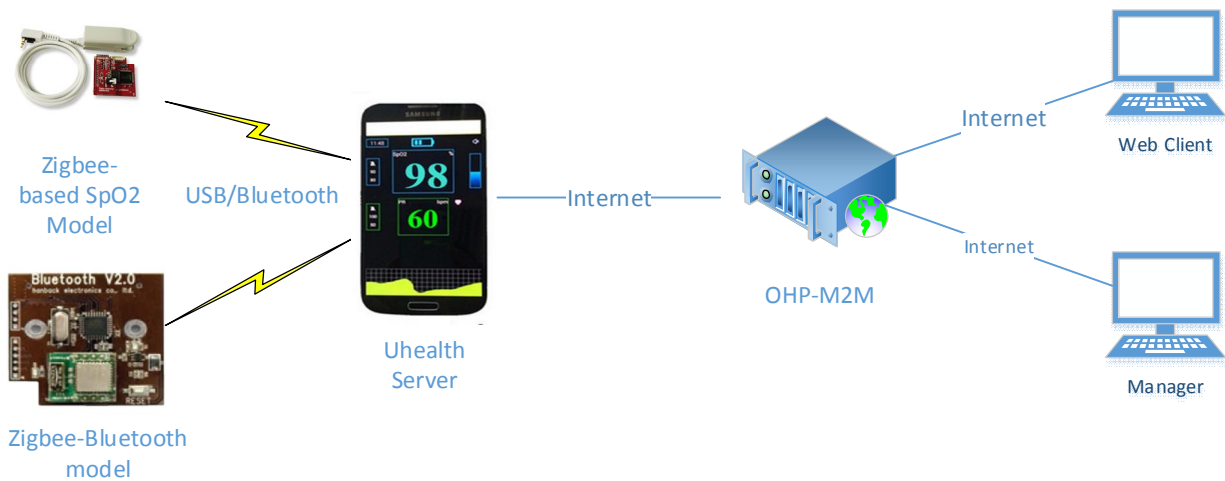


## USER GUIDELINE.

### System Architecture



The UHealthServer is a CoAP server that loads resources that is collected from the Medical device.

OM2M is a platform that handles user requests (Managers and Clients) and relay them to the UHealthServer for response.

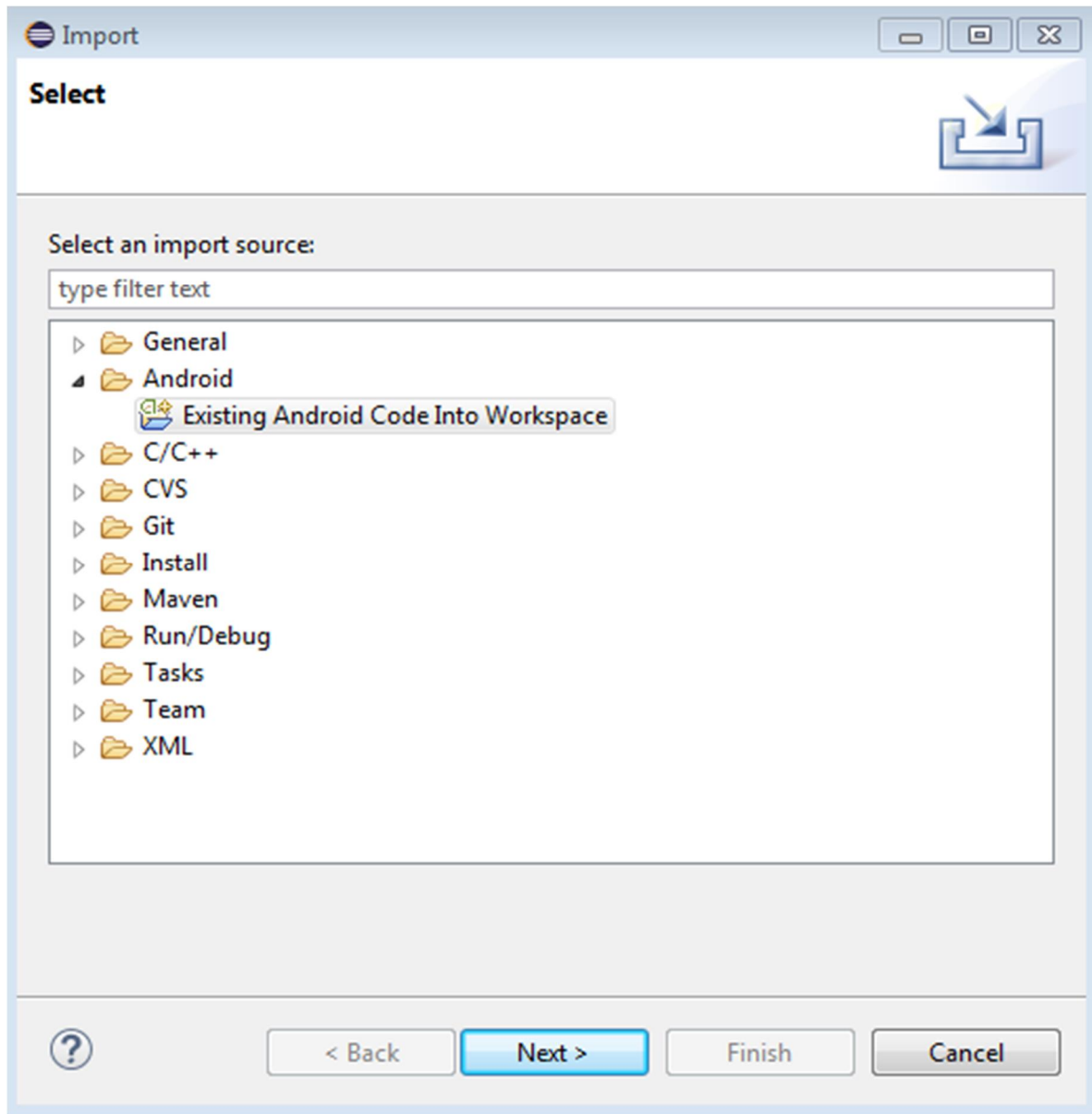
The user guideline is divided into two sections; The Installation procedure and How to use the OHP-M2M. They are explained explicitly as shown below;

### Installation Procedure

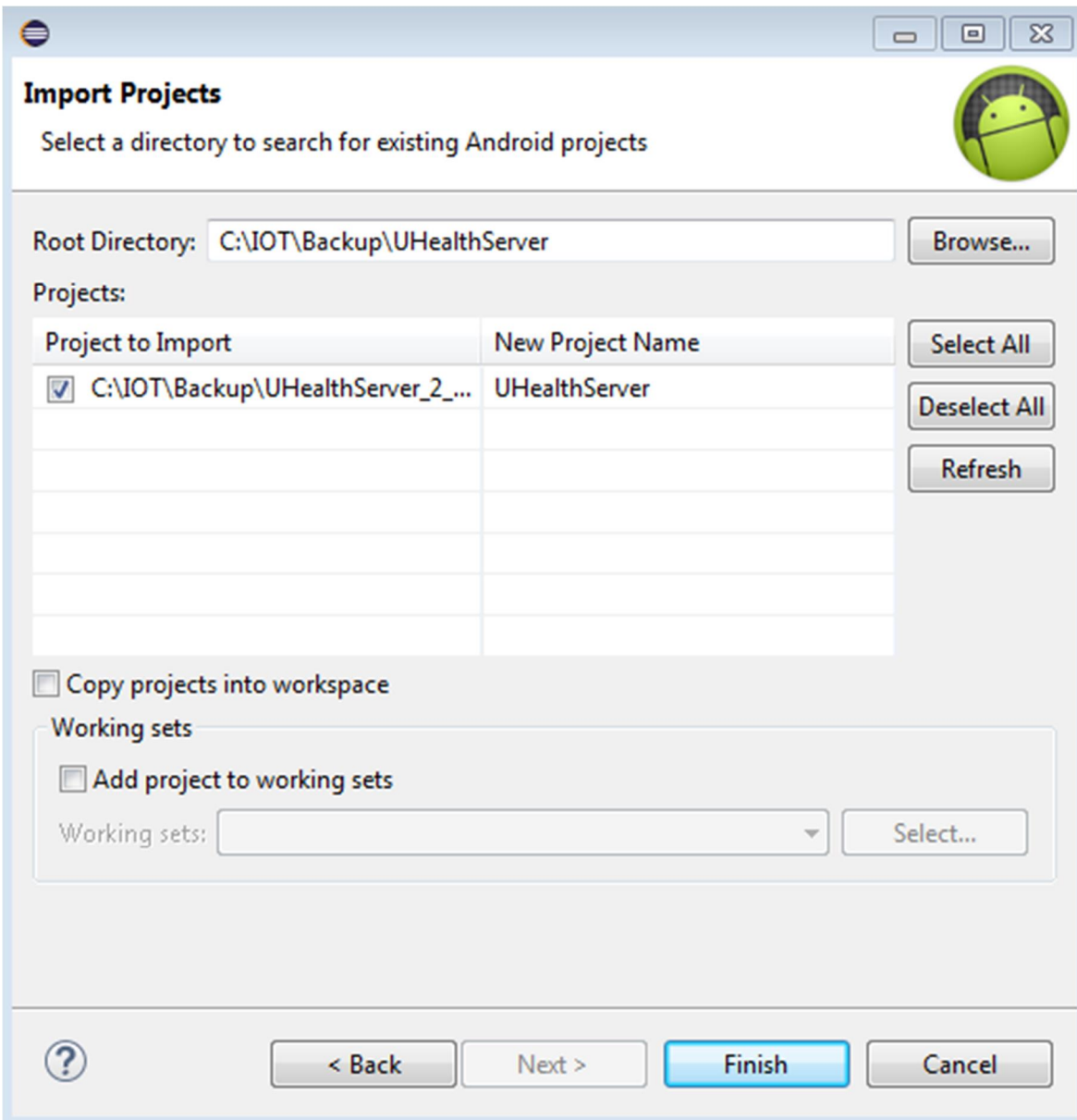
1. Follow the guidelines in the <http://wiki.eclipse.org/OM2M/Clone> to help you clone and build OM2M. You can use either Eclipse IDE or command line basing on what you prefer. Check and confirm that OM2M is installed and running well.
2. Download both the UHealthServer and the OHP-M2M from Github. The OHP-M2M download is an OSGI bundle and the UHealthServer is an Android Application.

### INSTALLING THE COAP UHEALTHSERVER.

3. Download the CoAP server from Github and follow the guidelines as follows.
4. Import the UHealthServer as an Android Project as shown below.
  - a. Open Eclipse and click on File → Import Select Existing Android Code Into Workspace



b. Select the Root Directory where the UHealthserver was saved. And Click finish



The image shows a Windows-style dialog box titled "Import Projects" with an Android logo in the top right corner. The main instruction is "Select a directory to search for existing Android projects". Below this, there is a text field for "Root Directory:" containing the path "C:\IOT\Backup\UHealthServer" and a "Browse..." button. A section labeled "Projects:" contains a table with two columns: "Project to Import" and "New Project Name". The first row in the table has a checked checkbox, the path "C:\IOT\Backup\UHealthServer\_2\_...", and the name "UHealthServer". To the right of the table are three buttons: "Select All", "Deselect All", and "Refresh". Below the table is a checkbox labeled "Copy projects into workspace". Underneath that is a section titled "Working sets" which includes a checkbox "Add project to working sets", a "Working sets:" dropdown menu, and a "Select..." button. At the bottom of the dialog are four buttons: a help icon (?), "< Back", "Next >", and "Finish" (which is highlighted in blue), and a "Cancel" button.

**Import Projects**

Select a directory to search for existing Android projects

Root Directory: C:\IOT\Backup\UHealthServer Browse...

Projects:

| Project to Import                                                     | New Project Name |
|-----------------------------------------------------------------------|------------------|
| <input checked="" type="checkbox"/> C:\IOT\Backup\UHealthServer_2_... | UHealthServer    |
|                                                                       |                  |
|                                                                       |                  |
|                                                                       |                  |
|                                                                       |                  |
|                                                                       |                  |

Select All  
Deselect All  
Refresh

☐ Copy projects into workspace

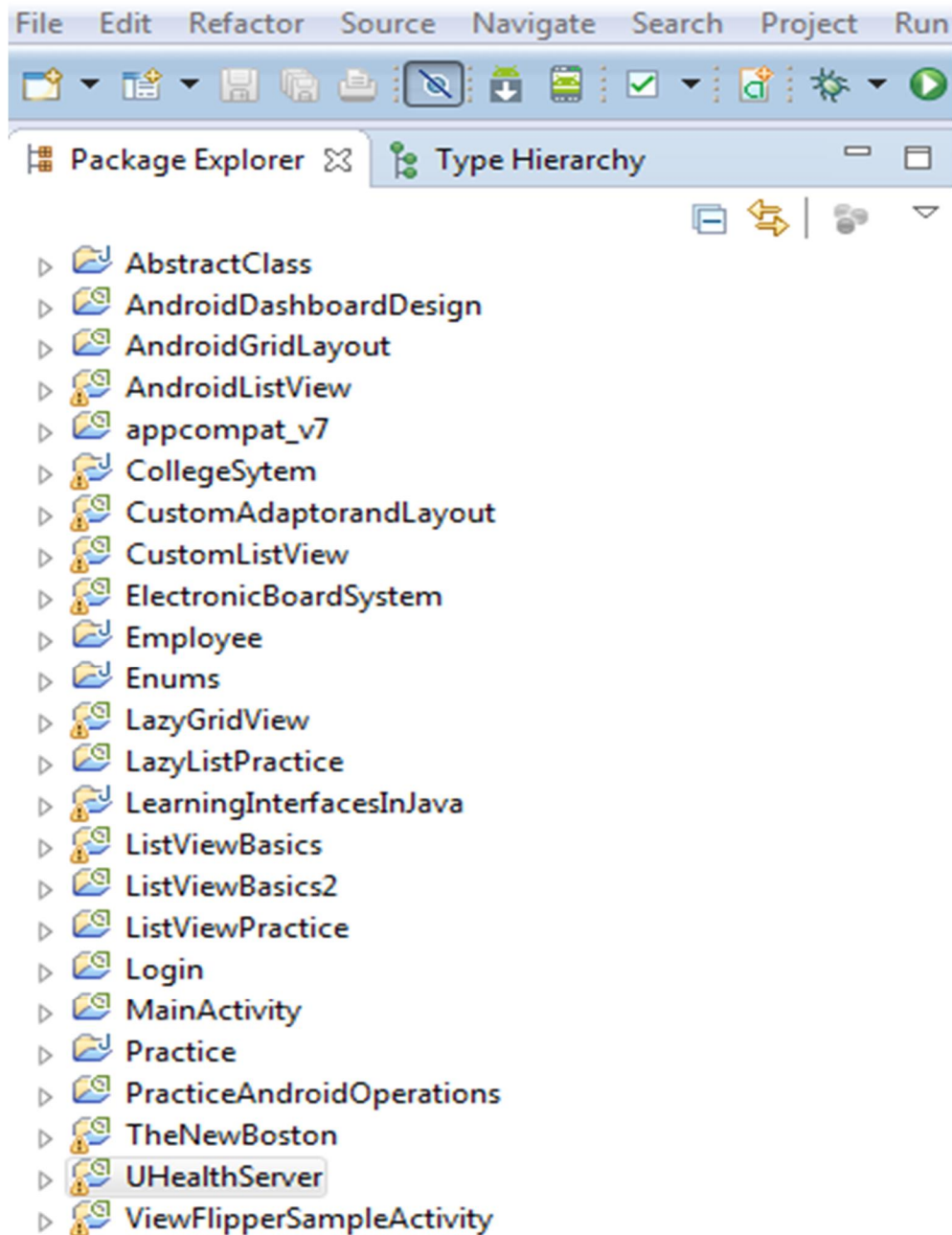
Working sets

☐ Add project to working sets

Working sets:   Select...

? < Back Next > Finish Cancel

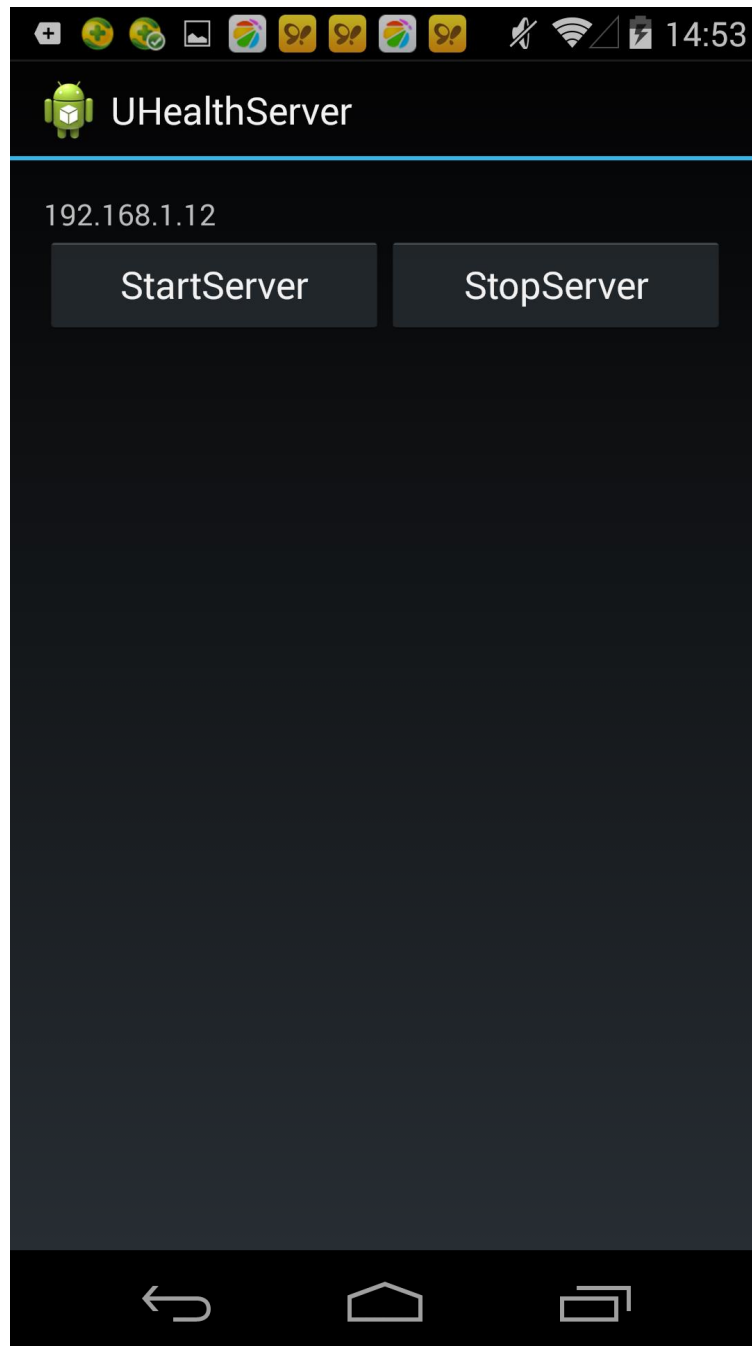
The UHealthServer will added in your work space and the files will be as shown below.



Connect your phone to act as the Emulator to run the UHealthServer.

Right Click on the UHealthserver → Run As → Android Application

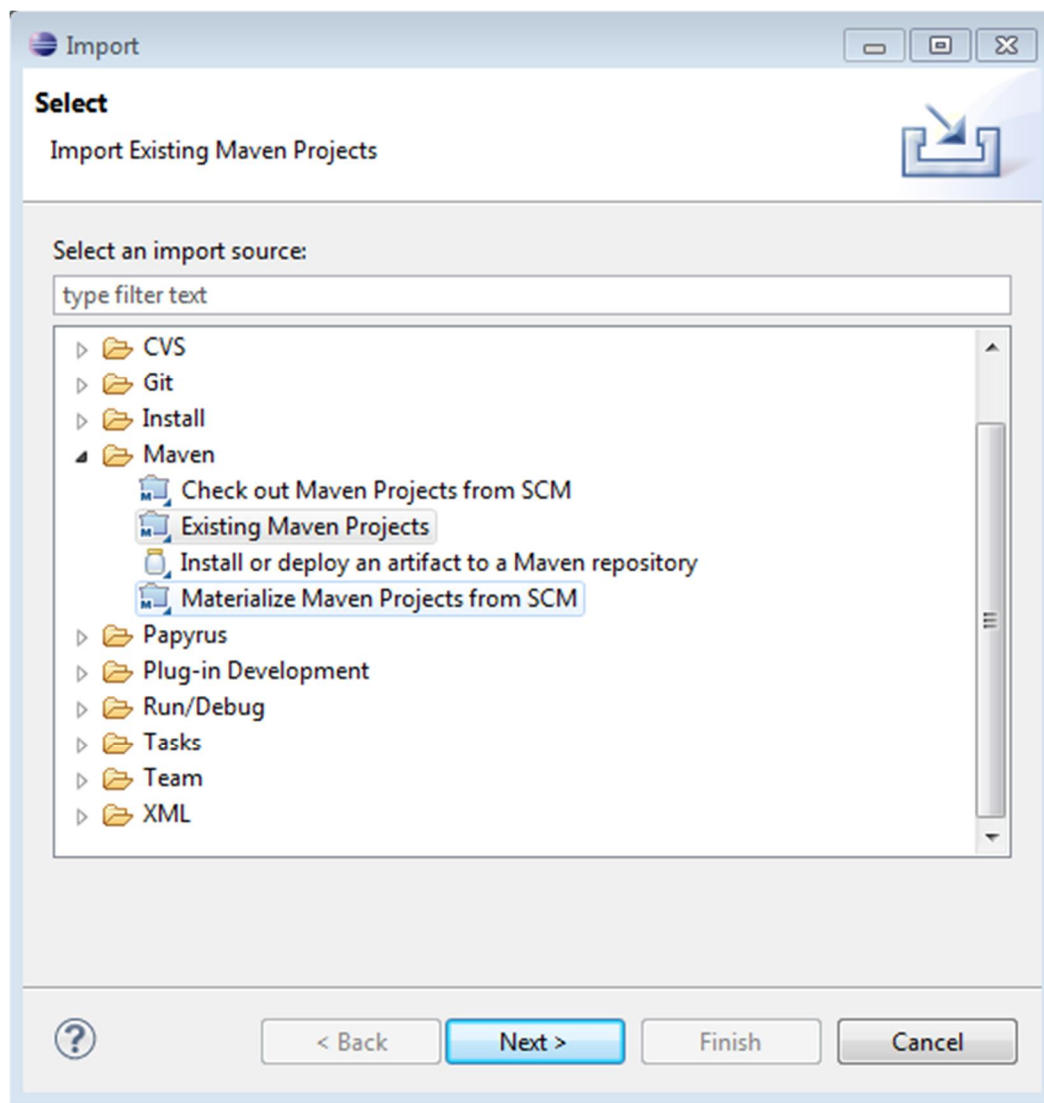
There are two buttons to start the server and Stop the server, StartServer and StopServer respectively.



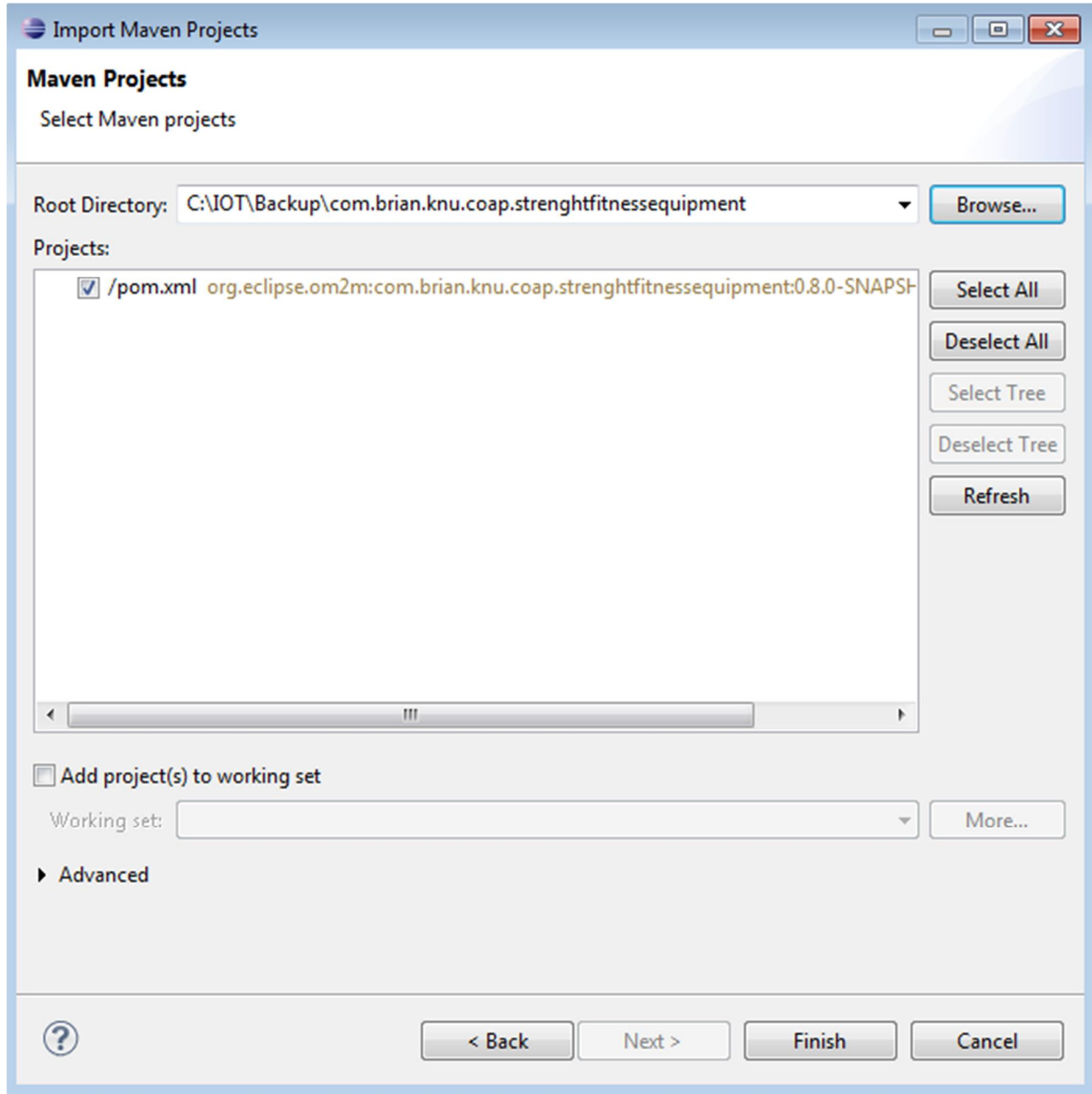
The UHealthserver runs and it shows the IP of the server and the buttons to start and stop the server as shown above in the screen shot.

## INSTALLING THE OHP-M2M

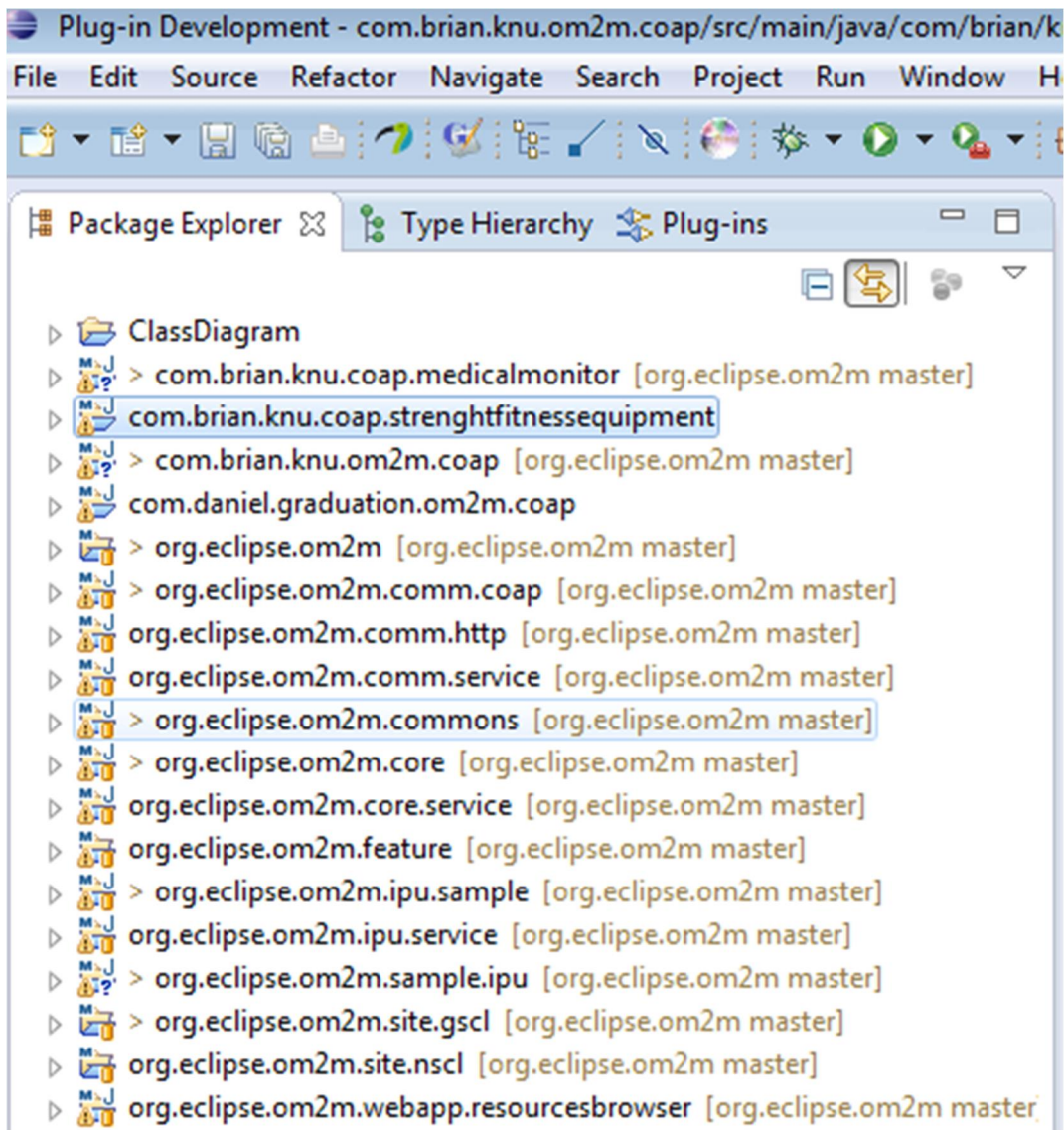
1. Import the downloaded OHP-M2M as a Maven Project. Import Existing Maven Projects



2. Select the location where the OHP-M2M was downloaded and click finish.

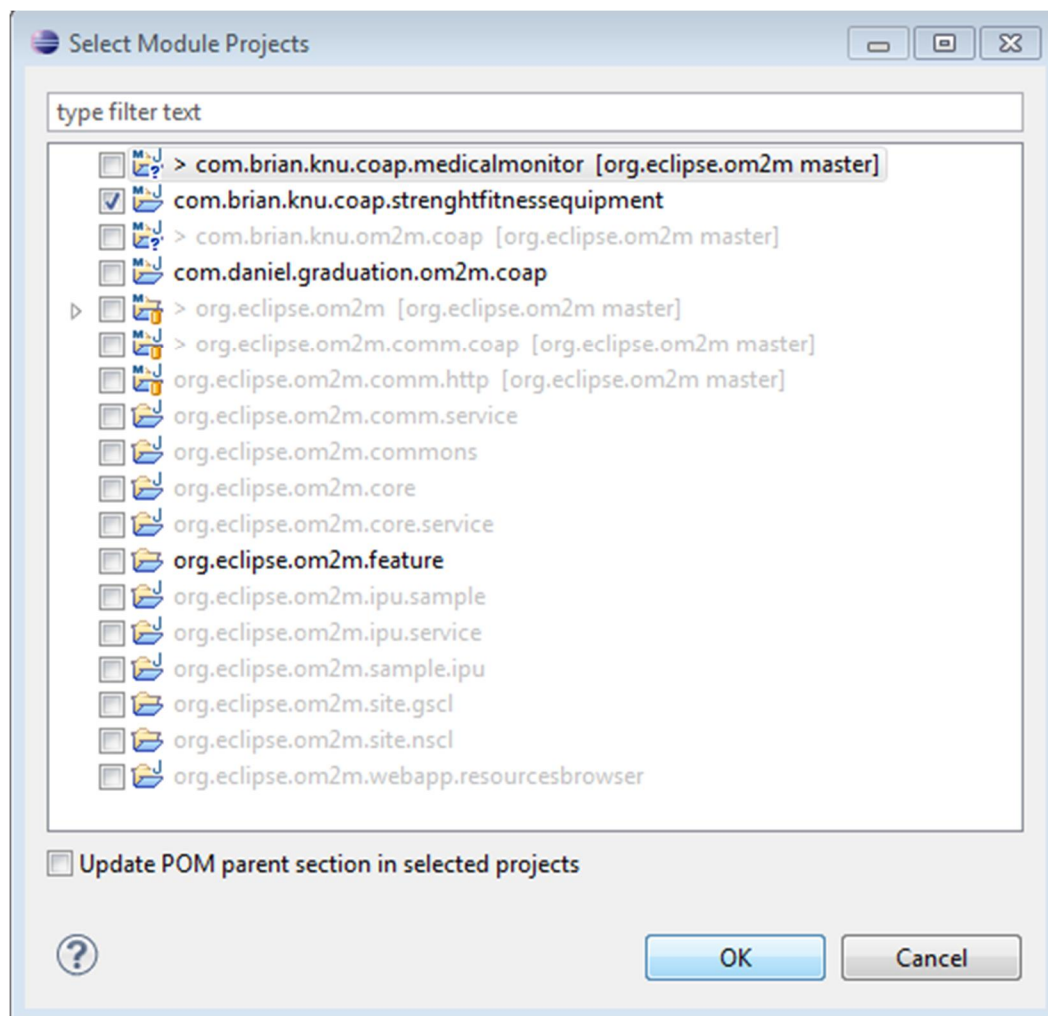


The OHP-M2M is added as a Maven project in your workspace called  
com.brian.knu.strenghtfitnessequipment



3. Open the pom.xml file found in the org.elcipse.om2m and under the Modules click on Add button and add the com.brian.knu.strenghtfitnessesquipment module.





4. In the org.elclipse.om2m → org.eclipse.om2m.site.gscl, open the om2m.product file and under the dependencies, add the imported file in the OM2M.

Dependencies

Plug-ins and Fragments

List all the plug-ins and fragments that constitute the product.

com.brian.knu.coap.medicalmonitor

com.brian.knu.coap.strenghtfitnessesquipment

com.brian.knu.om2m.coap.cardiovascularmonitor

com.daniel.graduation.om2m.coap

javax.servlet

org.apache.commons.codec

org.apache.commons.httpclient

org.apache.commons.logging

org.apache.felix.gogo.command

org.apache.felix.gogo.runtime

org.apache.felix.gogo.shell

org.eclipse.equinox.console

org.eclipse.equinox.http.jetty

org.eclipse.equinox.http.servlet

org.eclipse.equinox.launcher

org.eclipse.jetty.continuation

org.eclipse.jetty.http

org.eclipse.jetty.io

org.eclipse.jetty.security

org.eclipse.jetty.server

org.eclipse.jetty.servlet

org.eclipse.jetty.util

org.eclipse.om2m.comm.coap

Add...

Add Working Set...

Add Required Plug-ins

Remove

Remove All

Properties...

Total: 34

☐ Include optional dependencies when computing required plug-ins

Overview

Dependencies

Configuration

Launching

Splash

Branding

Licensing

## NOTE

In case there is any problem with the installation check out the version filed in the Manifest.MF file in the com.brian.knu.coap.strenghtfitnessesquipment folder.

## Overview



### General Information

This section describes general information about this plug-in.

ID:

Version:

Name:

Vendor:

Platform Filter:

Activator:

☒ Activate this plug-in when one of its classes is loaded

☐ This plug-in is a singleton

### Execution Environments

Specify the minimum execution environments required to run this plug-in.

JavaSE-1.7

[Configure JRE associations...](#)

[Update the classpath settings](#)

### Plug-in Content

The content of the plug-in is made up of two sections:

- [Dependencies](#): lists all the plug-ins required on this plug-in's classpath to compile and run.
- [Runtime](#): lists the libraries that make up this plug-in's runtime.

### Extension / Extension Point Content

This plug-in may define extensions and extension points:

- [Extensions](#): declares contributions this plug-in makes to the platform.
- [Extension Points](#): declares new function points this plug-in adds to the platform.

### Testing

Test this plug-in by launching an OSGi framework:

- [Launch the framework](#)
- [Launch the framework in Debug mode](#)

### Exporting

To package and export the plug-in:

1. Organize the plug-in using the [Organize Manifests Wizard](#)
2. Externalize the strings within the plug-in using the [Externalize Strings Wizard](#)
3. Specify what needs to be packaged in the deployable plug-in on the [Build Configuration](#) page
4. Export the plug-in in a format suitable for deployment using the [Export Wizard](#)

## How to use the OHP-M2M

1. Update the com.brian.knu.coap.strenghtfitnessequipment by Right clicking on the project.  
Maven → Update Project.
2. Click on Right Click on the org.eclipse.om2m master folder, Run As → Maven Maven Install and ensure the build is success full.

```
[INFO] Installing C:\Users\Brian\git\org.eclipse.om2m\org.eclipse.om2m.site.gscl\target\p2artifacts.xml to C:\Users\Brian\.m2\repository\org\ eclipse\om2m\org.eclipse.om
[INFO]
[INFO] --- tycho-p2-plugin:0.20.0:update-local-index (default-update-local-index) @ org.eclipse.om2m.site.gscl ---
[INFO]
[INFO] -----
[INFO] Reactor Summary:
[INFO]
[INFO] org.eclipse.om2m :: parent ..... SUCCESS [0.095s]
[INFO] org.eclipse.om2m :: commons ..... SUCCESS [0.895s]
[INFO] org.eclipse.om2m :: comm service ..... SUCCESS [0.043s]
[INFO] org.eclipse.om2m :: ipu service ..... SUCCESS [0.053s]
[INFO] org.eclipse.om2m :: core service ..... SUCCESS [0.053s]
[INFO] org.eclipse.om2m :: core ..... SUCCESS [0.735s]
[INFO] org.eclipse.om2m :: comm http ..... SUCCESS [0.041s]
[INFO] org.eclipse.om2m :: comm coap ..... SUCCESS [0.049s]
[INFO] org.eclipse.om2m :: sample ipu ..... SUCCESS [0.057s]
[INFO] org.eclipse.om2m :: webapp resourcesbrowser ..... SUCCESS [0.046s]
[INFO] org.eclipse.om2m :: nscl product ..... SUCCESS [4.099s]
[INFO] com.brian.knu.coap.medicalmonitor ..... SUCCESS [0.113s]
[INFO] com.brian.knu.coap.strenghtfitnessequipment ..... SUCCESS [0.097s]
[INFO] com.brian.knu.om2m.coap.cardiovascularmonitor ..... SUCCESS [0.092s]
[INFO] com.daniel.graduation :: OM2MCoap ..... SUCCESS [0.110s]
[INFO] org.eclipse.om2m.sample.ipu ..... SUCCESS [0.036s]
[INFO] org.eclipse.om2m :: gscl product ..... SUCCESS [4.328s]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 33.130s
[INFO] Finished at: Wed May 13 16:33:30 KST 2015
[INFO] Final Memory: 94M/789M
[INFO] -----
```

3. Run the UHealthServer and get the IP of the server. Open the StrenghtFitnessMonitor file and add the IP of the server as shown below.

```

StrengthFitnessMonitor.java
227         break;
228     case 2650:
229         Compound systemTypeSpecList = new SystemTypeSpecList(deviceName);
230
231         makeCompound(systemTypeSpecList, ele);
232         cvDIM.addCompound(systemTypeSpecList);
233         break;
234     default:
235         break;
236     }
237 }
238
239 };
240
241 public void listenToCV() {
242     new Thread() {
243
244         public void observerStrengthFitness(String uri) {
245
246             CoapClient client = new CoapClient(uri + "/strenghtfitnessmonitor"); // This creates a coap client
247                                     //listen to strengthfitness
248
249             CoapObserveRelation relation1 = client
250                 .observe(myStrenghtFitnessHandler);
251         }
252     }
253
254     @Override
255     public void run() {
256         // TODO Auto-generated method stub
257
258         observerStrengthFitness("coap://192.168.1.12:5683");
259
260     }
261
262     }.start();
263 }
264
265

```

1. Open the  
C:\Users\UserName\git\org.eclipse.om2m\org.eclipse.om2m.site.nsl\target\products\nsl\Op  
eratingSystempath and run the Start.bat file.

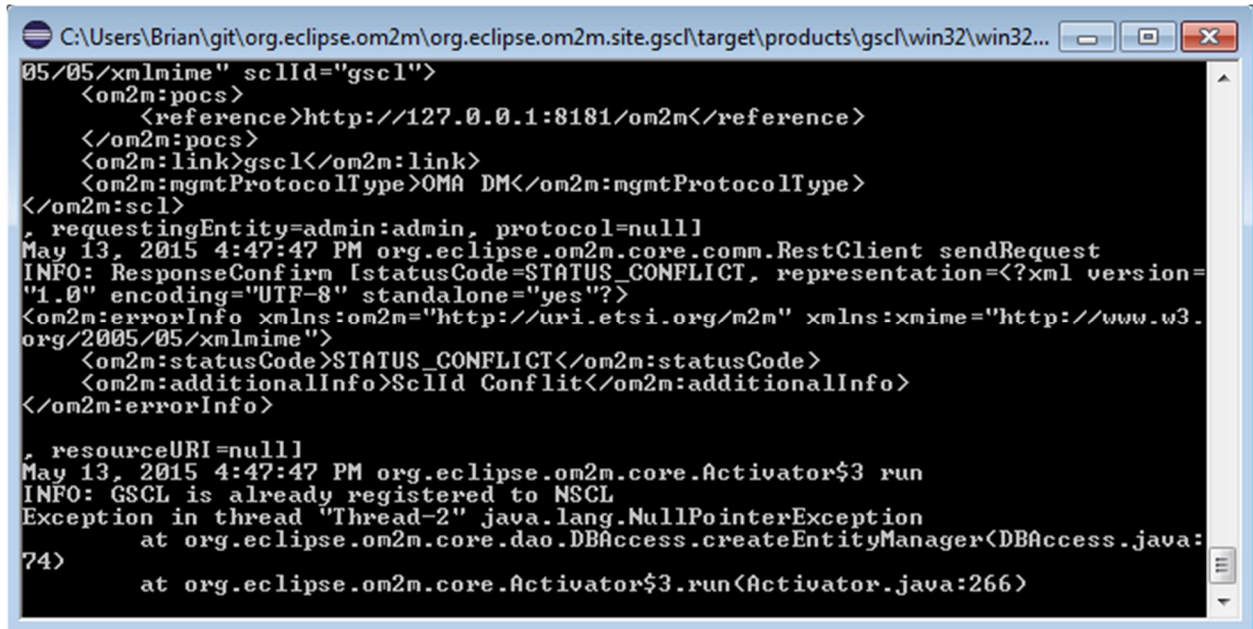
```

C:\Windows\system32\cmd.exe
<om2m:discovery xmlns:om2m="http://uri.etsi.org/m2m" xmlns:xmime="http://www.w3.
org/2005/05/xmldime">
  <om2m:matchSize>2</om2m:matchSize>
  <om2m:discoveryURI>
    <reference>nsl/accessRights/AR_ADMIN</reference>
    <reference>nsl</reference>
  </om2m:discoveryURI>
</om2m:discovery>
, resourceURI=null]
May 13, 2015 4:44:29 PM org.eclipse.om2m.comm.http.RestHttpServlet service
INFO: HttpResponse [statusCode=200]
May 13, 2015 4:44:29 PM org.eclipse.om2m.core.comm.RestClient sendRequest
INFO: ResponseConfirm [statusCode=STATUS_OK, representation=?xml version="1.0"
encoding="UTF-8" standalone="yes"?>
<om2m:discovery xmlns:om2m="http://uri.etsi.org/m2m" xmlns:xmime="http://www.w3.
org/2005/05/xmldime">
  <om2m:matchSize>2</om2m:matchSize>
  <om2m:discoveryURI>
    <reference>nsl/accessRights/AR_ADMIN</reference>
    <reference>nsl</reference>
  </om2m:discoveryURI>
</om2m:discovery>
, resourceURI=null]

```

2. Open the

C:\Users\UserName\git\org.eclipse.om2m\org.eclipse.om2m.site.gscl\target\products\gscl\ OperatingSystempath and run the start.bat file



```
C:\Users\Brian\git\org.eclipse.om2m\org.eclipse.om2m.site.gscl\target\products\gscl\win32\win32...
05/05/xmlmime" sclId="gscl">
  <om2m:pocs>
    <reference>http://127.0.0.1:8181/om2m</reference>
  </om2m:pocs>
  <om2m:link>gscl</om2m:link>
  <om2m:mgmtProtocolType>OMA DM</om2m:mgmtProtocolType>
</om2m:scl>
, requestingEntity=admin:admin, protocol=null]
May 13, 2015 4:47:47 PM org.eclipse.om2m.core.comm.RestClient sendRequest
INFO: ResponseConfirm [statusCode=STATUS_CONFLICT, representation=<?xml version=
"1.0" encoding="UTF-8" standalone="yes"?>
<om2m:errorInfo xmlns:om2m="http://uri.etsi.org/m2m" xmlns:xmime="http://www.w3.
org/2005/05/xmlmime">
  <om2m:statusCode>STATUS_CONFLICT</om2m:statusCode>
  <om2m:additionalInfo>SclId Conflit</om2m:additionalInfo>
</om2m:errorInfo>

, resourceURI=null]
May 13, 2015 4:47:47 PM org.eclipse.om2m.core.Activator$3 run
INFO: GSCL is already registered to NSCL
Exception in thread "Thread-2" java.lang.NullPointerException
    at org.eclipse.om2m.core.dao.DBAccess.createEntityManager(DBAccess.java:
74)
    at org.eclipse.om2m.core.Activator$3.run(Activator.java:266)
```



3. Type SS in gscl command line to list all your om2m projects. Start the project that you want to run by typing in the command line Start [Project Number] as listed in the command line.

- Run the local server IP 127.0.0.1:8080 in the URL of a browser.



username:

password:

Login

5. After you login into the OM2M platform, you can find the medical device resources in gscl directory.

Logout

OM2M SCL Resource Tree

[http://127.0.0.1:8080/om2m/gscl/applications/COAP\\_STRENGTHFITNESS/containers/DESCRIPTOR/contentInstances/CI\\_714906408](http://127.0.0.1:8080/om2m/gscl/applications/COAP_STRENGTHFITNESS/containers/DESCRIPTOR/contentInstances/CI_714906408)

- gscl
  - scls
    - applications
      - applicationCollection
        - COAP\_STRENGTHFITNESS
          - containers
            - containerCollection
              - DATA
                - DESCRIPTOR
                  - contentInstances
                    - contentInstanceCollection
                      - CI\_714906408
                    - subscriptions
                  - subscriptions
                - containerAnnCollection
                - locationContainerCollection
                - locationContainerAnnCollection
                - subscriptions
              - groups
              - accessRights
              - subscriptions
              - notificationChannels
            - applicationAnnCollection
            - subscriptions
            - mgmtObjs
          - containers
            - groups
            - accessRights
            - subscriptions
            - discovery

| Attribute        | Value                                                                                                                                                                                                                                                                                                                                                                                                              |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|------|-----------------|--------|----------------------|--------|----------------------------------------------------------------------------------------------|------------------|---------------------------------------------------|
| creationTime     | 2015-05-13T17:18:04.827+09:00                                                                                                                                                                                                                                                                                                                                                                                      |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |
| lastModifiedTime | 2015-05-13T17:18:04.827+09:00                                                                                                                                                                                                                                                                                                                                                                                      |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |
| delayTolerance   | 2015-05-13T20:38:04.826+09:00                                                                                                                                                                                                                                                                                                                                                                                      |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |
| contentSize      | 402                                                                                                                                                                                                                                                                                                                                                                                                                |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |
| content          | <table><thead><tr><th>Attribute</th><th>Value</th></tr></thead><tbody><tr><td>type</td><td>StrengthFitness</td></tr><tr><td>applid</td><td>COAP_STRENGTHFITNESS</td></tr><tr><td>getDIM</td><td>gscl/applications/COAP_STRENGTHFITNESS/containers/DESCRIPTOR/contentInstances/latest/content</td></tr><tr><td>getState(Direct)</td><td>gscl/applications/COAP_STRENGTHFITNESS/CoapSample</td></tr></tbody></table> | Attribute | Value | type | StrengthFitness | applid | COAP_STRENGTHFITNESS | getDIM | gscl/applications/COAP_STRENGTHFITNESS/containers/DESCRIPTOR/contentInstances/latest/content | getState(Direct) | gscl/applications/COAP_STRENGTHFITNESS/CoapSample |
| Attribute        | Value                                                                                                                                                                                                                                                                                                                                                                                                              |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |
| type             | StrengthFitness                                                                                                                                                                                                                                                                                                                                                                                                    |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |
| applid           | COAP_STRENGTHFITNESS                                                                                                                                                                                                                                                                                                                                                                                               |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |
| getDIM           | gscl/applications/COAP_STRENGTHFITNESS/containers/DESCRIPTOR/contentInstances/latest/content                                                                                                                                                                                                                                                                                                                       |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |
| getState(Direct) | gscl/applications/COAP_STRENGTHFITNESS/CoapSample                                                                                                                                                                                                                                                                                                                                                                  |           |       |      |                 |        |                      |        |                                                                                              |                  |                                                   |

Successful GET Request:

| Name                  | Value                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------------|
| type                  | StrengthFitness                                                                                             |
| applidSS              | COAP_STRENGTHFITNESS                                                                                        |
| SYSTEM_MODEL          | Name : manufacturer Type : string Value : PROMAXIMA Comapany Name : model-number Type : string Value : 1485 |
| SYSTEM_ID             | Name : System-Id Type : hex Value : 2DB1C14CAC475DBD                                                        |
| DEV_CONFIGURATION_ID  | Name : Dev-Configuration-Id Type : intu16 Value : 32677                                                     |
| SYSTEM_TYPE_SPEC_LIST | Name : version Type : intu16 Value : 1 Name : type Type : intu16 Value : 4138                               |