

SupportPac CA0D



IBM General Insurance Application (GENAPP) Mobile Application Sample

SupportPac CA0D



IBM General Insurance Application (GENAPP) Mobile Application Sample

Note

Before using this information and the product it supports, read the information in "Notices" on page 23.

This edition applies to Version 5 Release 1 of CICS Transaction Server for z/OS (product number 5655-Y30) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Preface

IBM® CICS® Transaction Server for z/OS® (CICS TS) is an ideal place to run a mobile service workload because it can scale to fit the growth that mobile demands, while offering added value with services such as Event Processing, which makes non-invasive extensions to applications possible.

You can use the CA0D: IBM GENAPP Mobile Application Sample support pack to help demonstrate how to expose a traditional CICS application to a mobile front end by using IBM Worklight® as the Mobile framework.

This readme file provides an introduction to the GENAPP Mobile Application Sample, and instructions on how to install it.

Chapter 1. GENAPP overview

SupportPac CB12: IBM General insurance application (GENAPP) for IBM CICS TS is a CICS sample that you can use to demonstrate new features and capabilities of CICS while maintaining a traditional style of application. This SupportPac demonstrates a mobile application that interacts with the GENAPP system instead of using a 3270 terminal.

The IBM GENAPP mobile application sample demonstrates how to create an application in the style of that which a customer of the GENAPP insurance company would download and use to check their policies and make claims on the policies.

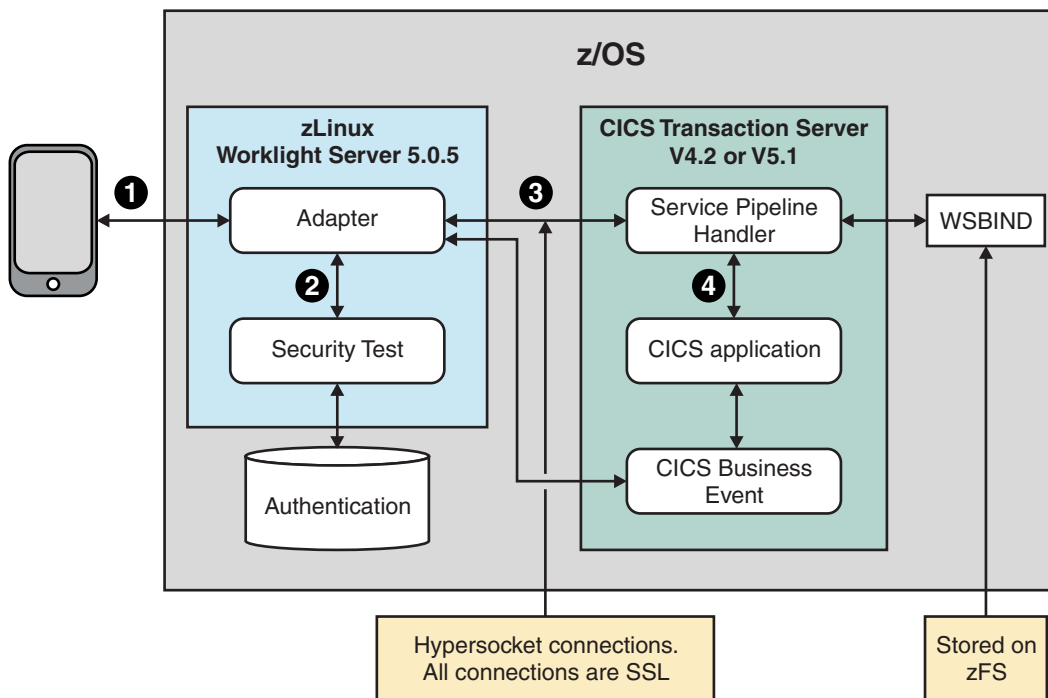


Figure 1. GENAPP mobile application sample architecture diagram

1 and **2** The mobile device connects to IBM Worklight server. Authentication is carried out against an IBM DB2® database that is installed and using table CUSTOMER_SECURE authentication a hashed password for a user is validated.

3 and **4** Communication between the Worklight client and the CICS back end happens through Worklight adapters. An adapter checks authentication and if successful, starts a web service with either SOAP or JSON, by using the CICS TS Feature Pack for Mobile Extensions V1.0.

An example of using the Apple iOS notification framework (APNS) or the Google Android cloud notification framework (C2DM), is included as part of the Worklight project and is driven by the CICS Business Event (GENAPPNotification Event Processing project). The notification that is driven by the CICS Event

Processing event starts a Worklight adapter that is called Claim Notification and sends claim details between users of the application.

Benefits

An example mobile application that is written using Worklight and that communicates with services hosted in CICS TS, which runs on Google Android, Rim BlackBerry, Apple iPhone, and Microsoft Windows phone.

Using the GENAPP mobile application sample a customer can perform the following:

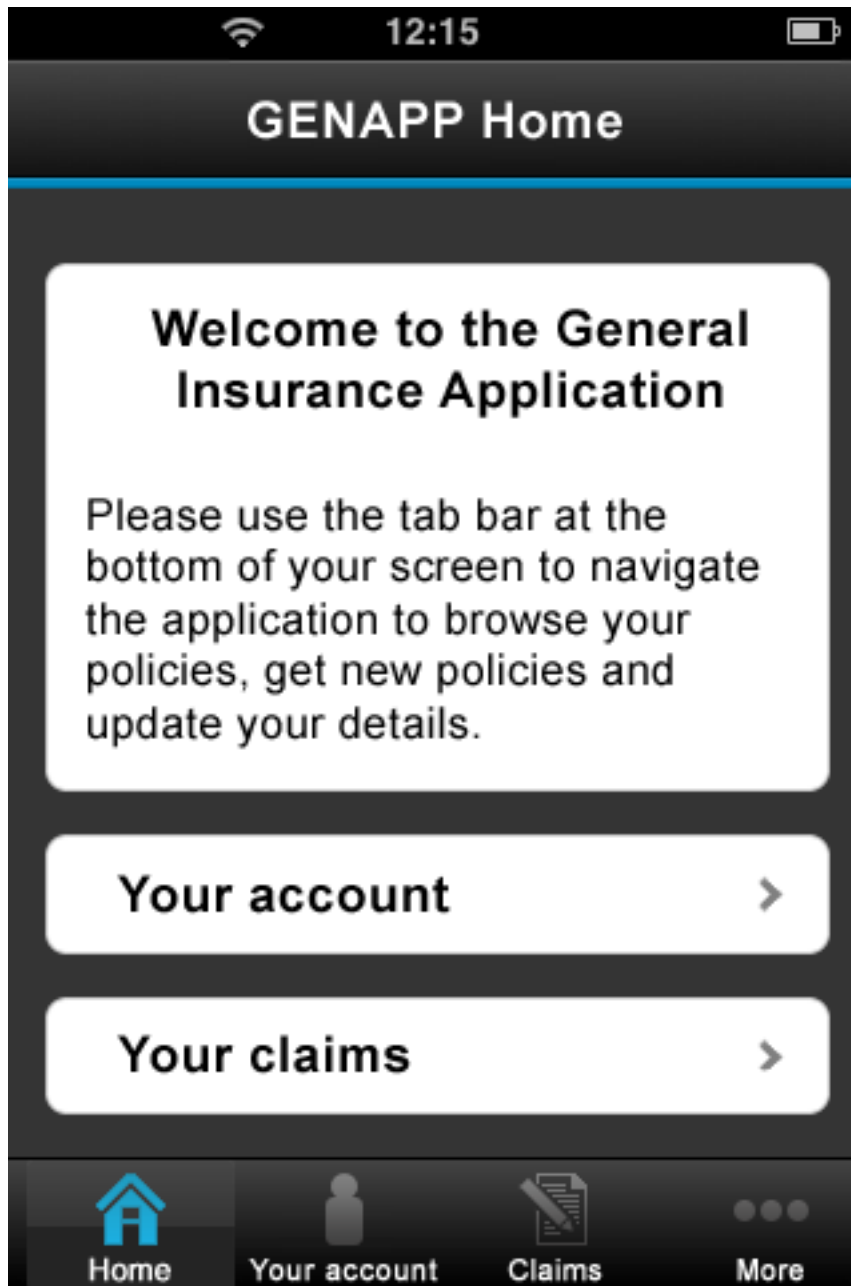
- View their policies (only the single most recently created policy for Home, Car, or Endowment for each user) (This is an example that uses web services SOAP or JSON)
- Purchase a new Home, Car, or Endowment policy if they do not own one (This is an example that uses web services SOAP or JSON)
- Start a claim against another customer (This is an example of push notifications using CICS Event Processing)

Chapter 2. A step by step guide to using the Mobile Application Sample

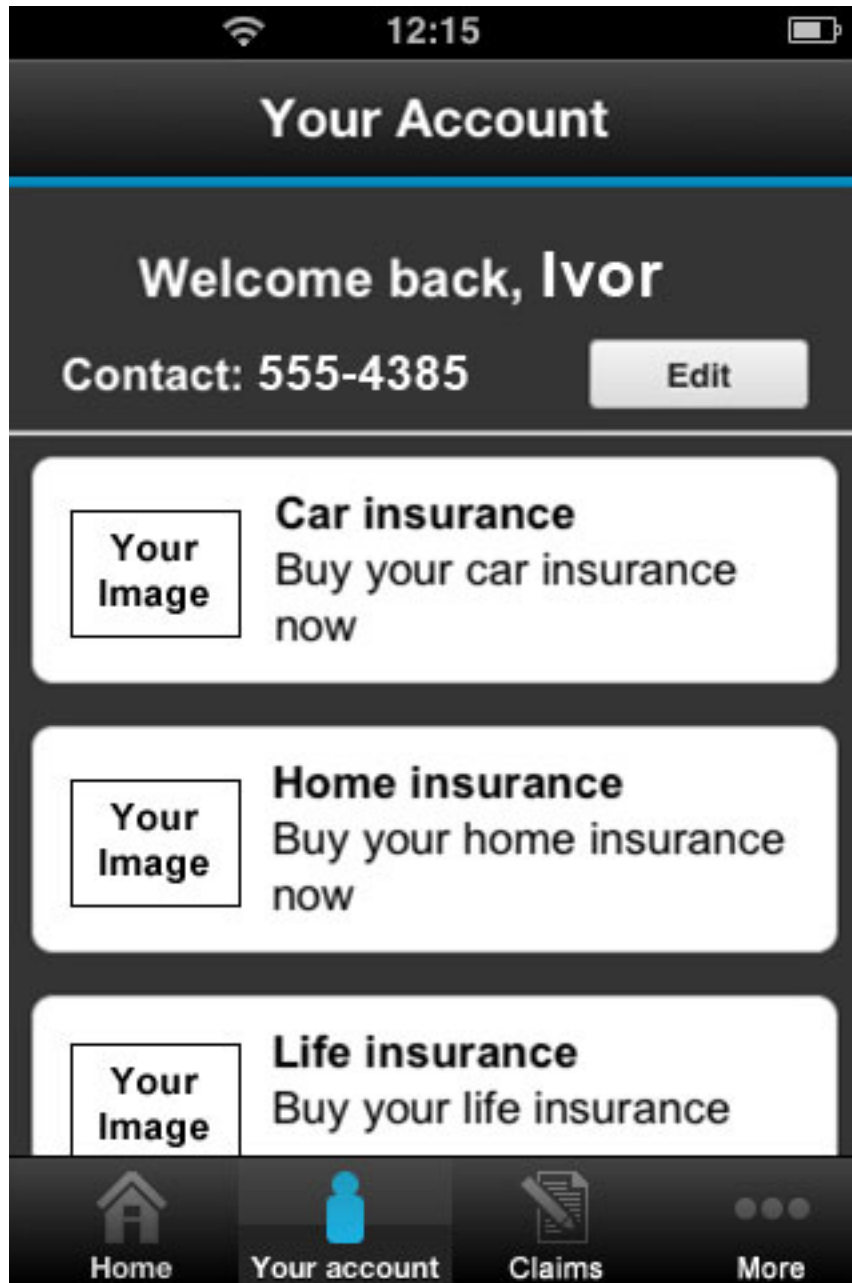
STEP 1: The first screen that is displayed is the login screen. Enter a **Customer Number** between 1 and 10 and a **Password** of "PASSWORD".

The screenshot shows the login interface of the GENAPP Mobile application. The status bar at the top indicates a Wi-Fi connection, the time 12:15, and a battery level icon. The app title 'GENAPP Mobile' is centered at the top. Below the title, the instruction 'Log in to your GENAPP account' is displayed. The login form consists of two text input fields: 'Customer number:' and 'Password:'. Below the password field, there is a 'Remember me?' section with a 'Yes' button. At the bottom of the form, there is a 'Log In' button and a box labeled 'Your Company logo'.

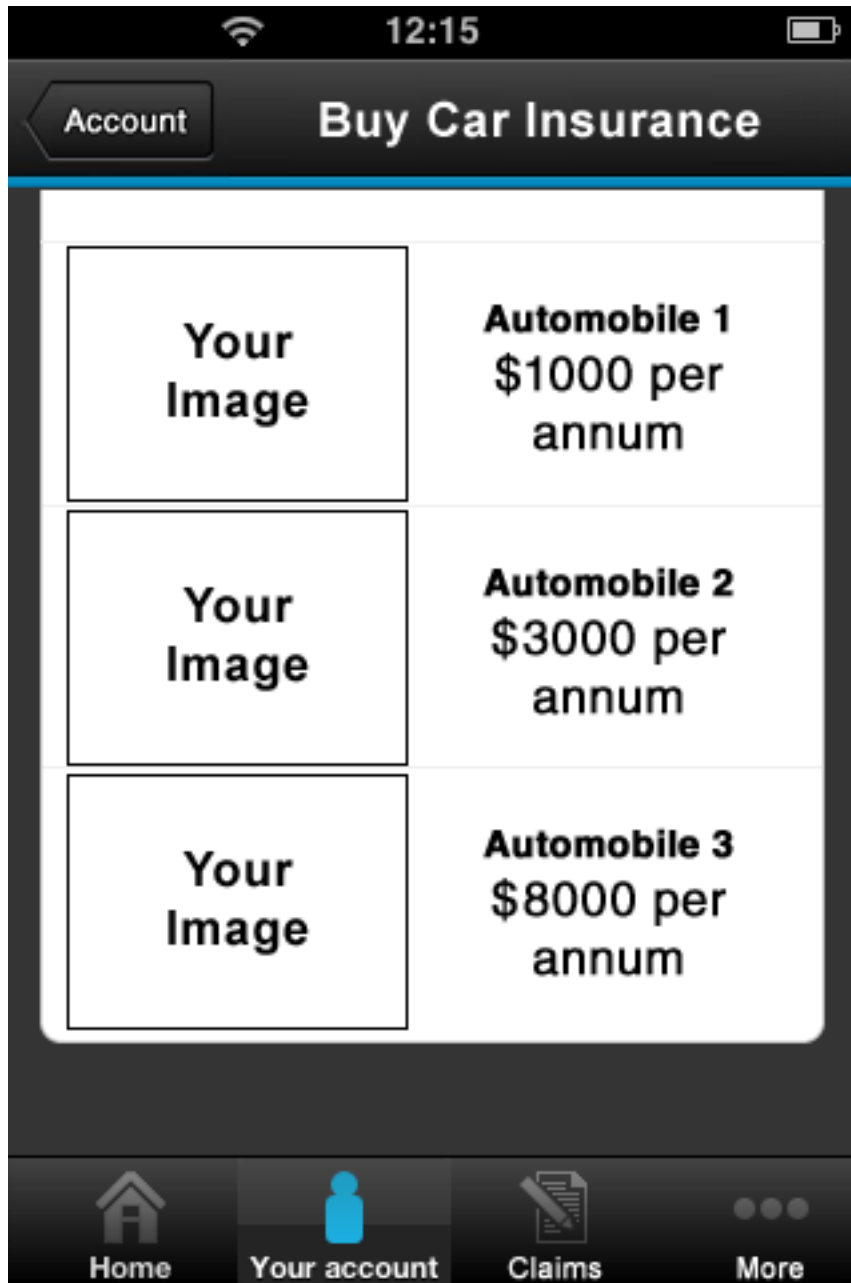
If authentication is successful, the **GENAPP Home** screen is displayed. In the background, the Worklight server has initiated an `inquireCustomer` details and `getPolicies` call, and these calls in turn initiate up to five web services within CICS. One web service for the customer login inquiry, one for the customer information that is returned, and one inquire policy for each of the policy types that are returned.



STEP 2: Press **Your account** to display your account information. In the following example, Ivor has no policies.



The next stage is to buy car insurance. **STEP 3:** Click **Car Insurance** and select one of the example vehicles.



STEP 4: Complete the details and click **Purchase** to buy the insurance policy. The add motor policy web service runs and adds the policy to your account.

The screenshot shows a mobile application interface for buying car insurance. At the top, there is a status bar with a Wi-Fi icon, the time 12:15, and a battery icon. Below the status bar is a dark header with a 'Back' button and the title 'Buy Car Insurance'. The main content area features a table with the following details:

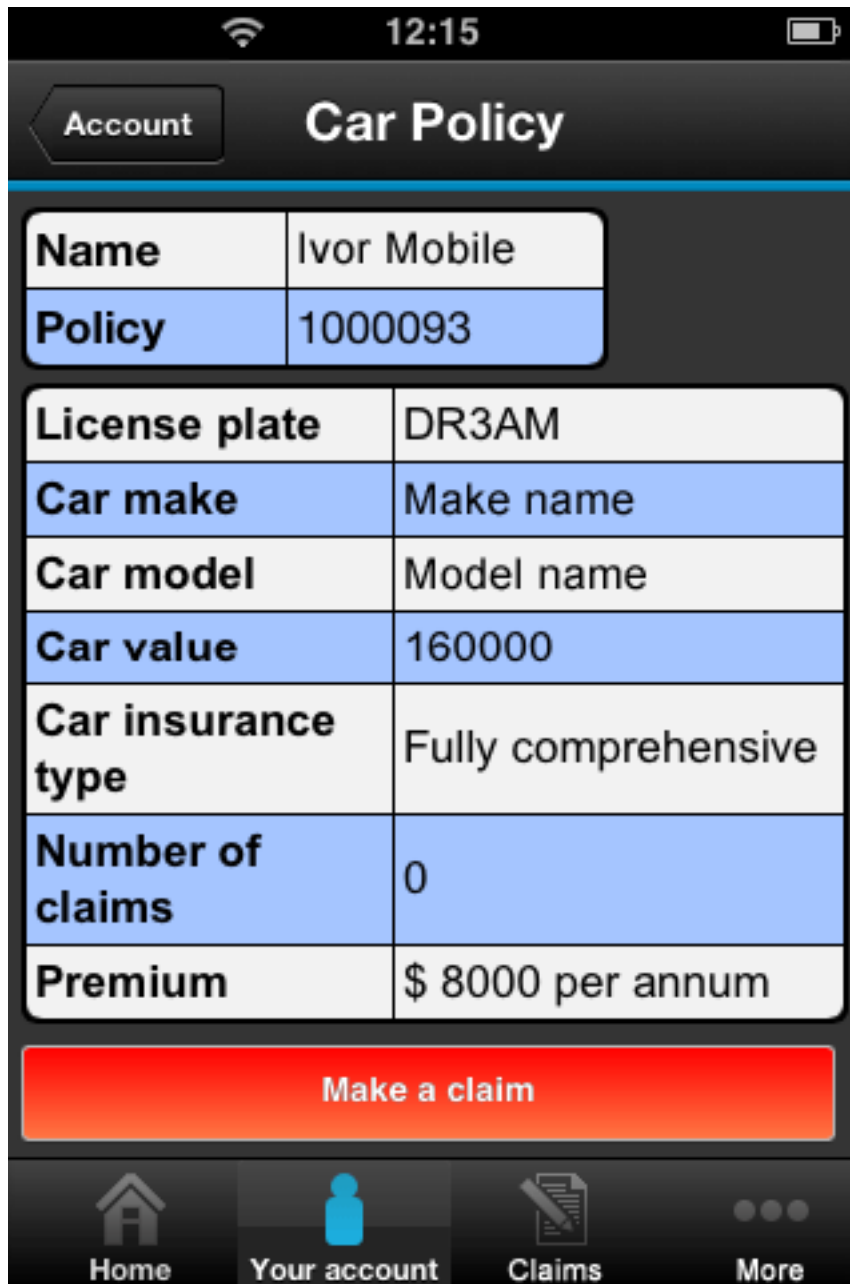
Model	Model name
Car insurance type	Fully comprehensive
Colour	Yellow
Value	\$160000
Price	\$8000 per annum
Duration	1 Year

Below the table, there are two input fields: 'License plate: DR3AM' and 'Number of claims: 0'. A large 'Purchase' button is centered below these fields. At the bottom of the screen is a navigation bar with four icons: 'Home', 'Your account' (highlighted in blue), 'Claims', and 'More'.

STEP 5: After the policy purchase completes the accounts page is displayed. Tap the newly bought policy and you have the option to **Make a claim**. This is the part in the demonstration that issues a notification between the two owners of the car policies.

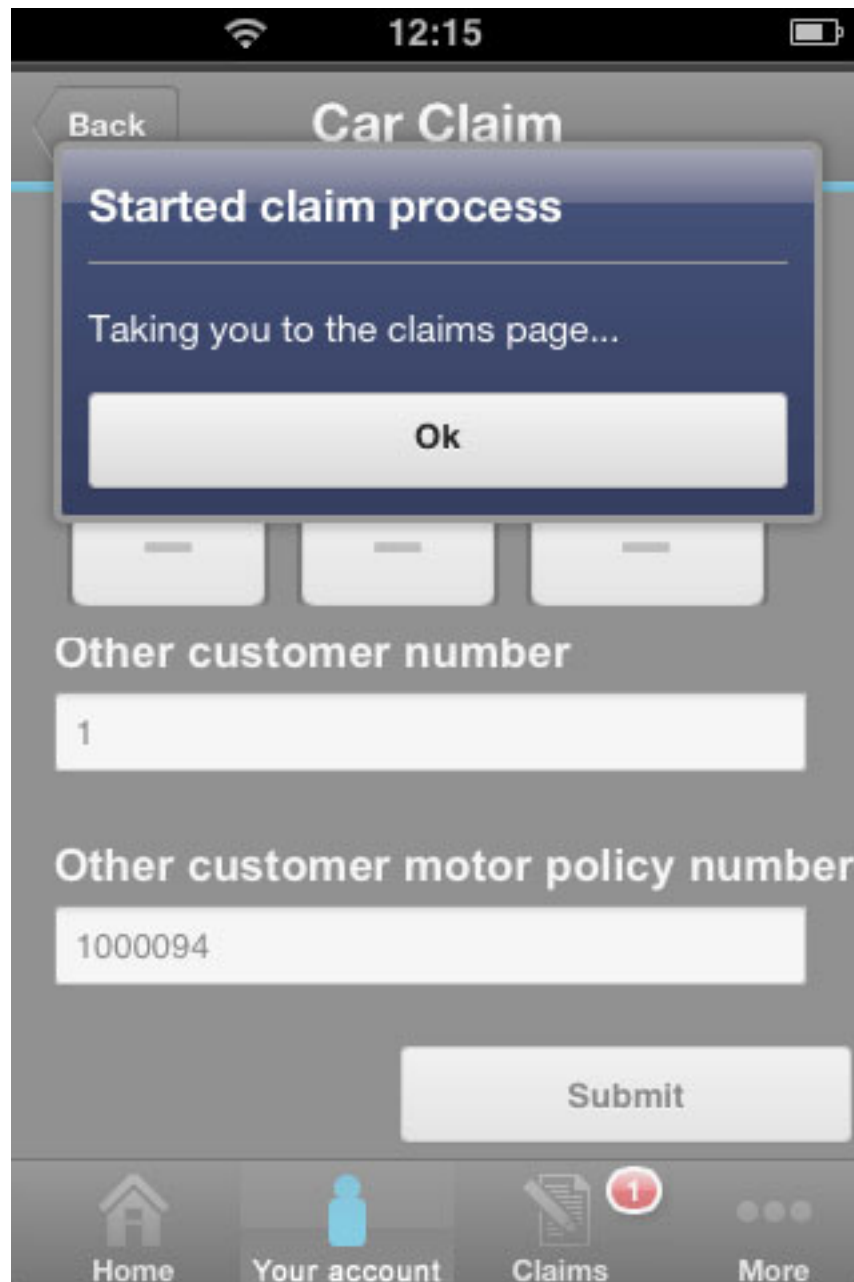
If the application is installed on a second mobile device, make sure that you have the second device signed in as a different user, and both users own car insurance.

STEP 6: Next, press **Make a claim** on either mobile device and complete the other user's customer number (customer 2 in this case) and motor policy number.

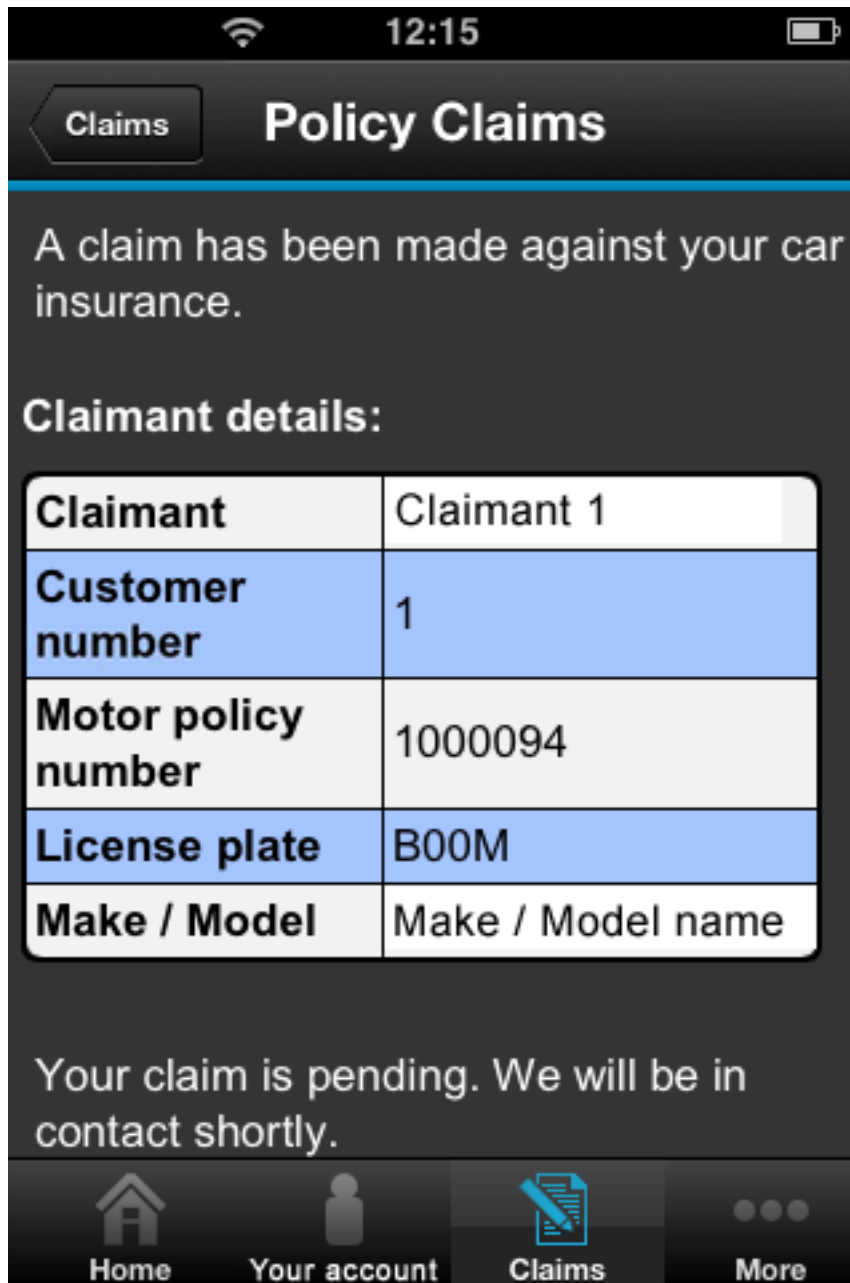


Press **Submit** to start the claim process. CICS makes a call to the ClaimNotification adapter by using an Event Processing HTTP adapter. This adapter issues a message to Apple or Google servers to notify the other user's mobile device (customer 1 in this case) that a claim process has started. When that message arrives on the other mobile device, customer 1 receives a **Started claim process** notification.

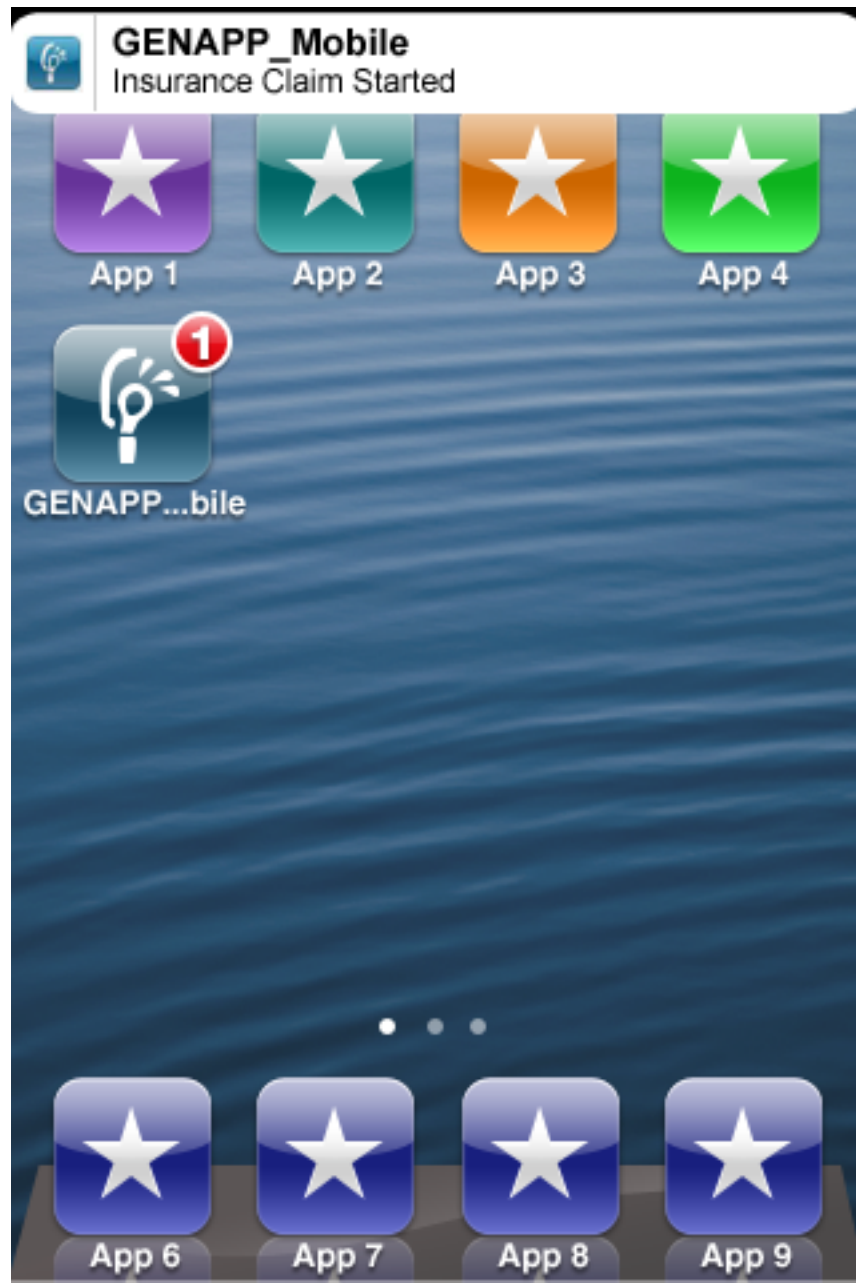
Results: Both devices have now shared the claim participants details and are accessible by looking at the **Claims** tab.



This is the screen on the first device after the details of the other driver have been shared.



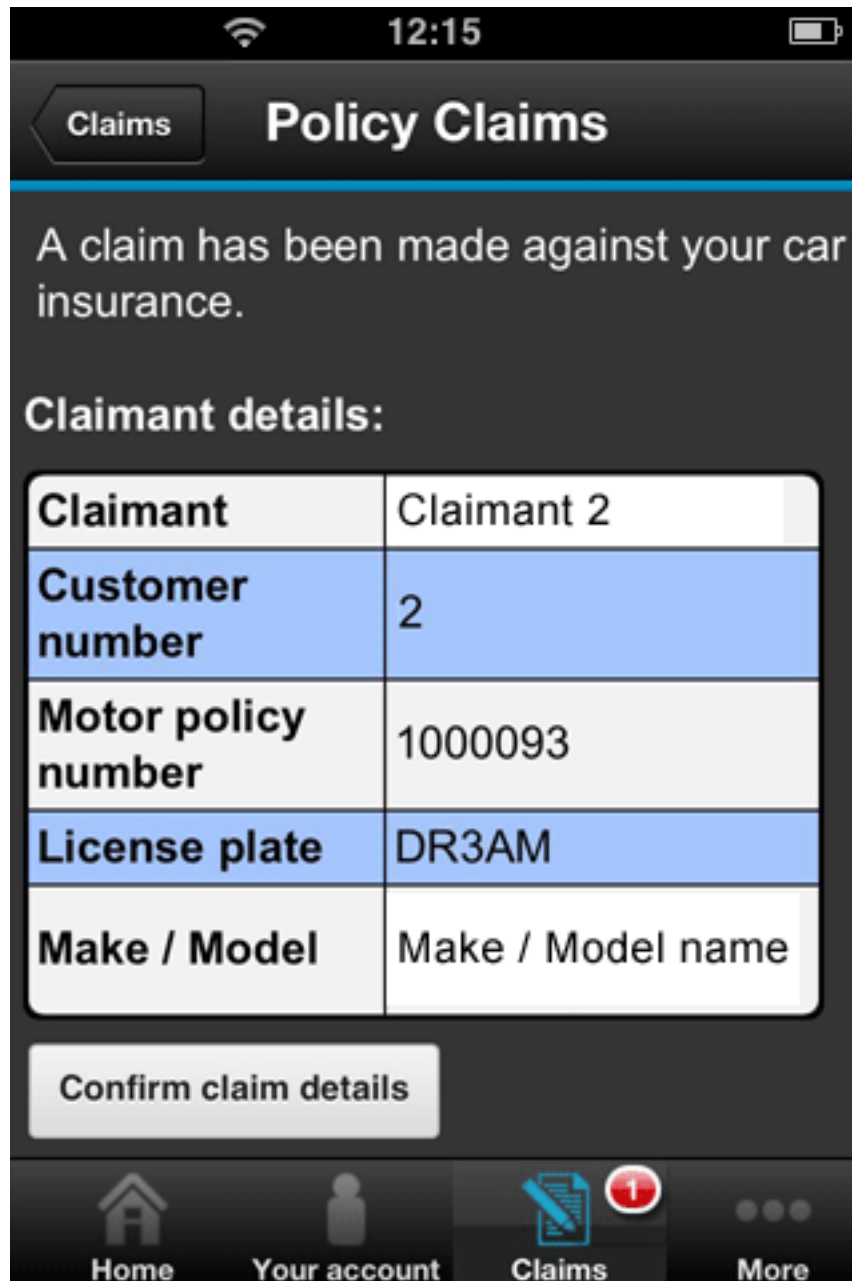
This is the other user's mobile device (customer 2 in this case) after the claim notification has been received. Pressing the notification results in the user being taken to their version of the policy claims page where that user now has the other claim participant's details.



This is the screen for claimant 1 who has been notified about the other claim participant (claimant 2 in this case).

Note: In order for this portion of the demonstration to work the GENAPPNotification Event Processing bundle must be installed and configured as detailed in Chapter 4, "Installing the SupportPac," on page 15.

You must configure access keys for Worklight so that Worklight has the correct permissions to contact Apple and Google servers. For more information, see Configuring the Application Center server for connection to Apple Push Notification Services in the Worklight product documentation.



Chapter 3. Prerequisites

To use the IBM GENAPP Mobile Application Sample, you must have the correct versions of software and service installed.

Your environment must comply with the following prerequisites:

- CB12 GENAPP Base installation must be installed with web service support. For more information, see CB12: SupportPac available from the IBM Support Portal.
- Worklight Developer Edition Version 6.1
- CICS Explorer[®] SDK
- IBM 64-bit SDK for IBM z/OS, Java[™] Technology Edition

Chapter 4. Installing the SupportPac

Follow these steps to install the IBM GENAPP Mobile Application Sample.

Configuring CICS

CICS artifacts are needed for the services that are used in GENAPP Mobile Application Sample. The instructions for the definitions and projects follow.

Before you begin

Unpack the CA0D support pac.zip file, which contains all the SupportPac source and artifacts that are used in this sample.

You must complete the following steps before you perform this task:

1. Download Eclipse Juno 4.2.2 SR2 from Eclipse.org.
2. Install Worklight version 6.1 downloaded from ibm.com® into Eclipse Juno 4.2.2.
3. Install CICS Explorer SDK downloaded from IBM Support Portal following scenario 4 or scenario 5 into Eclipse Juno 4.2.2.
4. Import unzipMeForProjects.zip as an existing project archive file.
5. Import GENAPP Mobile Sample.zip as an existing project archive file.
6. Create a CICS V4.2 target platform. Create a target platform for your version of CICS where the CB12 application is installed. For more information, see Creating the JCICS examples in the CICS product documentation.

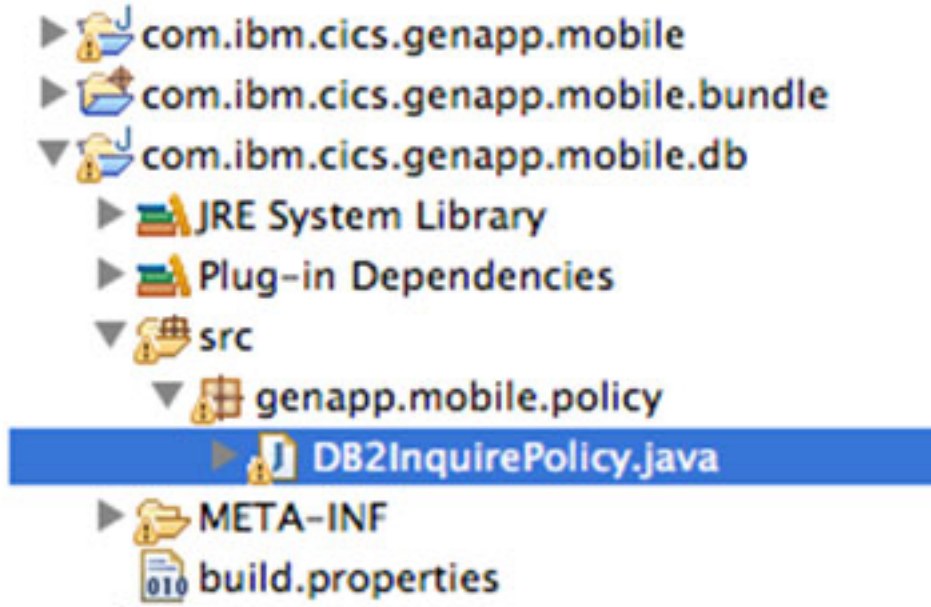
About this task

To configure CICS, you must add some CICS components that are specific to the mobile application.

Procedure

1. Ensure that your JVM server is set up to access DB2 and OSGi. For more information, see Requirements to support Java programs in the CICS DB2 environment in the CICS product documentation or *Chapter 3. Setting up a Java virtual machine server* in IBM Redbooks® publication IBM CICS and the JVM Server Developing and Deploying Java Applications.
2. Build and deploy your application. Open GENAPPMobileSample project then open apps. Right-click **GENAPP_MobileSample** and select **Run As > Run on Worklight Development Server**.
3. Alter the *DBName* variable in the DB2InquirePolicy Java file in the com.ibm.cics.genapp.mobile.db package.

```
public class DB2InquirePolicy
{
    public static void main(String[] args)
    {
        String DBName = "GENAPP1";
        Task t = Task.getTask();
    }
}
```



so that *DBName* represents the database ID (DBID) that you installed as part of the GENAPP installation.

If you choose to use an alternative JVMServer name, you must alter the mobile.osgibundle file in the com.ibm.cics.genapp.mobile.bundle and the db.osgibundle file in the com.ibm.cics.genapp.mobile.db.bundle so that:

```
<osgibundle symbolicname="com.ibm.cics.genapp.mobile"
version="1.0.2" jvmserver="SERV1"/>
```

SERV1 **1** represents the name of the JVMServer in both of those files.

- a. Export both com.ibm.cics.genapp.mobile.bundle and com.ibm.cics.genapp.mobile.db.bundle by right clicking the project and selecting **Export project to z/OS Unix File System**. Place these bundles in a similar directory to your wsdir. The directory must be accessible by CICS.

Note: The z/OS FTP connection must be active to perform this step.

4. Install two new bundle definitions in CICS:

```
Bundle      ==> GENAPMOB
BUndledir   ==> exportedDir/com.ibm.cics.genapp.mobile.bundle_1.0.0
Bundle      ==> GENAPDBM
BUndledir   ==> exportedDir/com.ibm.cics.genapp.mobile.db.bundle_1.0.0
```

5. Install two new program definitions in CICS:

```
PROGram      : IPDBMOB
EXECKey      ==> Cics
COncurrency  ==> Required
JVM          ==> Yes
JVMClass     ==> genapp.mobile.policy.DB2InquirePolicy
JVMServer    ==> SERV1 1

PROGram      : IPPROGMB
EXECKey      ==> Cics
COncurrency  ==> Required
JVM          ==> Yes
JVMClass     ==> genapp.mobile.policy.InquirePolicy
JVMServer    ==> SERV1 1
```

- 6.

Results

The two CICS bundles and program definitions are installed into CICS.

What to do next

You must configure Worklight to use the CA0D: IBM GENAPP Mobile Application Sample.

Configuring Worklight

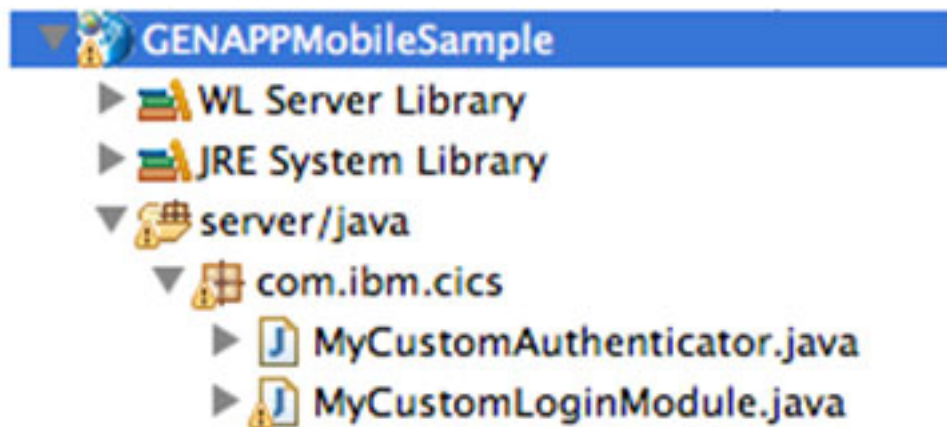
The Worklight part of the application consists of two parts. A mobile application client and a server component. The mobile client communicates with the Worklight server. The Worklight server communicates with the services hosted in CICS using Worklight adapter calls, starting CICS web services.

Before you begin

Open the GENAPP Mobile Sample project in Eclipse Juno 4.2.2.

Procedure

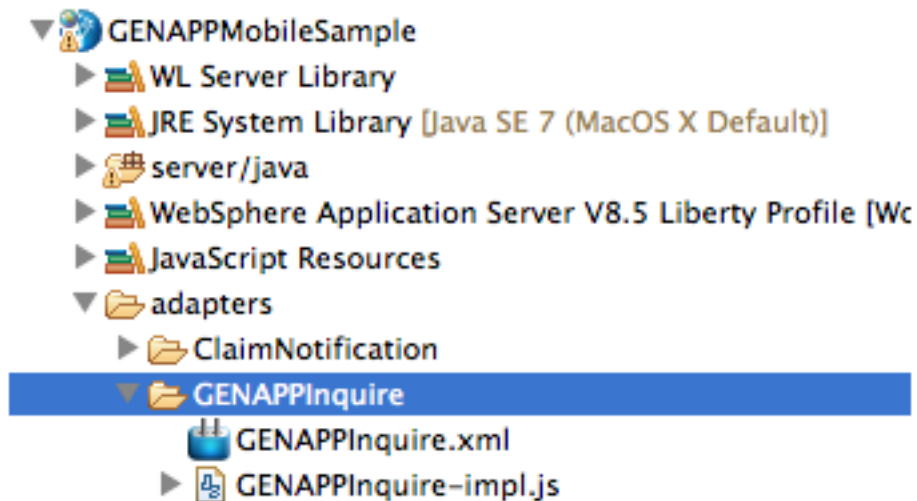
1. Open the GENAPPMobileSample project, open the MyCustomLoginModule.java file and alter the following parameters to meet your system and installation requirements.



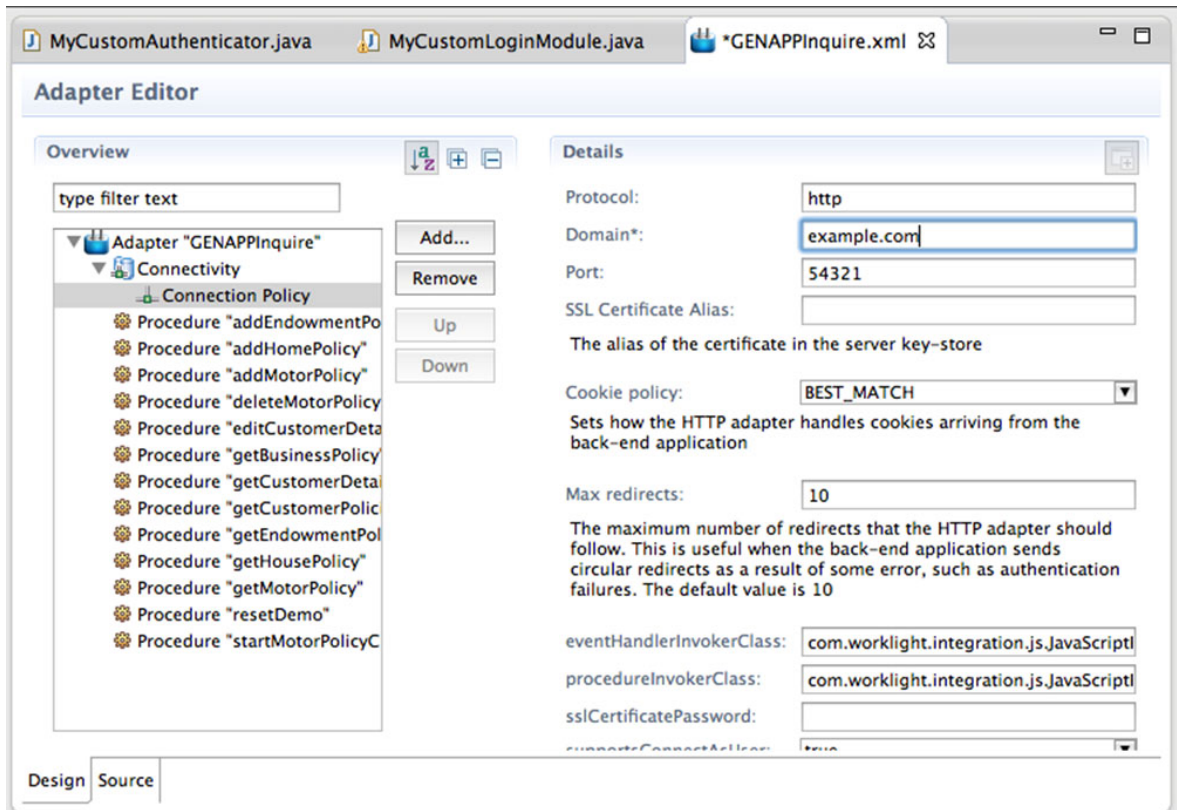
```
private boolean connectDB2(String username,String password)throws SQLException{
    String host = "example.com";           //hostname of the DB2 instance
    String port = "448";                   //SVCEHOST DB2 TCPPOINT param of the DB2 instance
    String subsystem = "DB2SYSID";        //DB2 z/OS location name
    String DBUsername = "DBUSER";         //DB2 DB User
    String DBPassword = "dbpwd";          //DB2 DB User password
    String Database = "GENAPP1";          //DB2 DB Database name
```

Note: There are two options for Worklight and this application:

- If you choose to use SOAP web services, you can use the GENAPPInquire adapter, which is fully functional and ready for use by the mobile application. Using GENAPPInquire, you will be requesting and receiving SOAP payloads from CICS and Worklight will automatically transform the SOAP responses into JSON.
 - If you installed the CICS TS Feature Pack for Mobile Extensions V1.0 or are running CB12 in a CICS V5.2 region where the Mobile Extensions Feature Pack is integrated into base CICS and want to use the feature pack for interaction between the mobile application and CICS, you can find an example of JSON interaction with CICS in the GENAPPInquire adapter. The example is a commented out version of the getCustomerDetails procedure function. To use the example, comment out the exiting implementation (which is using SOAP) of this function and uncomment the commented out version. Once this is completed you must generate new a web service by using DFHLS2JS for the getCustomerDetails service. For more information, see the *CICS TS Feature Pack for Mobile Extensions V1.0* product documentation.
2. Open the adapters folder, then the GENAPPInquire folder, and open the GENAPPInquire.xml file.



3. Alter the **Domain** and **Port** for the web service by selecting **Connectivity > Connection Policy** and completing the fields that are shown below:



Make sure that the **Domain** and **Port** for the web service match the defined TCPIP service definition in the CICS host. When you have completed your alterations, save your changes.

4. Clean your project. Click **Project > Clean** Select **Clean all projects** and click **OK**.

5. Build your application. To build a Worklight application, you must have a Worklight environment that is defined for the application.

Each Worklight environment correlates to a platform. For example, Apple iOS, Google Android, or Rim BlackBerry. You will need the SDKs for each chosen Worklight platform on the same machine as Worklight Studio to successfully build the application.

If you do not have any mobile platform SDKs ready for use, you can choose **Mobile WebApp** or **Desktop browser web page** by selecting the appropriate check boxes. For more information about adding a Worklight environment, see *Setting up a new IBM Worklight environment for your application* in the Worklight product documentation.

6. Compile your application by right clicking the GENAPP_Mobile_Sample in the apps folder and selecting **Run as > Run on Worklight Development Server**. The Worklight application should now be accessible using your browser. In the Eclipse Worklight Development Server Console the following messages are displayed (the details of the messages may vary depending on your environment):

```
Listening for transport dt_socket at address: 10777
Launching worklight (WebSphere Application Server 8.5.5.0/wlp-1.0.3.20130524-0951) on Java
[AUDIT ] CWWKE0001I: The server worklight has been launched.
[AUDIT ] CWWKZ0058I: Monitoring dropins for applications.
[AUDIT ] CWWKT0016I: Web application available (default_host): http://192.168.0.2:10080/
[WARNING ] Using empty value for configuration property 'ssl.keystore.path'
[WARNING ] Using empty value for configuration property 'ssl.keystore.password'
```

```

[AUDIT ] CWWKZ0001I: Application GENAPPMobileSample started in 6.417 seconds.
[AUDIT ] CWWKT0016I: Web application available (default_host): http://192.168.0.2:10080/_Mo
[AUDIT ] CWWKZ0001I: Application _MobileBrowserSimulator started in 0.068 seconds.
[AUDIT ] CWWKF0011I: The server worklight is ready to run a smarter planet.

```

The Worklight Console displays the following messages (the details of the messages may vary depending on your environment):

```

[2014-05-29 12:42:09] Starting build process: application 'GENAPP_Mobile_Sample', al
[2014-05-29 12:42:28] Application 'GENAPP_Mobile_Sample' with all environments bu
[2014-05-29 12:42:28] Deploying application 'GENAPP_Mobile_Sample' with all envin
[2014-05-29 12:42:31] Application 'GENAPP_Mobile_Sample' deployed successfully wi

```

The Worklight application should now be accessible by browsing to the URL as specified in the message in the Worklight Console in Eclipse. If the application works by using one of the emulator environments, you might want to move the application across to a Worklight server installation. Before attempting to log into the application, deploy the Worklight adapter as detailed in step 7 here.

7. Open GENAPPMobileSample **project > adapters** and right-click the GENAPPInquire folder, select **Run As** and select **Deploy Worklight adapter**.
8. Optional: Deploy your application to the Worklight server.

Note: This step applies only if you have a Worklight license with Worklight server installed and you want to migrate your application from test to production environment.

- For information about migrating from Worklight Studio to a dedicated Worklight server, see *Deploying an application from development to a test or production environment* in the Worklight product documentation.
- For information about deploying a local Worklight project to the server, see *Transporting Worklight applications to test and production environments* in the Worklight product documentation.

Remember: If you are running the application on a physical mobile device, remember to update the Worklight server URL that any mobile devices are connecting to by going to the **Settings** app on the Apple iPhone and selecting GENAPP_Mobile_Sample and setting it to use a custom URL and likewise for Google Android devices.

You can also build the App to point to a test or production Worklight server by right clicking the GENAPP_Mobile_Sample folder in the apps folder, and selecting **Run As > Build Settings** and **Deploy Target**. After alter the settings and then rebuild the application.

Results

You have deployed the GENAPP_Mobile_Sample application.

You can check the deployed application from a browser <http://localhost:10080/GENAPPMobileSample/console> and press enter.

1. Click **Preview as Common Resources**.
2. Enter a customer number. For example, 1.
3. Enter a password. For example, PASSWORD and click **Login**.

Note: The “0” in PASSWORD is a zero.

4. Click **Your account** and click **Edit** to review your details.

What to do next

Perform the optional event processing setup task if you want to use the notification element of this SupportPac sample.

Optional: Configuring Event Processing (EP)

Event processing is used in this example to drive notifications on the mobile devices by using the Worklight API to communicate with the Apple iOS notification framework (APNS) and the Google Android notification framework (C2DM) from one API. When a claim process begins, a notification arrives on the mobile device of the other application user for the claim, and shares the details of the other driver.

Before you begin

You must complete the steps for “Configuring Worklight” on page 17.

About this task

This event processing setup task is optional and is required only for the notification element of the demonstration.

Procedure

1. Set up CICS Event Processing. CICS Event Processing is used to alert a user that a claim has been made against them (if possible).
 - a. Extract the eventBinding.zip and import the project into Eclipse Juno 4.2.2 with CICS Explorer SDK installed.
 - b. Export the GENAPPNotification by right clicking the project and selecting **Export project to z/OS Unix File System**. Place this project in a similar directory to your wsdir. The directory must be accessible by CICS.

2. Install one new bundle definition inside of CICS:

- Name: GENAPPEP – exportedDir/GENAPPNotification

Verify that a new event binding and event processing adapter have been installed:

- In the CICS Explorer, click **Operations view > Event Processing > Event Bindings**. This view displays the installed event bindings.
 - In the CICS Explorer, click **Operations view > Event Processing > EP Adapters**. This view displays the installed EP adapters.
- or
- Log on to CICS and issue the **CEMT I EVENTBINDING** command. This command displays the installed event bindings.
 - Log on to CICS and issue the **CEMT I EPADAPTER** command. This command displays the installed EP adapters.
3. Create a URIMAP called NOTIFY2. This defines the URIMAP NOTIFY2 so that CICS can do an HTTP Post to the Worklight Server when the event binding conditions are met.

```
Usage:Client
Scheme:HTTP
Port:9080 (Your Worklight Server port)
Host:www.example.com (Your Worklight server hostname)
Path:/worklight/invoke?adapter=ClaimNotification&procedure=submit
Notification&parameters=%5b%5d
```

Note: If you change the name of the URIMAP from NOTIFY2 to something else, you must update the EPAdapter file in the GENAPPNotification project. In order for notifications to be used in a Worklight project, you must configure your GENAPP Mobile Worklight project according to the developerWorks® instructions in *IBM Worklight: Getting started with IBM Worklight V6.0* Push notifications. You can download the associated Worklight demonstration project for that documentation from developerWorks in *IBM Worklight: Getting started with IBM Worklight V6.0: Worklight demonstration project download*.

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IBM General Insurance Application (GENAPP) Mobile Application Sample

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