

Supplemental File

Tutorial to access and customize the Software

A Google-based freeware solution for archaeological field survey and on-site artifact analysis.

1. Google account

Since not everybody uses Google as their main e-mail provider we found relevant to let clear that none of the procedures below will work without having a Google account. It is fairly easy to do, it is free, and it has the advantage of giving access to all the services provided by the company, including Google Docs, Google Drive, etc.

Your e-mail and password will be used to login to all platforms involved in our system.

2. Customizing our apps

The mobile apps used in our solution are freeware and thus totally customizable. As mentioned in the main text the customization of the apps does not require users to have deep knowledge of software programming since they were created in MIT App Inventor platform. The first contact with this platform can be challenging but there are currently a very reasonable number of online tutorials and textbooks (see main bibliography for some references) who can introduce new users to the way MIT App Inventor works. To customize our apps you will need to access and login (with Google account credentials) the platform at www.ai2.appinventor.mit.edu. Then you will have to download the configuration files available at Mendeley Data repository (see main text for reference). After that you just need to import the .aia file into MIT App Inventor (see Step 1 of point 2.2. below) and start dealing with the customization. For any further details on the apps and customization please contact J. Cascalheira (jmcascalheira@ualg.pt).

3. Using our apps with Fusion Tables (online mode)

3.1. Create Table and acquire necessary information

Fusion Tables are a great cloud-based way to hold data for your App Inventor app. Before you can use Fusion Tables, you need to set up several things:

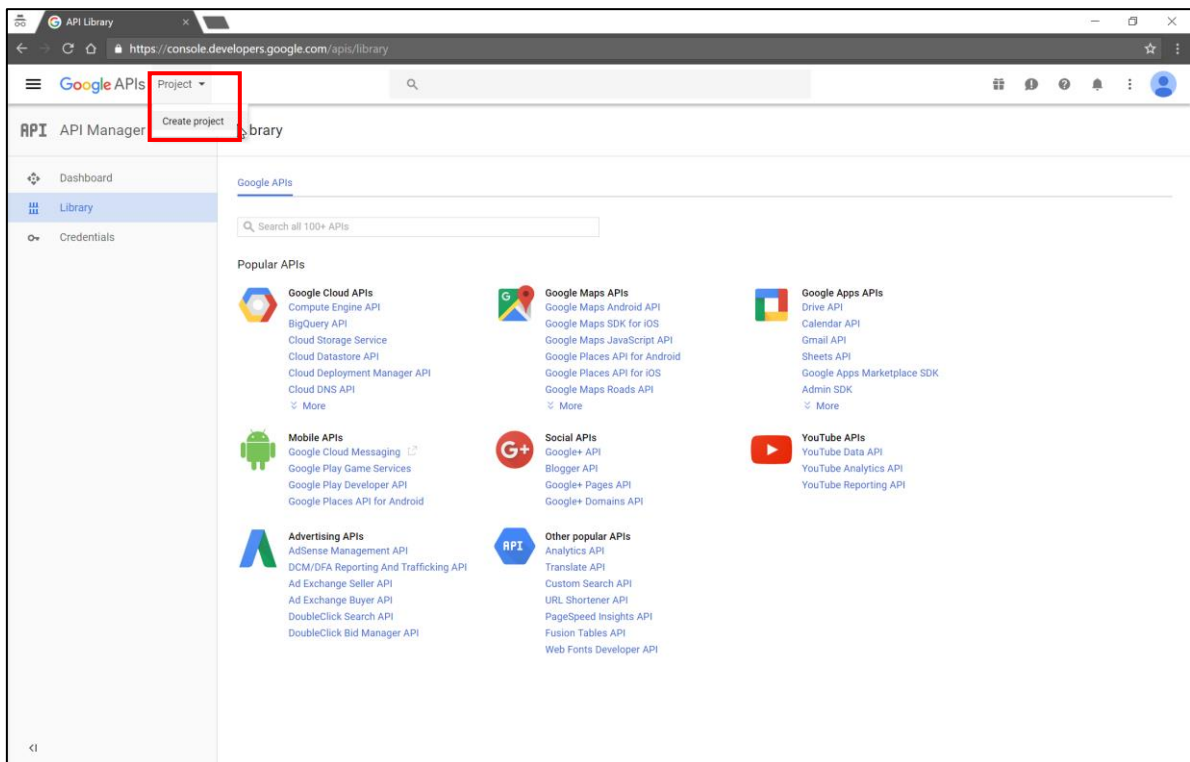
1. Create Google Developers account;
2. Create a project under that account;
3. Set up the project to be able to use the Fusion Tables API;
4. Create a service account for the project;
5. Create a Fusion Table and associate it with the Service account;

Stages 1 through 4 are done using the Google Developer console at:

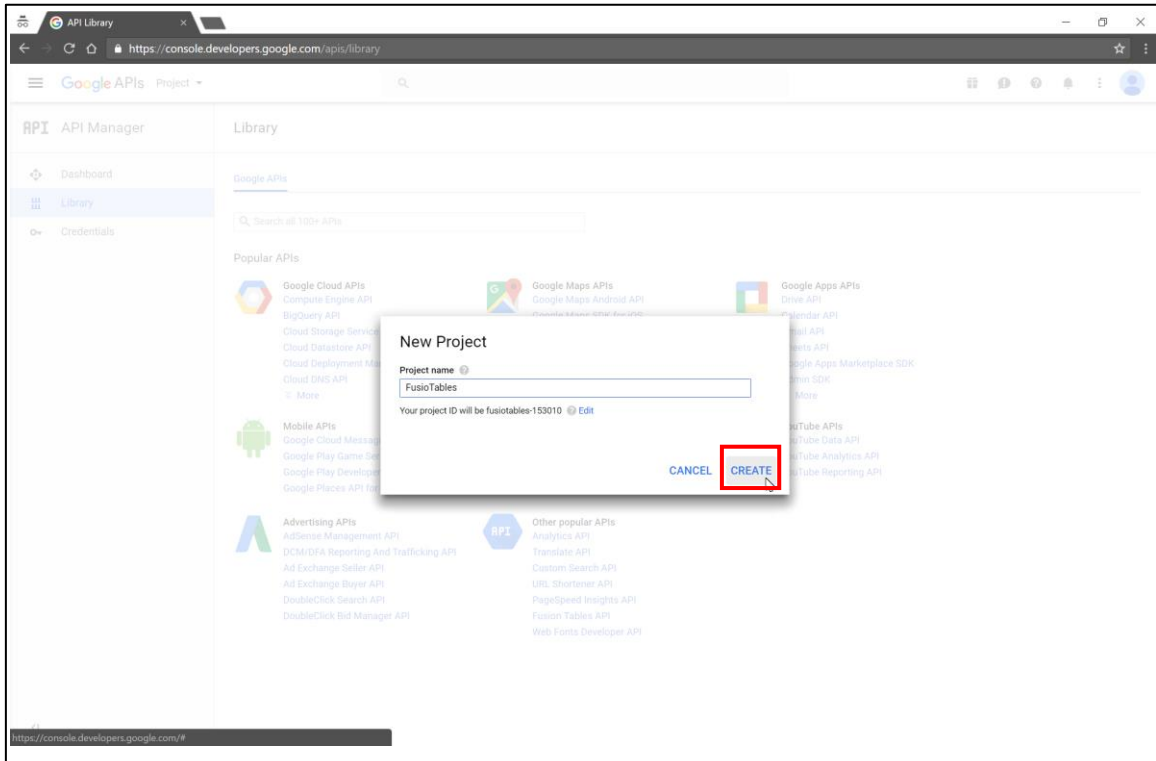
<https://console.developers.google.com>.

Below are 10 screenshots that will guide you through the complete process.

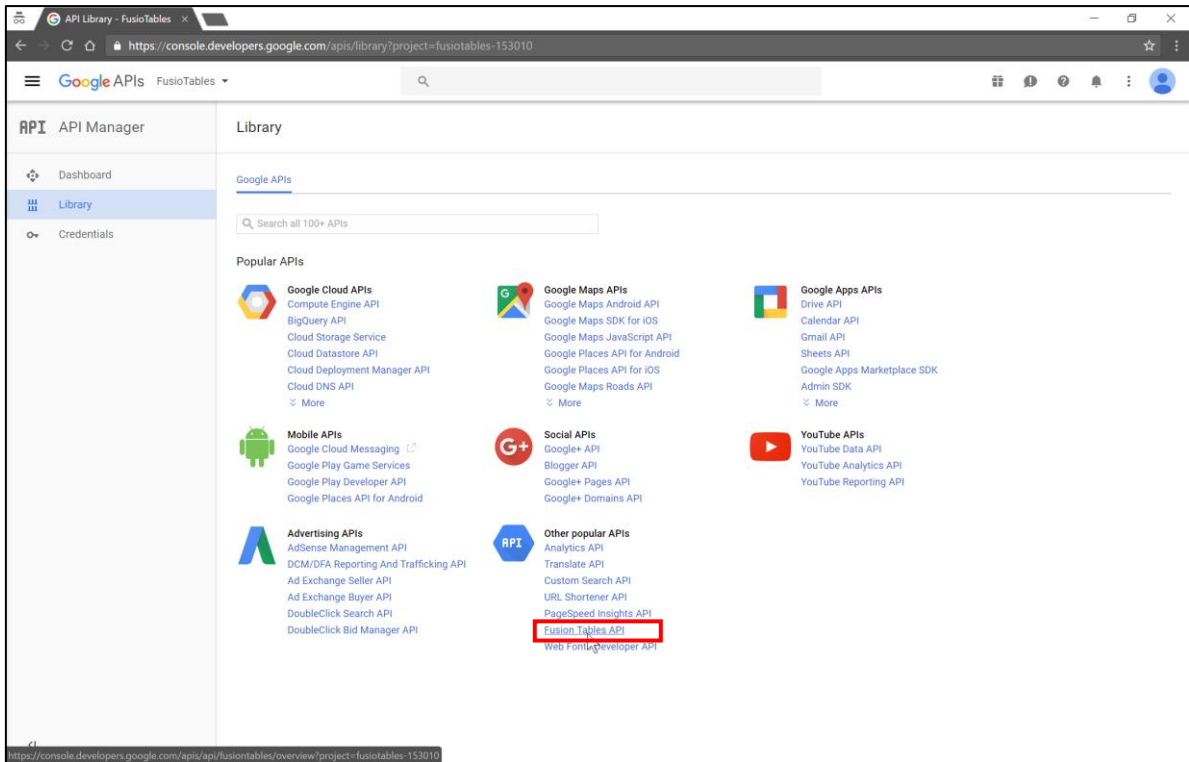
STEP 1 – Create new project



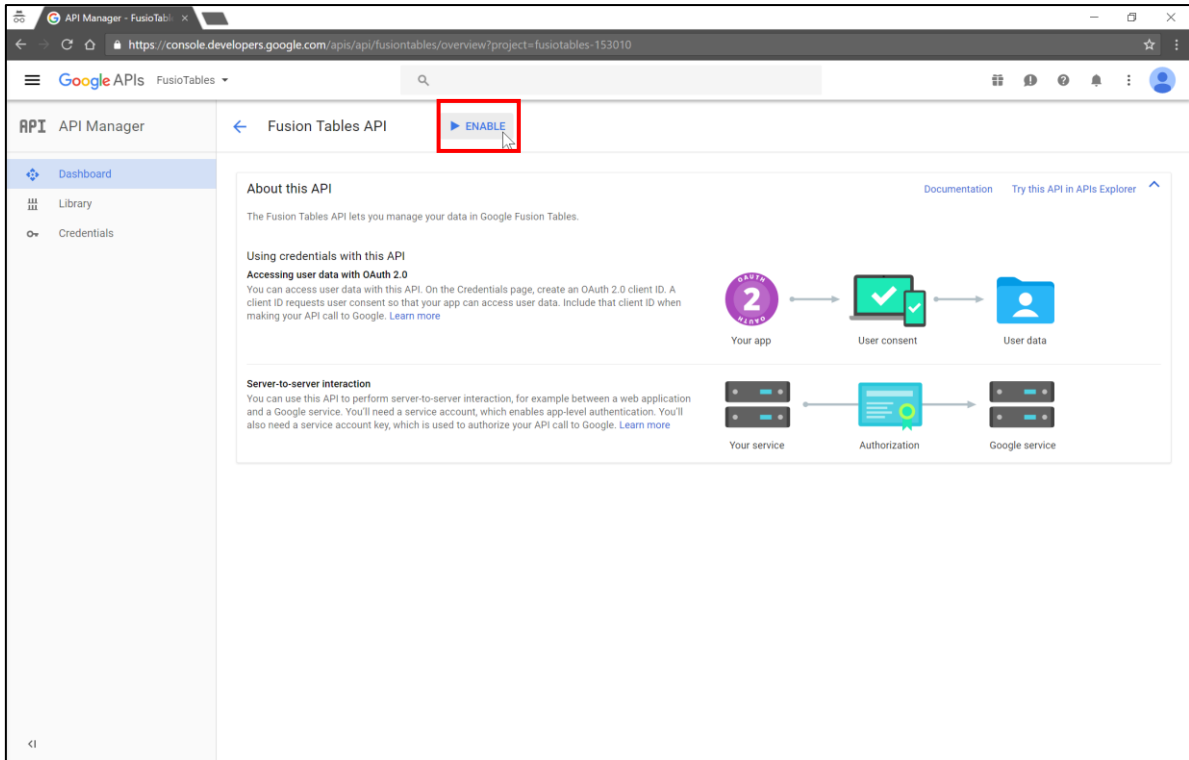
STEP 2 – Name project FusionTables



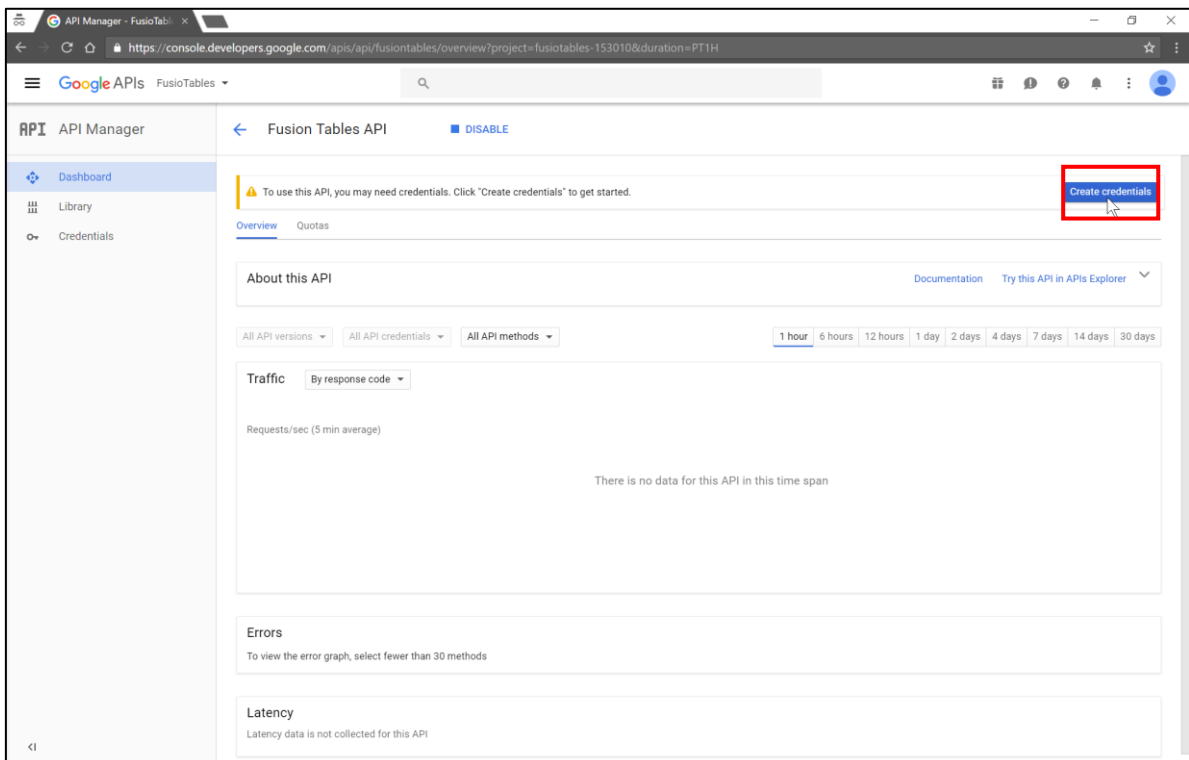
STEP 3 – Open Fusion Tables API



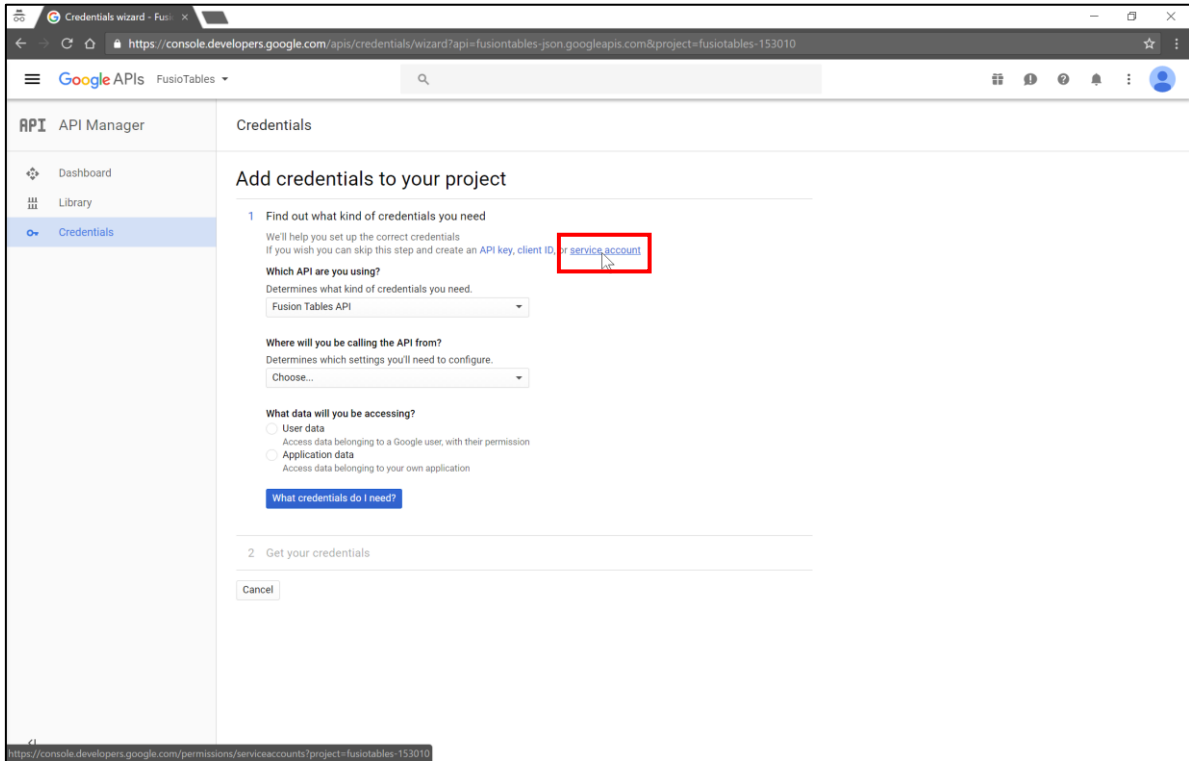
STEP 4 – Enable Fusion Tables API



STEP 5 – Create credentials



STEP 6 – Create Service Account



STEP 7 – Create Service Account (cont.)

Create service account

Service account name ? **Role** ?

Service account ID

Furnish a new private key
Downloads a file that contains the private key. Store the file securely because this key can't be recovered if lost.

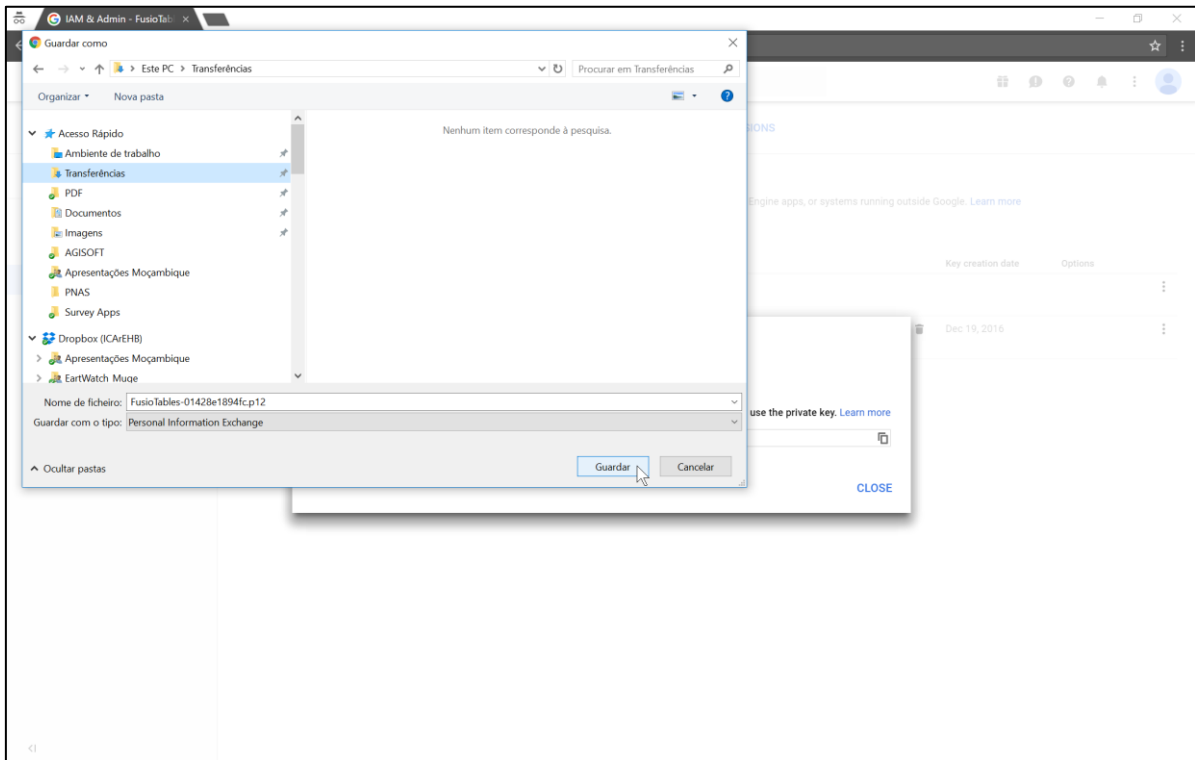
Key type

JSON
Recommended

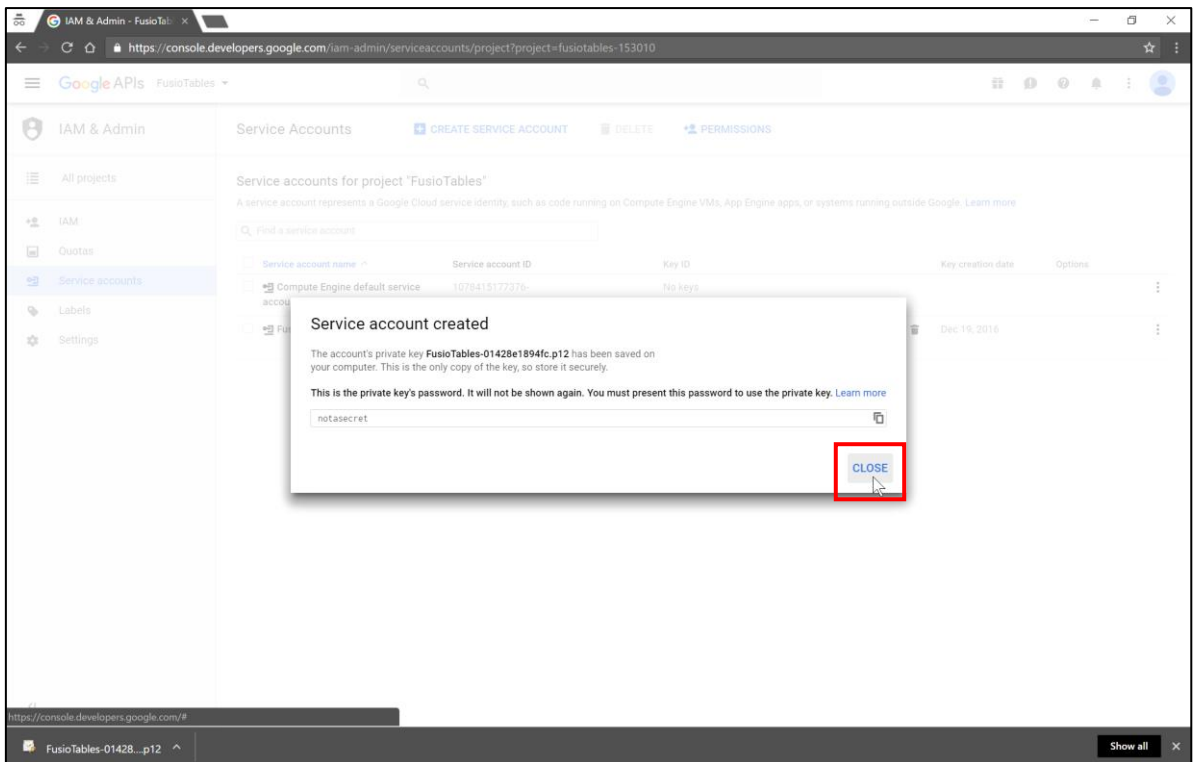
P12
For backward compatibility with code using the P12 format

Enable G Suite Domain-wide Delegation
Grants a client access to all users' data on a G Suite domain without manual authorization on their part. [Learn more](#)

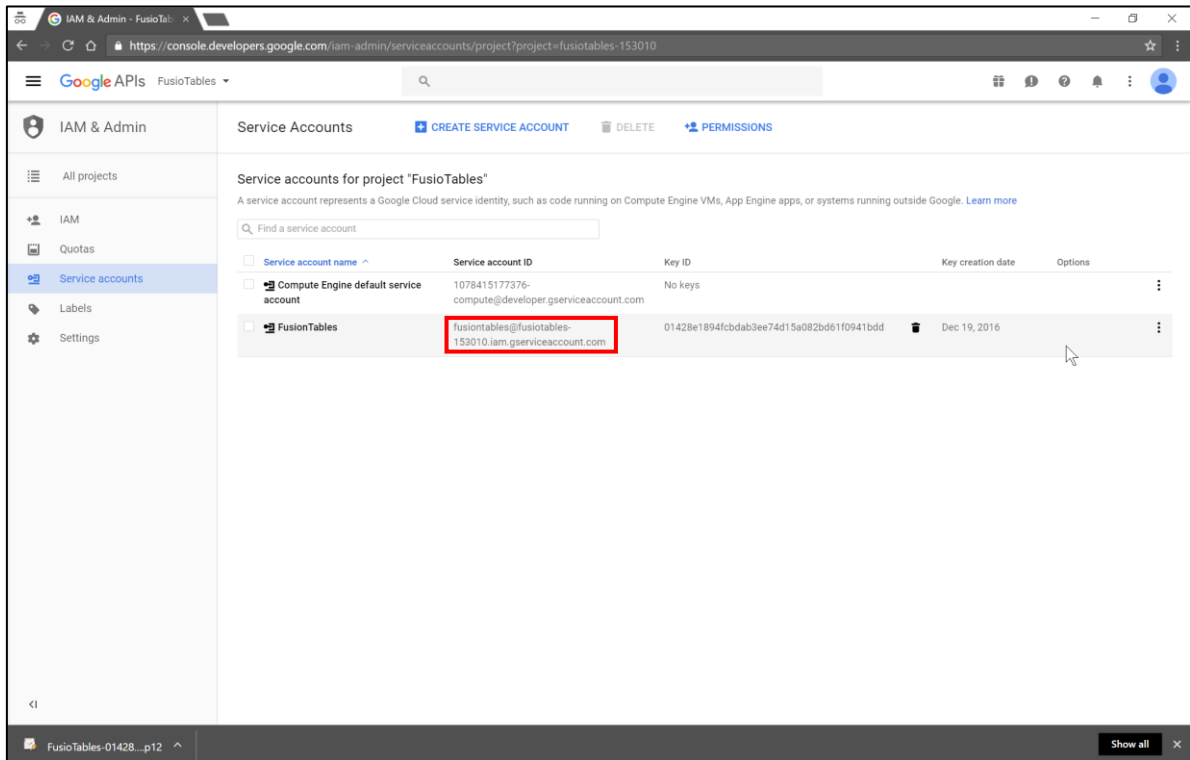
STEP 8 – Save File to computer



STEP 9 – Close Service Account Box



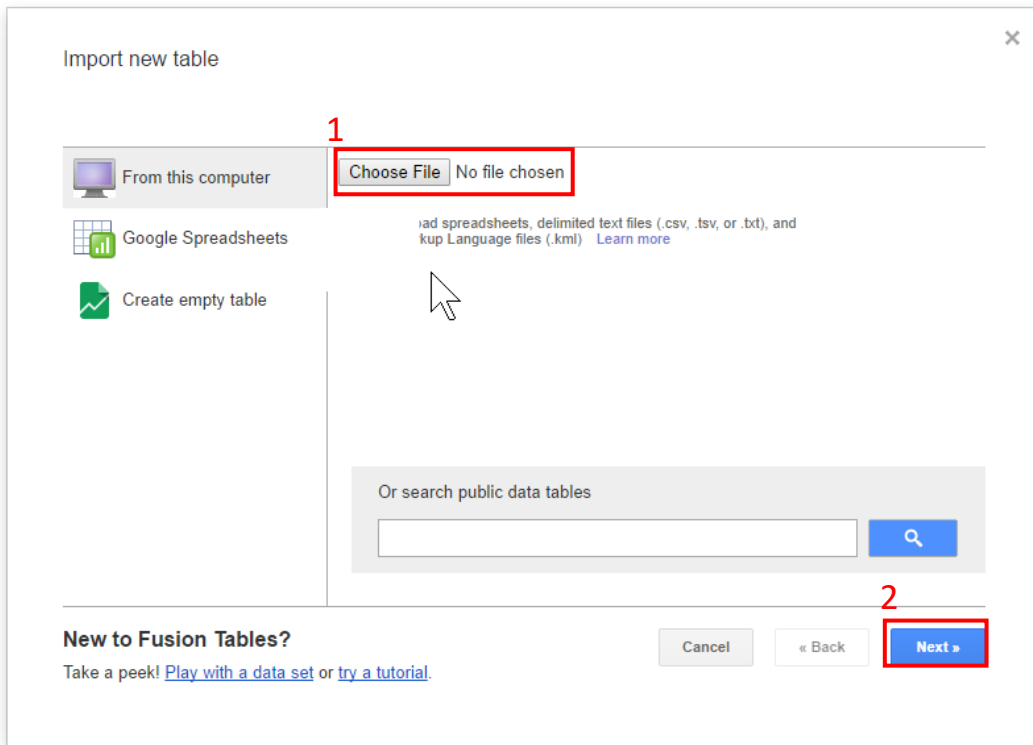
STEP 10 – Copy Service Account Address into a document/program of your choice (e.g. Notepad)



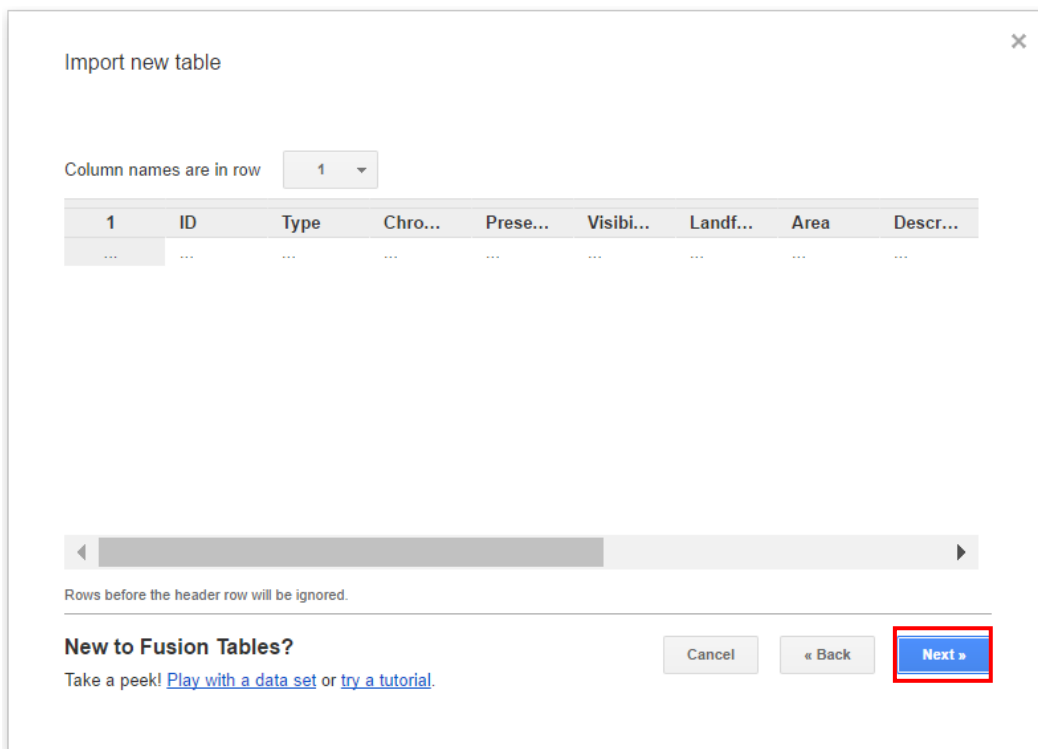
Following the steps above you will be able to gather two of the three basic elements needed in both of our apps: (1) the KeyFile (file downloaded into computer); and (2) the Service Account Email (copy from step number 10). The third element that you will need is the ID from the Google Fusions Tables to where you want to send collected data. The steps bellow will show you how to create a Fusion Table and where to get its ID.

STEP 11 – Download the MS Excel table (e.g. ArcheoSurvey_FusionTables_Structure.xlsx) from Mendeley Data (<http://dx.doi.org/10.17632/8r8wh8w92m.1>).

STEP 12 – Go to <https://fusiontables.google.com/DataSource?dsrclid=implicit> and import the table downloaded in Step 11



STEP 13 – Accept import new table



STEP 14 – Name table and finish

Import new table ✕

Table name ¹

Allow export ?

Attribute data to ?

Attribution page link

Description
For example, what would you like to remember about this table in a year?

New to Fusion Tables?
Take a peek! [Play with a data set](#) or [try a tutorial](#).

²





STEP 15 – Make table public (only to people with the link)

The screenshot shows a web browser window with the URL https://fusiontables.google.com/data?docid=1mKY5mPbDlSo4KfKDeU1RwH_eu-WuHWHHdMNo68n#rowsid=1. The page title is "ArcheoSurvey" and it shows the table's metadata: "Imported at Thu Dec 22 07:39:53 PST 2016 from ArcheoSurvey_FusionTables_Structure.xlsx. Edited at 15:39". A "Share" button is visible in the top right corner. The "File" menu is open, and the "Share..." option is highlighted with a red box. The table's columns are: "Location", "Visibility", "Landform", "Area", "Description", "Findings", "Longitud", "Latitud", "Photo", "Time", and "Date". The table content is empty, displaying "No rows found".

STEP 16 – Make table public (cont.)


Sharing settings


Link to share (only accessible by collaborators)
<https://www.google.com/fusiontables/DataSource?docid=1mKY5mPbDISo4KfTKDeU1>

Share link via:    

Who has access

[Change...](#)

	Célia Gonçalves (you) ceelinmag@gmail.com	Owns
---	--	------

Invite people:
Introduza nomes ou endereços de email... 


Owner Settings [Learn more](#)

Prevent publishers from changing access and add new people


[Completed](#)


STEP 17 – Make table public (cont.)

Link sharing

 **Enabled option : Public Web**
Anyone on the Internet can find and access. It is not necessary to sign.

1

 **Option activated : Anyone with link**
anyone with the link can access. No need to sign.

 **Option disabled : Specific people**
Shared with certain people.

Access: Qualquer pessoa (não é necessário iniciar sessão) [Pode ver](#)





2

[Guardar](#) [Cancel](#)


STEP 18 – Give access to service e-mail (paste service e-mail copied in STEP 10)


Sharing settings

Link to share
<https://www.google.com/fusiontables/DataSource?docid=1mKY5mPbDlSo4KFtKDeU1>




Share link via:    

With

 Anyone with the link can view [Change...](#)

 É proprietário

1

Invite people:
 fusiontables@fusiontables...  gserviceaccount.c... x 

Adicionar mais pessoas...

2 Notify people - Adicionar mensagem

Owner Settings [Learn more](#)

Prevent publishers from changing access and add new people

STEP 19 – Give access to service e-mail (cont.)

Skip sending invitations?

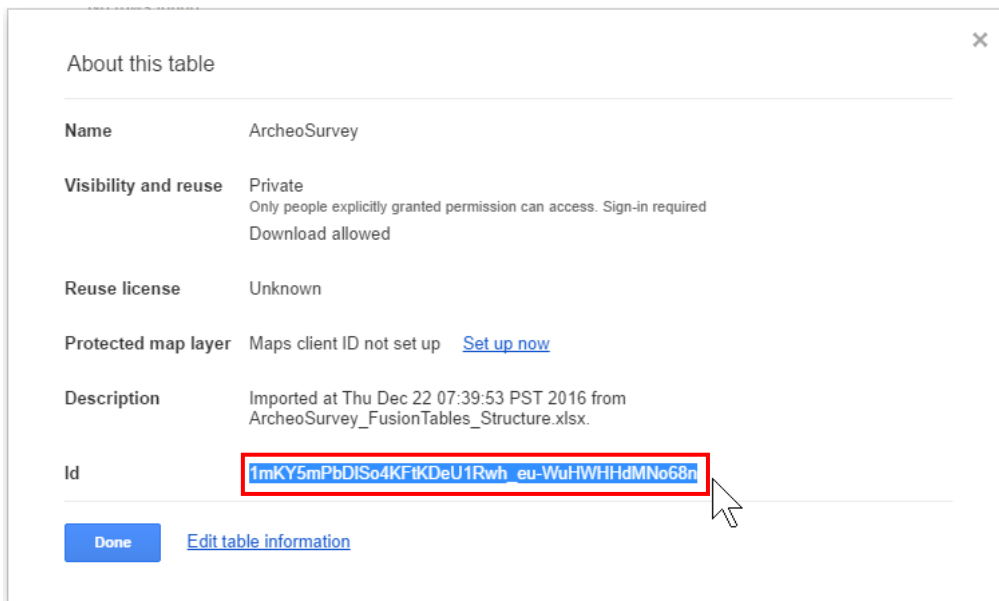
STEP 20 – Give access to service e-mail (cont.)

The screenshot shows the 'Sharing settings' interface for a Google Fusion Table. At the top, there is a 'Link to share' field containing the URL: `https://www.google.com/fusiontables/DataSource?docid=1mKY5mPbDIso4KfKDeU1`. Below this, there are social media sharing icons for Email, Google+, Facebook, and Twitter. The 'Who has access' section shows three users: 'Anyone with the link can view' (with a 'Change...' link), 'Célia Gonçalves (you)' (with email `ceelinmag@gmail.com` and role 'Owns'), and 'fusiontables@fusiontables-146913.iam.gse...'. An 'Invite people' section has a text input field with the placeholder 'Introduza nomes ou endereços de email...'. At the bottom, there are links for 'Owner Settings' and 'Learn more', a checkbox for 'Prevent publishers from changing access and add new people', and a blue 'Completed' button highlighted with a red rectangle.

STEP 21 – Get Fusion Table ID

The screenshot shows the Google Fusion Tables interface for a table named 'ArcheoSurvey'. The browser address bar shows the URL: `https://fusiontables.google.com/data?docid=1mKY5mPbDIso4KfKDeU1RwH_eu-WuHWHHdMNo68n#rowsid=1`. The table header includes columns: 'Location', 'Visibility', 'Landform', 'Area', 'Description', 'Findings', 'Longitud', 'Latitud', 'Photo', 'Time', and 'Date'. The main content area displays 'No rows found'. A 'File' menu is open, and the 'About this table' option is highlighted with a red rectangle. Other menu options include 'Share...', 'New table...', 'Open...', 'Rename...', 'Make a copy', 'Geocode...', 'Merge...', 'Find a table to merge with...', 'Create view...', 'Import more rows...', and 'Download...'. The user's email 'ceelinmag@gmail.com' and a 'Share' button are visible in the top right corner.

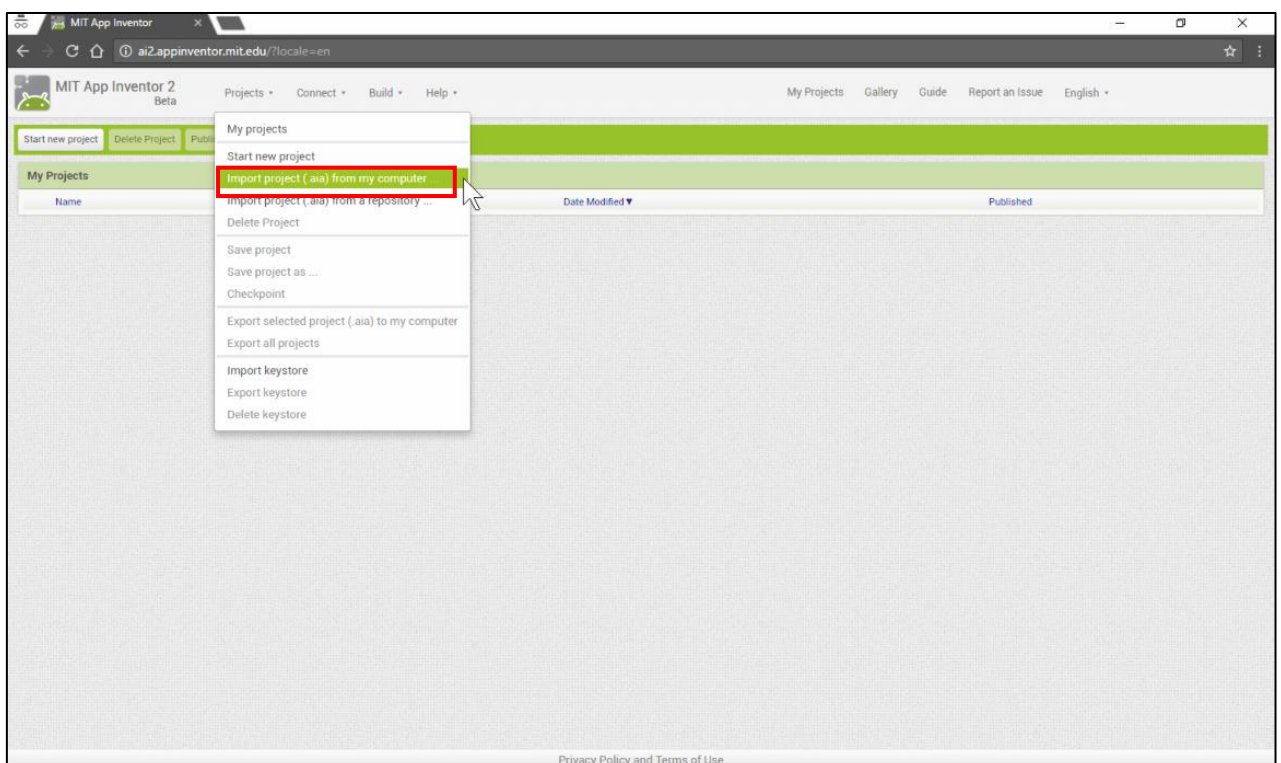
STEP 22 – Copy Fusion Table ID (cont.) to a document/program of your choice (e.g. Notepad)



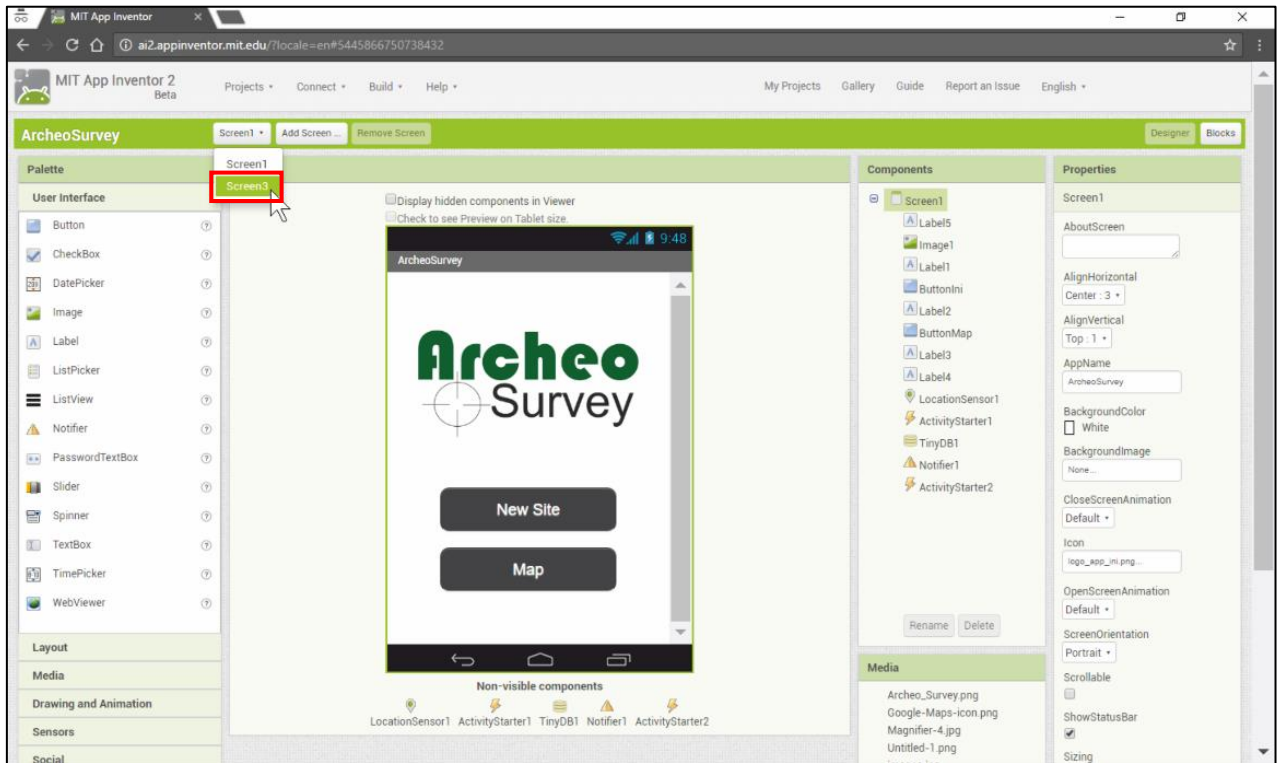
2.2. Insert Fusion Tables information on MIT App Inventor

After acquiring all the three elements needed for sending data from our apps into a Fusion Table you need to insert that information in our apps in MIT App Inventor. The steps below will guide you through this process for the ArcheoSurvey app. You can also apply these to the LithicsOTG app, of course.

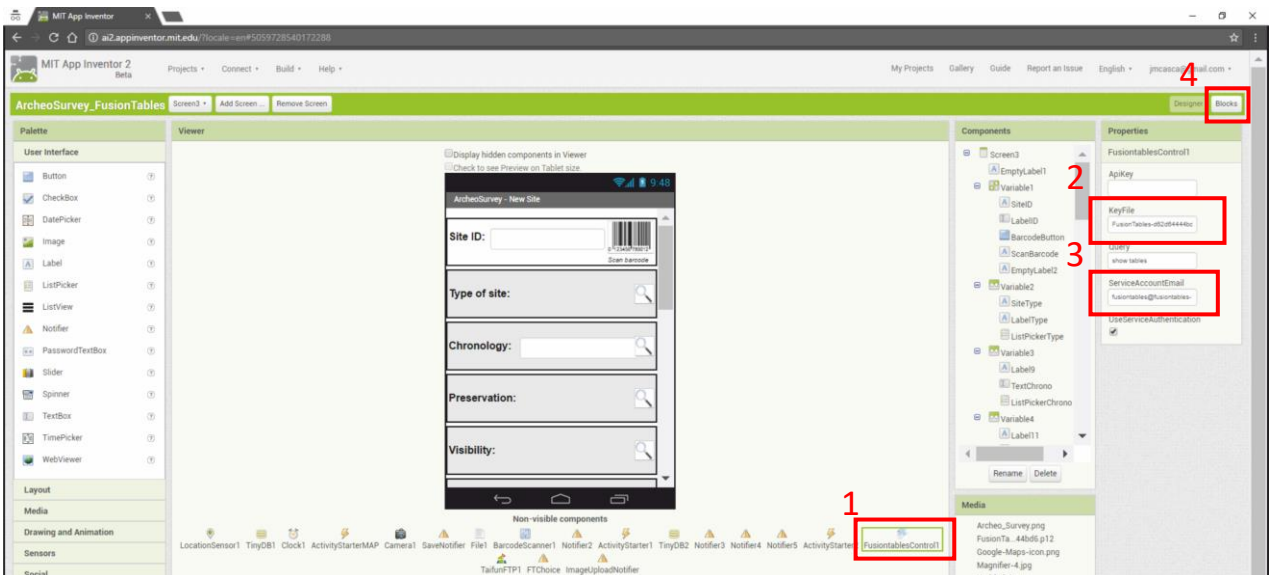
STEP 1 – Import app configuration file (ArcheoSurvey.aia) into MIT App Inventor



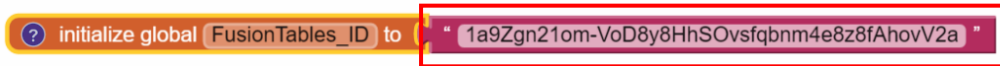
STEP 2 – Go to Screen3



STEP 3 – (1) Select the FusiontablesControl component; (2) upload the file downloaded in step 10 above; (3) paste the ServiceAccountEmail copied from the Google Developers console; (4) go to the Blocks editing page

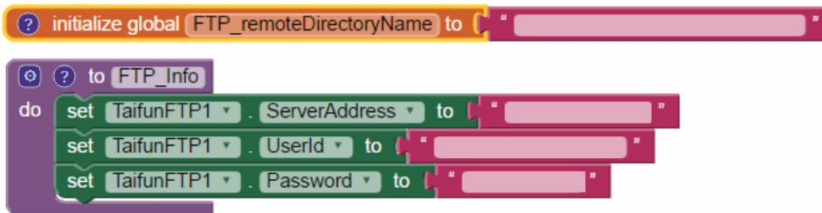


STEP 4 – Look for the `initialize global FusionTab...` block and insert the table ID copied during step 20 above.



2.3. Setting the FTP uploading system for photos

After completing all the steps above, you are now ready to send some data into your Fusion Table. There is, however, a further step so that you can also send a photo of your site via FTP into a web server so that it can be directly related with the Fusion Table. This step will only show you where to introduce your server information in the MIT App Inventor. It will not provide information on how to get FTP information from your site. Look for the two blocks below and fill the pink boxes with the respective information. Make sure the remote directory does exist in the website you are using.



The final step is just to add the URL prefix (e.g. `http://www.icarehb.com/.../`) which will lead Fusion Tables to the ICAREHB’s website folder where the photograph is kept. This is done in this and this `when ButtonFT .Click do se...` block in `when ButtonFT .Click do se...` the section highlighted in the figure below.

