ai2-test Status

UPDATE: 08/21/2022: Bugfixes. Renamed GoogleSheets component to Spreadsheet. Projects should automatically upgrade.

UPDATE: 07/29/2022: The Companion is now at version 2.64t2, and can be installed on Android 12. Packaged apps should also install on Android 12. Added GoogleSheets component

UPDATE: 07/28/2022: We are now testing SDK 31 support, required for new apps in the Play Store as of 08/01/2022 (yes, three days!) and updating existing apps after November.

UPDATE: 04/19/2022: New Companion version **2.62t5u**. Less obnoxious splash screen.

UPDATE: 04/13/2022: Updated the new Legacy connect code to make the pop-up less ugly (I hope!). Also added a Splash Screen to the Companion. Too many people are downloading the Companion from the Google Play Store and start it up without having any idea what it is for! Feedback on the Splash screen is helpful (Do you like it? Do you hate it? If you hate it, how can we make it better?). **Make sure you update your Companion. The current version is 2.62t4u.**

UPDATE: 03/17/2022: Projects that use YandexTranslate will now be automatically upgraded to use the new Translator component. Note: Existing blocks are not renamed. So if you have a block named “YandexTranslate1” (which is the default if you dragged out a YandexTranslate block before this version of MIT App Inventor), it will **still** be named “YandexTranslate1” although it will now be an instance of the new Translator component.

UPDATE: 03/13/2022: Renamed the Translate Component to Translator. Any projects that contain the Translate component may fail to load. Sorry for the inconvenience

UPDATE 03/12/2022: Added the new Translate Component which will replace YandexTranslate. Companion 2.62t2u is required to use it. More info to follow.

ai2-test currently is running our latest reviewed and merged code. It is not quite yet at the point of being a release candidate. In addition to reviewed and merged code, it also includes a new experimental feature, described below.

More information about the Translator Component can be found here.

TL;DR

If you use Legacy Connection mode in the Companion, you will see a new pop-up window appear in your browser. Do not close this window (it will close by itself when no longer needed), but feel free to iconify it or otherwise push it to the background.

An Update to Legacy Mode Companion Connection

ai2-test, is running a new version of Legacy Mode which should work in all versions of Chrome, including those after Chrome 94. Legacy Mode should also work when MIT App Inventor is served over https (secure connection).

However, you will need an updated Companion, version 2.62t1u, which implements the new version of Legacy Mode when used on this server.

Note: Older Companions should work, but Legacy Mode not work with a secure connection. Also note that version 2.62t1u can be used as your normal Companion for release nb188, and it will behave as expected when used with ai2.

Finally. If you connect to https://ai2-test.appinventor.mit.edu (aka over a secure connection) the QR Code dialog box will still warn that Legacy Mode doesn't work over a secure connection, but if you use 2.62t1u it **will** work.

Read on for some technical details!

You can download Companion 2.62t1u from the Help->Companion Information menu or directly here:https://ai2-test.appinventor.mit.edu/companions/MITAI2Companion.apk.

Introduction

MIT App Inventor supports "Incremental Development." An MIT App Inventor programmer installs the "MIT AI2 Companion" on their device.

While developing an App, they start the Companion App on their device and then use the "Connect->AI Companion" menu option in MIT App Inventor. This will display a QR Code in their browser, which is then scanned by their device.

This is where things get interesting.

There are two mechanisms that we use to communicate between the device and the programmer's browser. The original, now called "Legacy" mode, runs a web server on their device which then sends data from their browser. This was required because browsers do not

permit direct network connections. Instead, they live in a world of web servers, so we look like a web server!

However, over time the browser vendors, in particular Google and Mozilla, have made updates that make this approach problematical. In particular, a page (or in our case, the MIT App Inventor application) which is loaded over "https" (aka, a secure page) cannot communicate with an insecure page. So, MIT App Inventor has to be served over an insecure "http" connection.

However, we are going to have to eventually serve MIT App Inventor over https. To facilitate this, we developed an alternative approach based on a newer web technology known as "WebRTC." WebRTC, designed for audio/video applications, provide a way for two browsers to directly communicate. We then added code to the MIT AI2 Companion, so it could be a WebRTC end-point. Using WebRTC, we can serve MIT App Inventor over a https connection.

However, not everyone has had success using WebRTC. WebRTC uses multiple ports, which are often blocked in many school settings. Therefore, we have had to continue to support Legacy Mode, and continue to serve MIT App Inventor over an insecure http connection.

Google Changes the Game (Again)

Starting with Chrome version 94, Google added a new restriction. To help address attacks against home routers by malicious websites, Chrome now blocks connections to home routers on private addresses (such as 192.168.1.X style addresses) initiated from a public page (like MIT App Inventor).

To help mitigate the problems this caused, Google provides a mechanism for a site to obtain a special token that causes Chrome 94 to behave like previous versions when it sees this token provided in a special header. MIT has obtained such a token and incorporated it into the MIT App Inventor servers it maintains.

However, these tokens will only work until sometime in 2022, probably around May or so. Therefore, this is not a permanent solution.

Enter new Approach to Legacy Mode

We have developed a new twist on Legacy Mode. Although Chrome will no longer permit a public page to connect to private addresses, we can load a "pop-up" window from the Companion. This window is then allowed to communicate with the Companion. MIT App Inventor can use an intra-browser communication system to send messages from the main MIT App Inventor page to the pop-up, which then forwards them to the Companion.

This approach, which has been tested with both Chrome and Firefox, addresses the Chrome 94 restrictions *and* permits us to load MIT App Inventor over https and have this enhanced Legacy Mode work.

~~The only issue is that this approach will not work if a pop-up blocker is installed. It either has to be disabled, or at least disabled for ai2-test.appinventor.mit.edu. Chrome and Firefox have~~

~~builtin pop-up blockers, but they recognize that what we are doing is acceptable and do not interfere.~~

Sometimes a dialog will appear with just a button labeled “Continue.” Click the button! This is a work around that permits us to open the pop-up window without the browser blocking it.

~~As of this writing, when using Chrome, the pop-up window will appear under the main MIT App Inventor window, so it isn't noticeable~~. When the Companion connection closes, this pop-up window is closed as well.

On Firefox, the pop-up window appears on top of the main MIT App Inventor window, but can easily be buried by simply clicking on the main MIT App Inventor window.