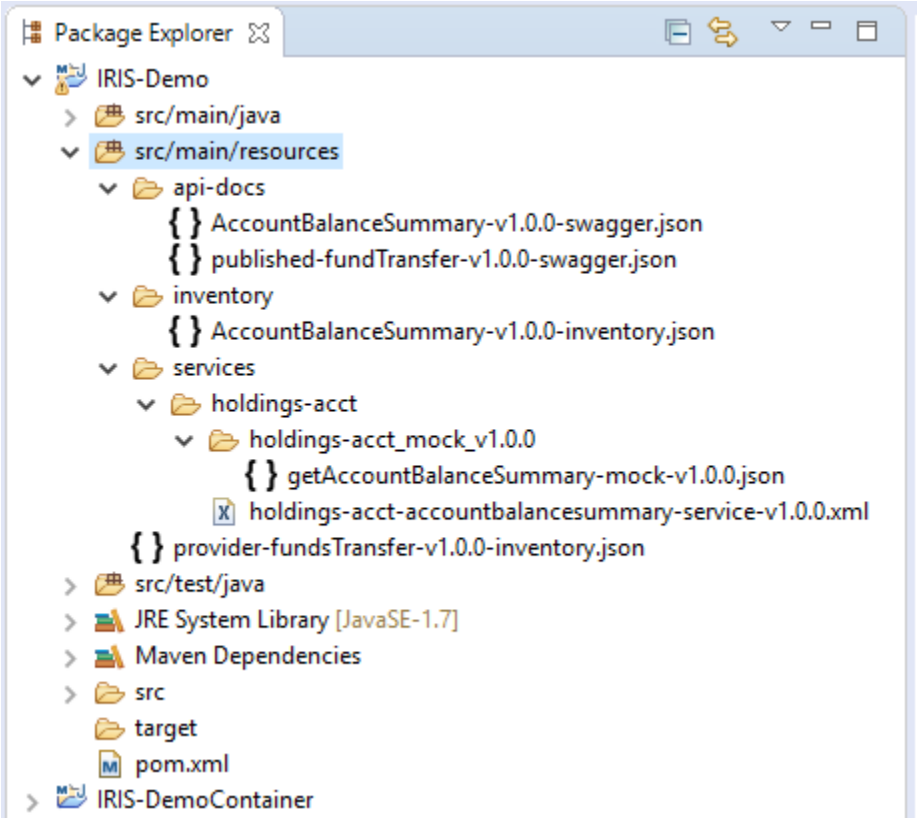
2) Copy/Drag these folders into the service project src/main/resources created above (created under the section **Create Service Project**). In this example, the service project is IRIS-Demo



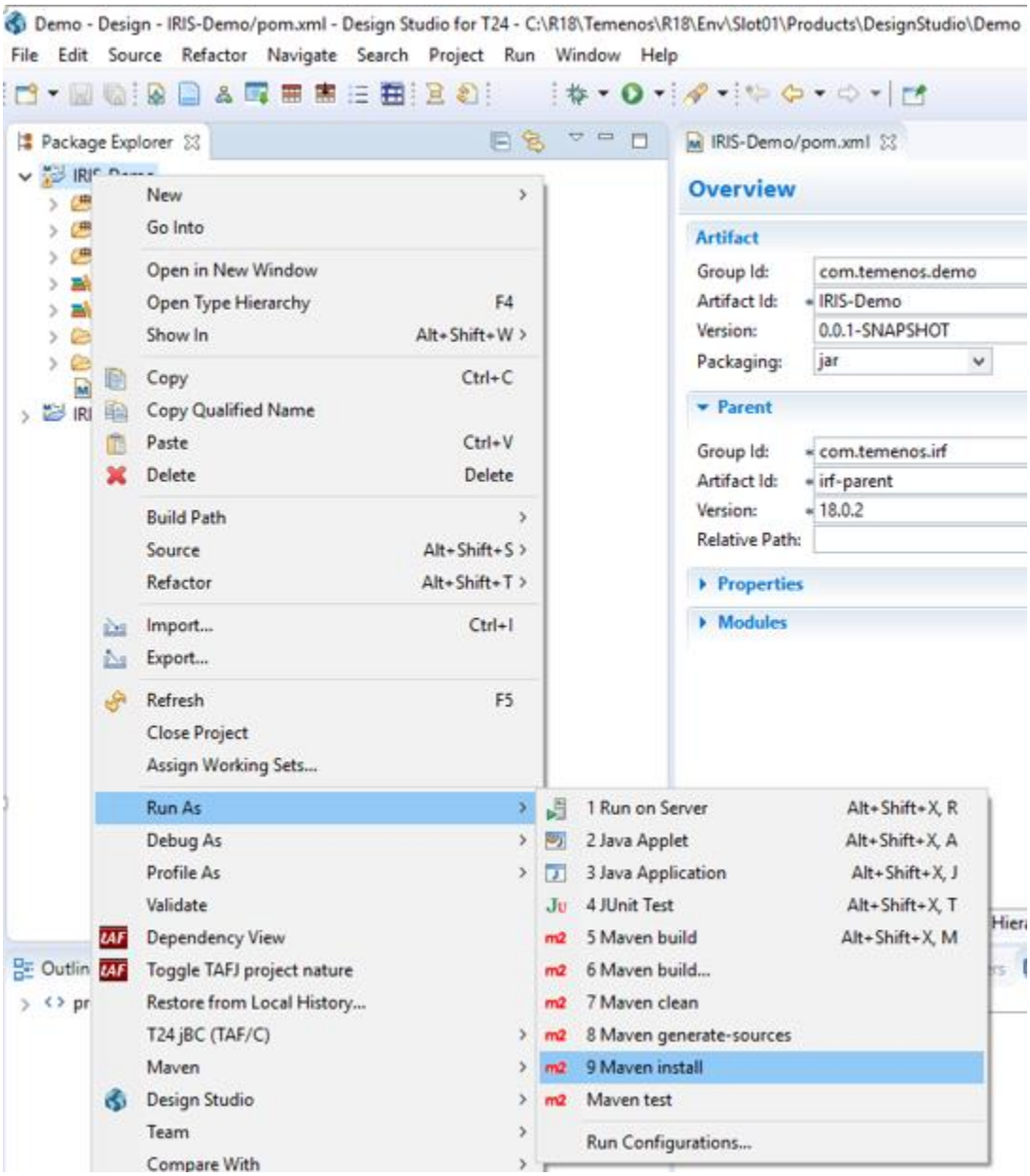
3) Select Ok



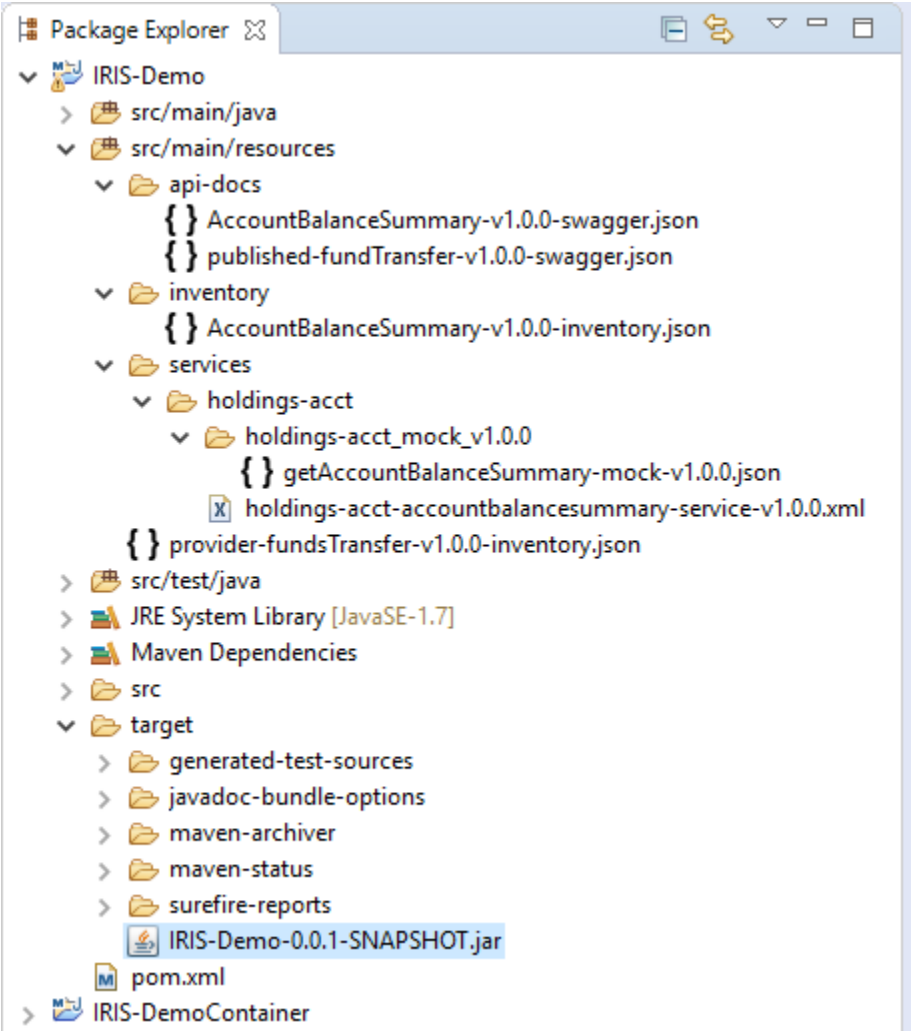
4) Click on Yes To All. You should see the project with the following structure, in this example - the AccountBalanceSummary can be seen in api-docs, inventory and services.



5) Right click on the Service Project (in this example – IRIS-Demo) and select Run As -> Maven Install.

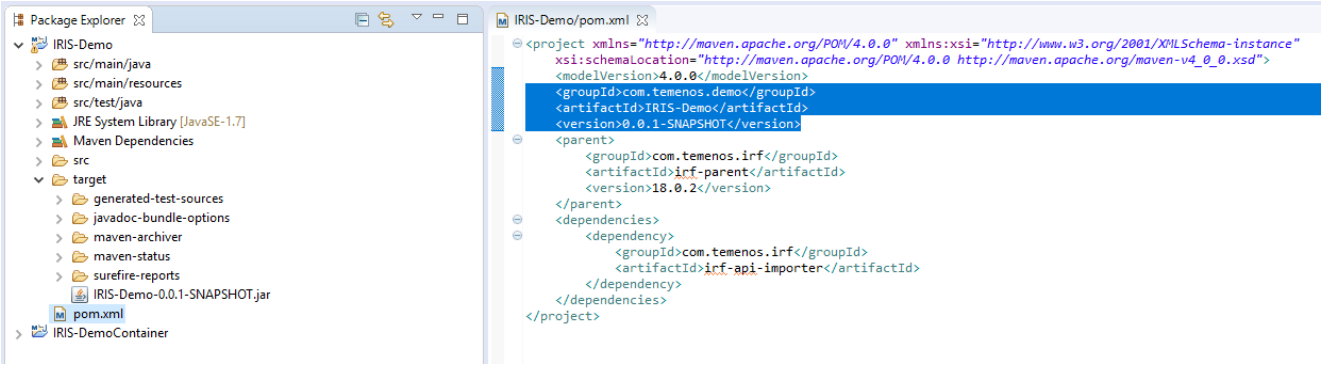


You should see the target folder with jar file as shown below,



Build Container Project

1) Open the pom.xml of the Service project (IRIS-Demo) as shown below,

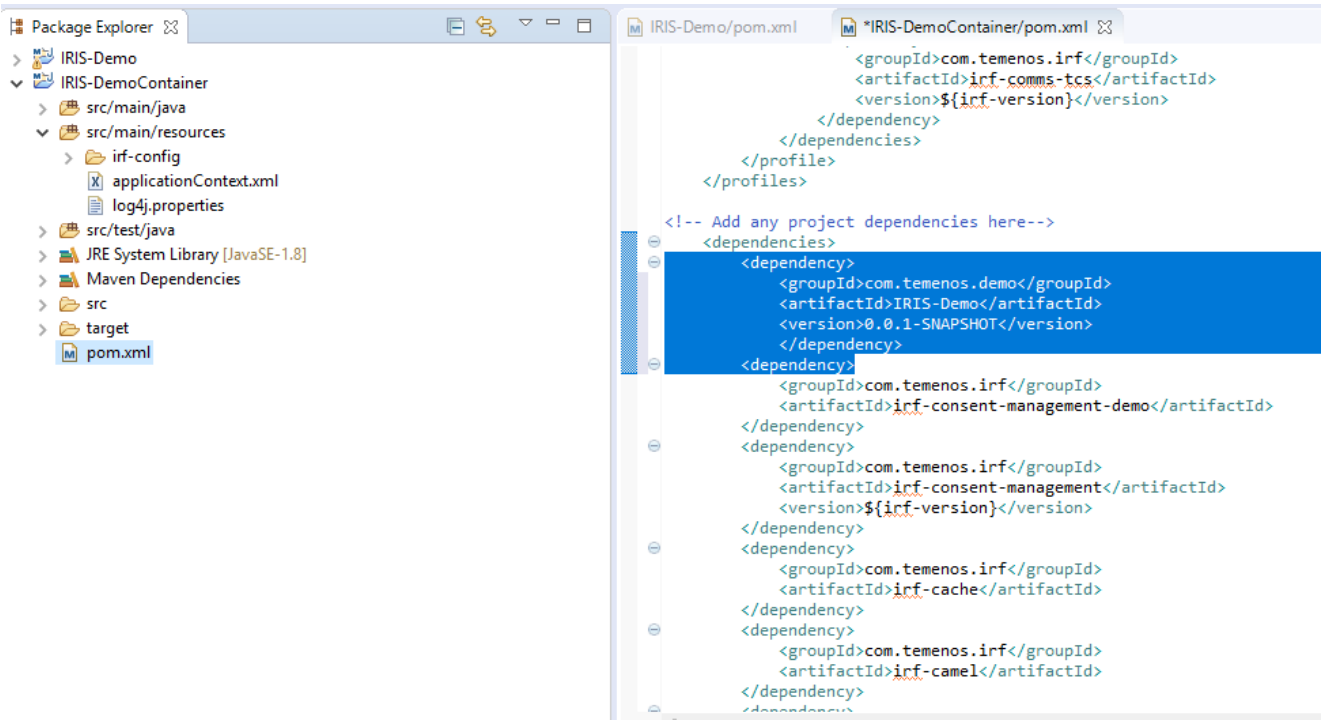


2) Copy the 3 lines groupId, artifactId and version as shown above and paste it into the <Dependencies> section in pom.xml (enclosed between <Dependency> tag) of the container project created earlier under the section **Create Service Container Project** (in this example – IRIS-DemoContainer).

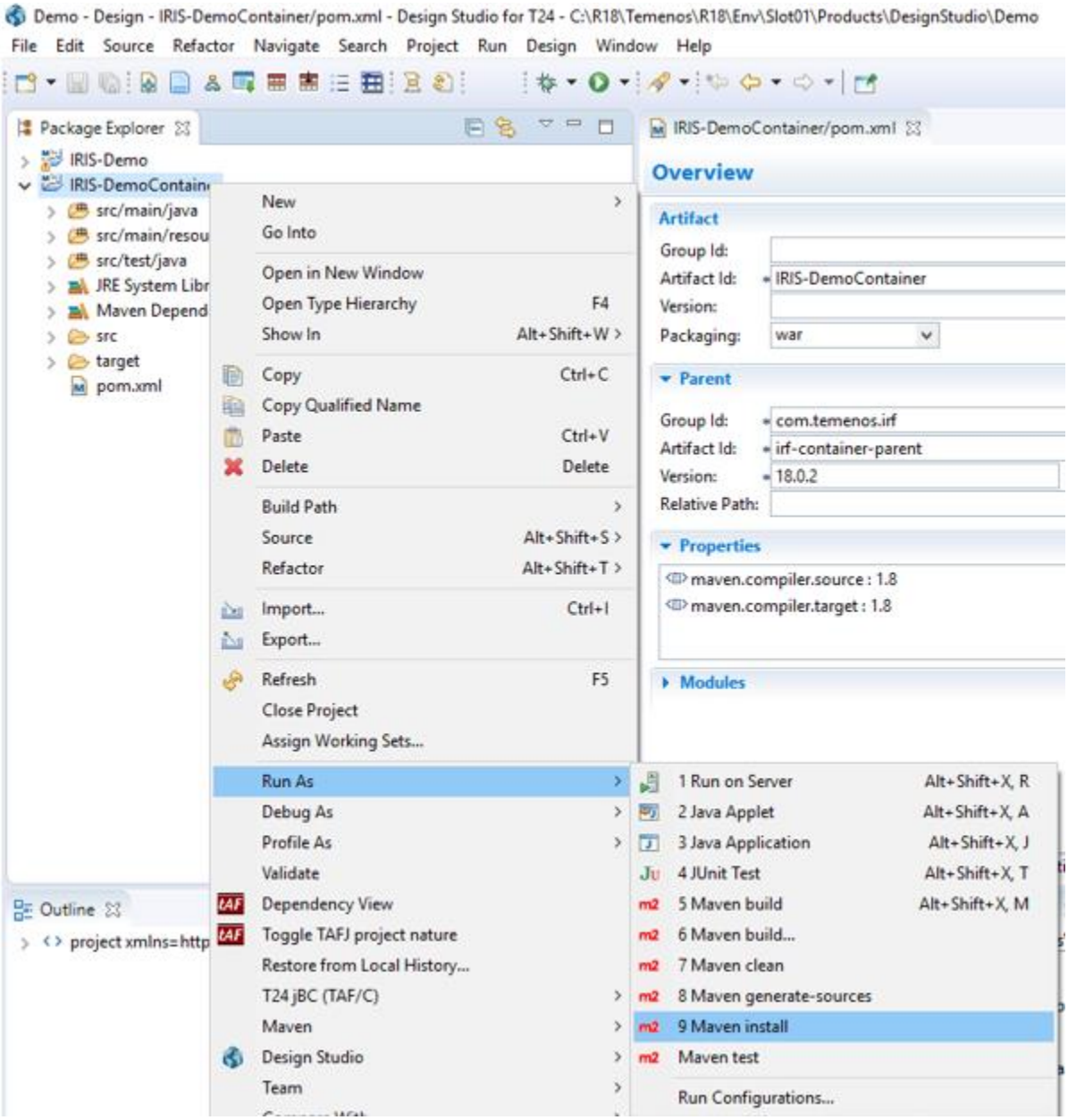
   Note: There are several dependencies tags in the pom.xml file - this dependency needs to be added to the

   MAIN dependency, below the comment:

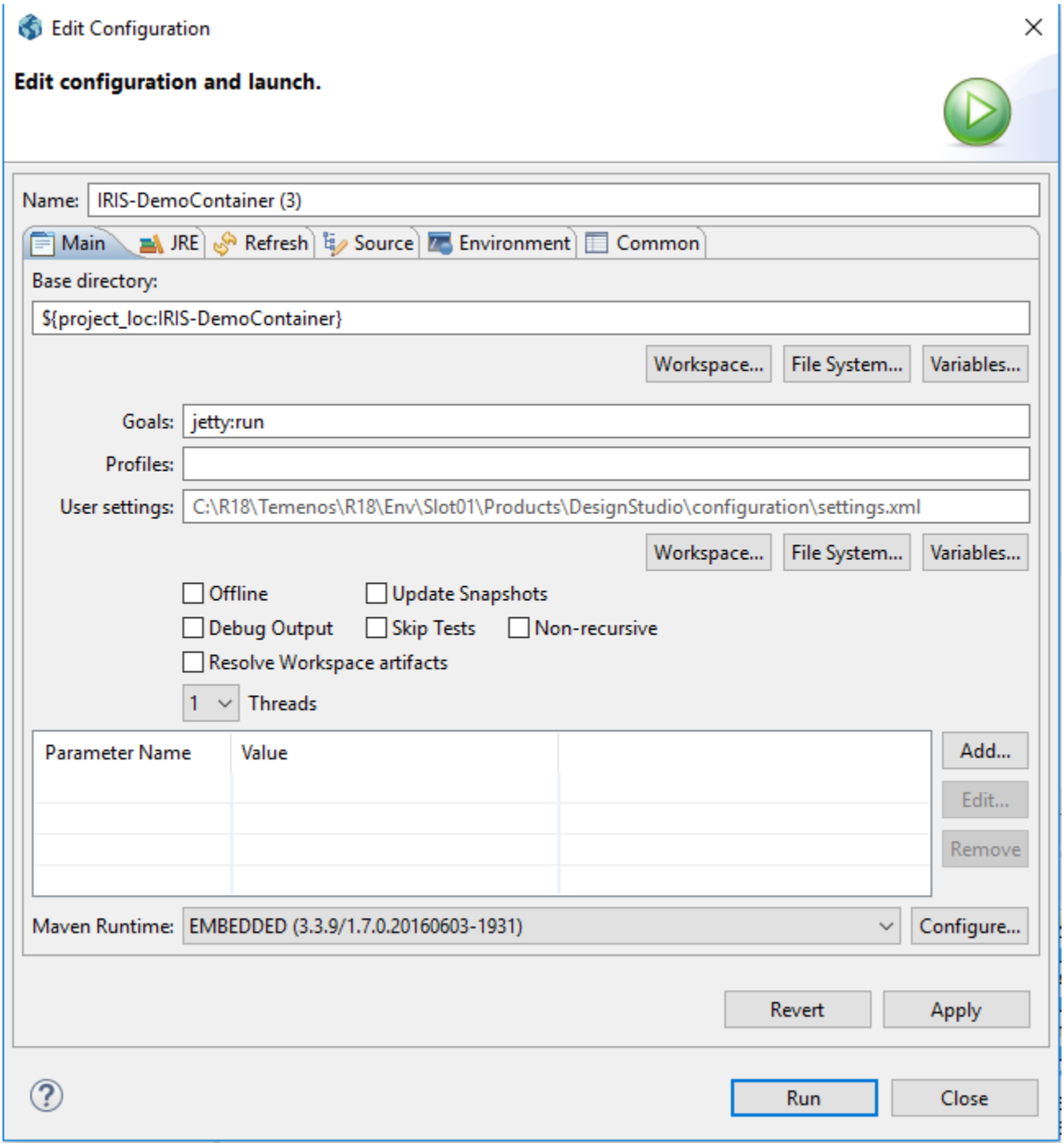
   <!-- Add any project dependencies here-->



3) Right Click the Service Container Project (in this example, IRIS-DemoContainer) and select Run As -> Maven Install



4) Start the Jetty server by Right clicking on the container project and select Run As -> Maven Build and provide the Goal as jetty:run



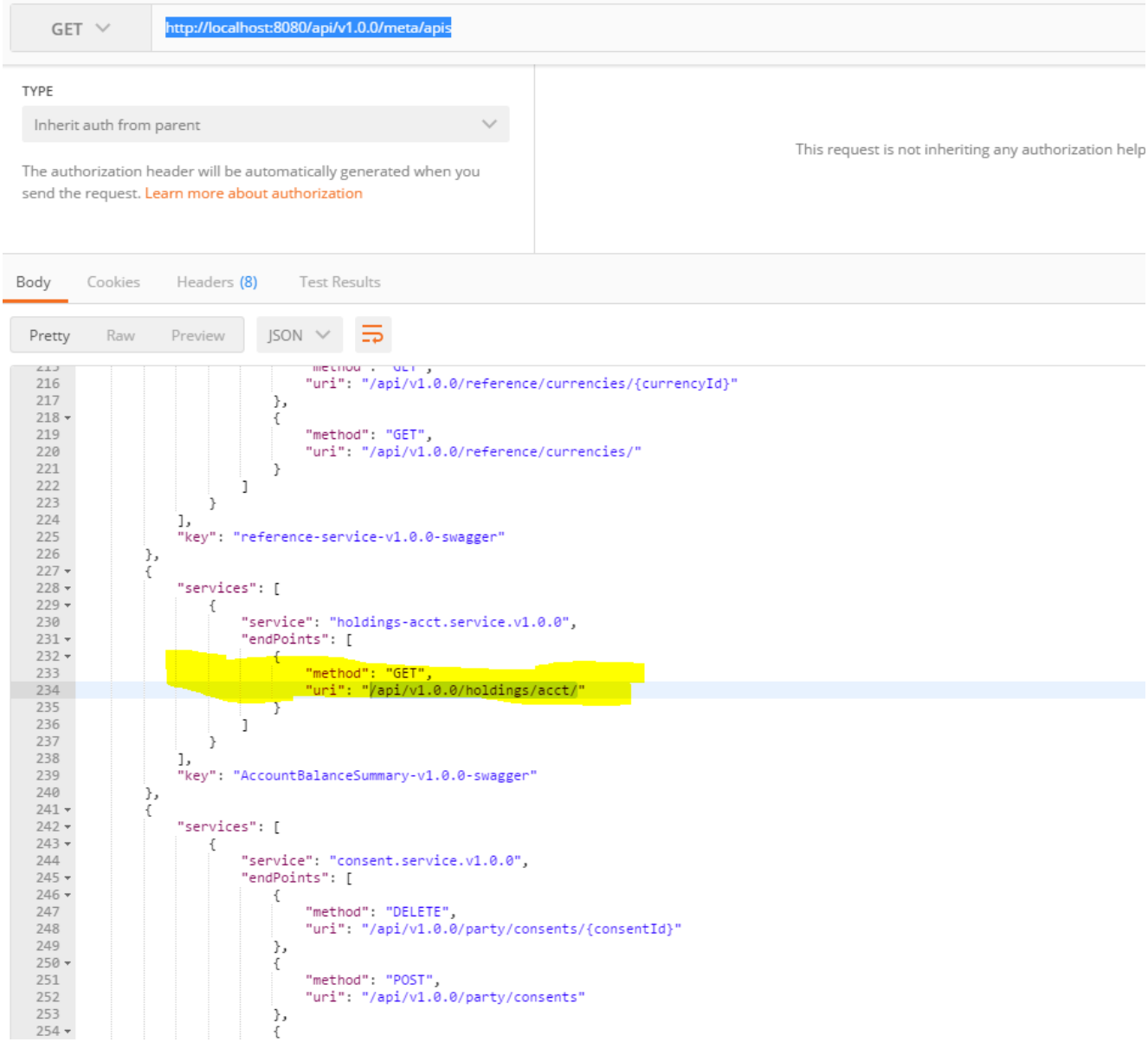
Testing

Test the Provider API created using the above steps using Postman.

1) Use the below URL in postman to get the meta data of APIs,

   http://localhost:8080/api/v1.0.0/meta/apis

   You should get the response as shown below, which should have your service



2) Use Postman to test the api created, (in this example – Account Balance Summary created under the section Creation of Provider API),

   The URL can be constructed using the values provided for the below details, the values can be identified based on the input in **Creation of Provider API**

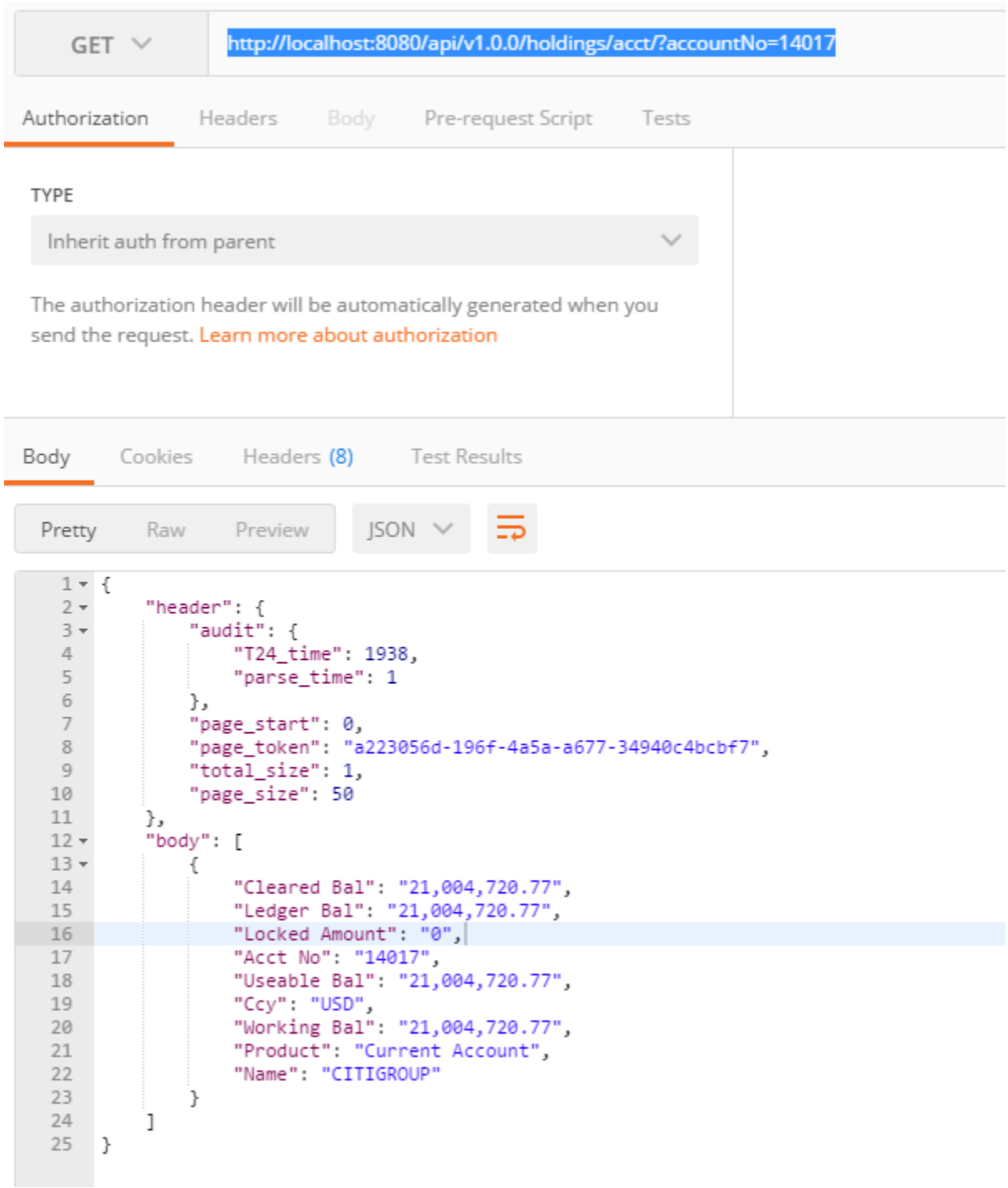
   - Host
   - base path
   - Domain
   - URL

   As per the values provided in **Creation of Provider API**

   - Host – http://localhost:8080
   - Base path - /api/v1.0.0
   - Domain – holdings
   - URL - /acct/

   http://localhost:8080/api/v1.0.0/holdings/acct/?accountNo=14017

You should the JSON response as shown below.



Deployment options

1) Once the service project is build, the user can deploy it using either of the following application servers:
    - Jboss
    - Weblogic
    - Websphere
2) You can configure the IRIS R18 solution using TAFJ (JMS Connector) or TAFC (TCS and TOCFEE Connectors).

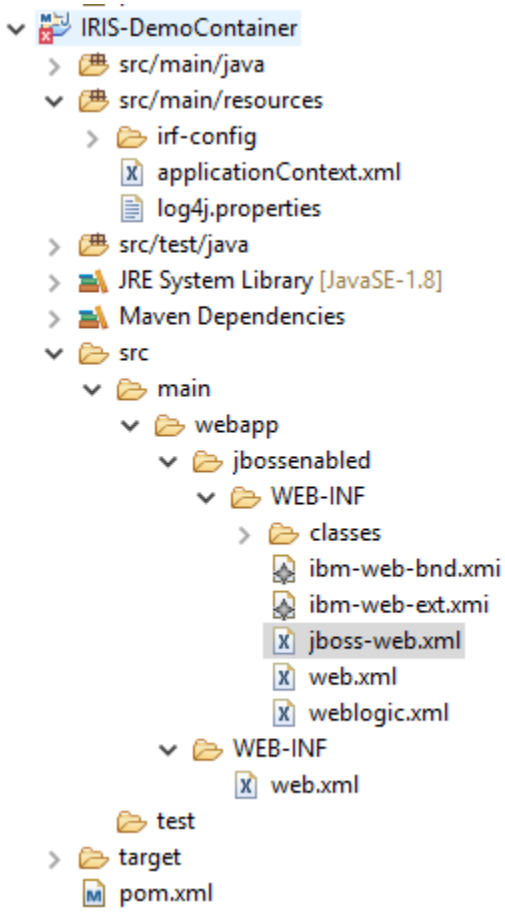
    Set the value as **false** as shown below for the profile **buildForStandalone** in pom.xml of the container project.

```
<profile>
    <id>buildForStandalone</id>
    <activation>
      <activeByDefault>false</activeByDefault>
    </activation>
```

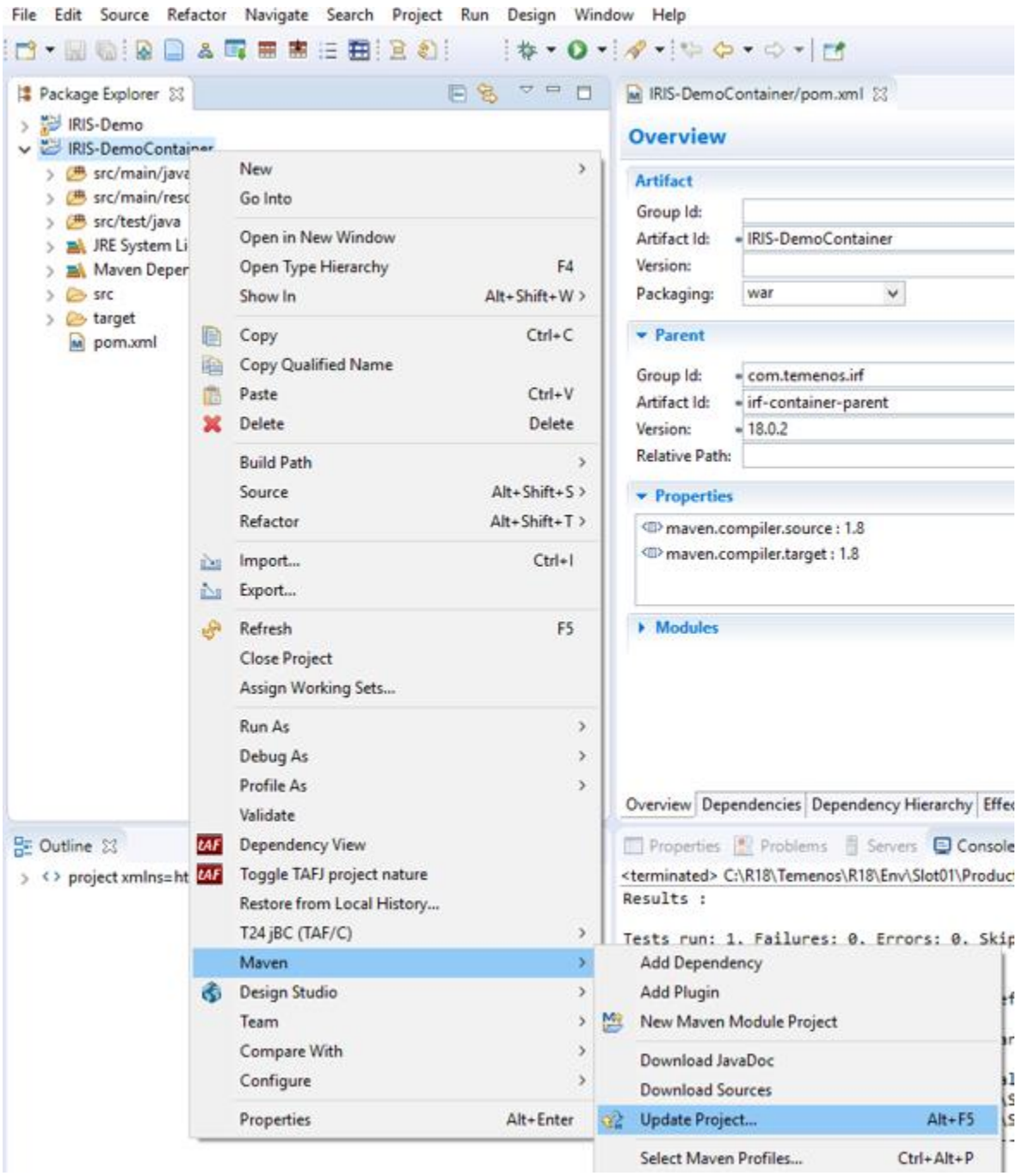
Set the value as **true** as shown below for the profile **buildForJMS** in pom.xml of the container project, the name provided in the tag <FinalName> is the name of the war file.

```
 <profile>
    <id>buildForJMS</id>
    <activation>
      <activeByDefault>true</activeByDefault>
    </activation>
    <build>
      <finalName>DemoirisR18</finalName>
```

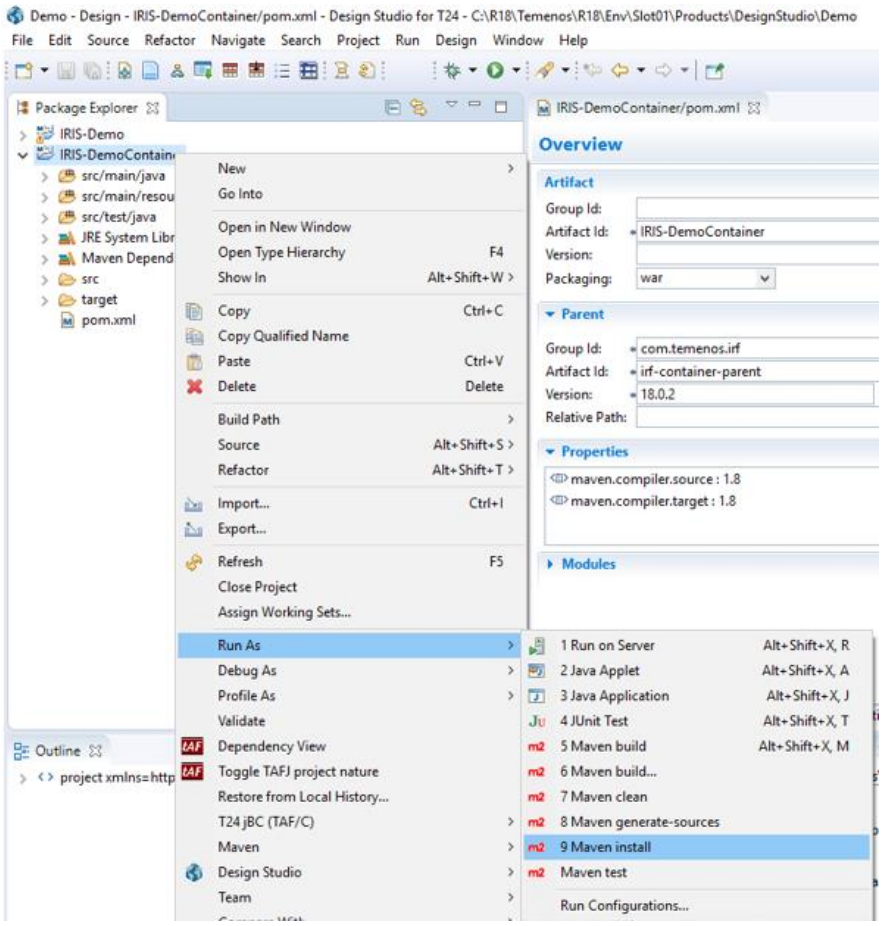
3) Check the JMS resources configuration under Container project -> src -> main -> webapp -> jbossenabled -> WEB-INF -> classes -> <<the respective web server file>> before building the final war file.



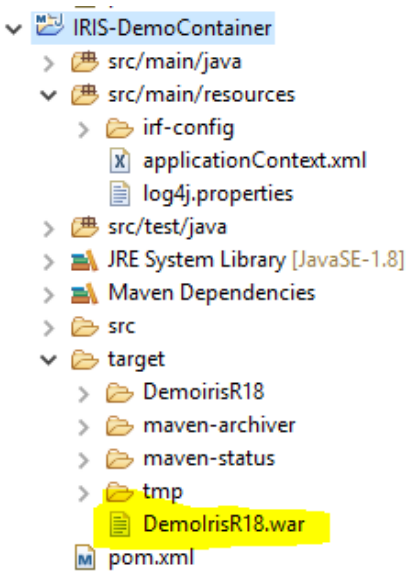
4) Right click on the Container project (in this example, IRIS-DemoContainer) and select Maven -> Update Project.



5) Right click on the Container project (in this example, IRIS-DemoContainer) and select Run As -> Maven Install.



War file will be created under the target folder with the name provided in the tag <finalName>.



Deployment and Testing

1) Deploy the war generated in the above step in any application server (jboss, websphere etc…) and use postman to test,

Request:

GET http://localhost:9089/DemoIrisR18/api/v1.0.0/holdings/acct/?accountNo=14017

Response:

Body Cookies Headers (10) Test Results

Pretty Raw Preview JSON


```
{
    "header": {
        "audit": {
            "T24_time": 206,
            "parse_time": 0
        },
        "page_start": 0,
        "page_token": "d70529bc-d82c-49f5-b42d-efe47b52d4e9",
        "total_size": 1,
        "page_size": 50
    },
    "body": [
        {
            "Cleared Bal": "21,004,720.77",
            "Ledger Bal": "21,004,720.77",
            "Locked Amount": "0",
            "Acct No": "14017",
            "Useable Bal": "21,004,720.77",
            "Ccy": "USD",
            "Working Bal": "21,004,720.77",
            "Product": "Current Account",
            "Name": "CITIGROUP"
        }
    ]
}
```

Swagger Specification

The below URL will help the users to get the swagger documentation url for all the services supported in this deployment.

Request:

http://localhost:9089/DemoIrisR18/api/v1.0.0/meta/apidocs

Response:


```
{
    "header": {},
    "body": [
        {
            "title": "AccountBalanceSummary",
            "key": "AccountBalanceSummary-v1.0.0",
            "url": "http://localhost:9089/DemoIrisR18/api/v1.0.0/meta/apidocs/AccountBalanceSummary-v1.0.0"
        },
        {
            "title": "Reference - System Data Service",
            "key": "reference-service-v1.0.0",
            "url": "http://localhost:9089/DemoIrisR18/api/v1.0.0/meta/apidocs/reference-service-v1.0.0"
        },
        {
            "title": "Product Service",
            "key": "product-service-v1.0.0",
            "url": "http://localhost:9089/DemoIrisR18/api/v1.0.0/meta/apidocs/product-service-v1.0.0"
        },
        {
            "title": "Funds Transfer Published API's'",
            "key": "published-fundTransfer-v1.0.0",
            "url": "http://localhost:9089/DemoIrisR18/api/v1.0.0/meta/apidocs/published-fundTransfer-v1.0.0"
        },
        {
            "title": "Meta - APIs about APIs",
            "key": "meta-t24-service-v1.0.0",
            "url": "http://localhost:9089/DemoIrisR18/api/v1.0.0/meta/apidocs/meta-t24-service-v1.0.0"
        }
    ]
}
```


The url available in the response of API Docs request can be used to get the swagger api documentation of the provider apis.

As per the above example,

http://localhost:9089/DemoIrisR18/api/v1.0.0/meta/apidocs/AccountBalanceSummary-v1.0.0

```
1  {
2      "swagger": "2.0",
3      "info": {
4          "version": "v1.0.0",
5          "title": "AccountBalanceSummary"
6      },
7      "host": "localhost:8080",
8      "basePath": "/api/v1.0.0",
9      "schemes": [
10         "http",
11         "https"
12     ],
13     "paths": {
14         "/holdings/acct/": {
15             "get": {
16                 "operationId": "getAccountBalanceSummary",
17                 "produces": [
18                     "application/json"
19                 ],
20                 "parameters": [
21                     {
22                         "name": "accountNo",
23                         "in": "query",
24                         "required": false,
25                         "type": "string"
26                     },
27                     {
28                         "name": "customerNo",
29                         "in": "query",
30                         "required": false,
31                         "type": "string"
32                     },
33                     {
34                         "name": "page_size",
35                         "in": "query",
36                         "description": "The total number of records per page",
37                         "required": false,
38                         "type": "number"
39                     },
40                     {
41                         "name": "page_start",
```