

# Software Analytics - The Plan to fix the bug

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## Bug replication

As mentioned in the last report, the check-box in the dialog list disappears when the phone is in landscape mode. Therefore the bug is visible and can be replicated as shown in the previous report.

## Bug localization

In order to localize the bug, the first step is to open the project in Android Studio and then from the main activity xml file we can retrieve the id of the *BASIC LIST(CHECKBOX PROMPT)* button, that generates the dialog list in which we are interested, as shown in figure 1.

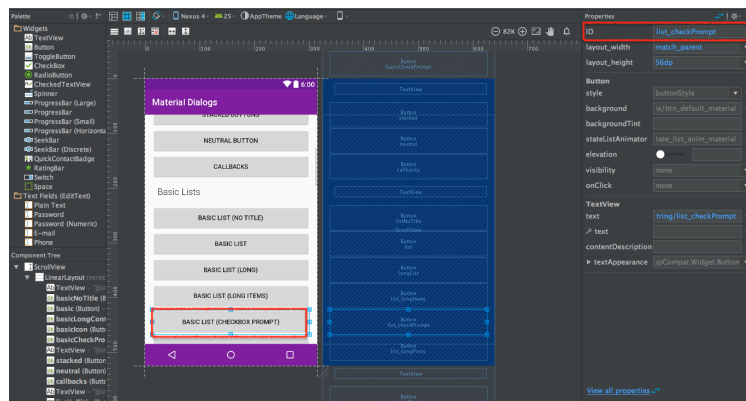


Figure 1: Android Studio

The next step is to use the id to figure out which method is implementing the button's functionality.

I found that the method *showListCheckPrompt()* in *Main Activity* class is called when the button is clicked. This method creates an object of type *MaterialDialog.Builder* (Builder is an inner class), and several methods are invoked on this object as shown in the snippet code. My first guess is that the bug is located in the *show()* method since it shows the check-box in the dialog window.

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```
@OnClick(R.id.list_checkPrompt) public void showListCheckPrompt() {
    new MaterialDialog.Builder(this)
        .title(R.string.socialNetworks)
        .items(R.array.socialNetworks)
        .itemsCallback((dialog, view, which, text) -> showToast(which + ":"
            + text))
        .checkBoxPromptRes(R.string.example_prompt, true, null)
        .negativeText(android.R.string.cancel)
        .show();
}
```

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Performing a deeper analysis, *show()* is invoked 31 times on 31 different *MaterialDialog* objects and it is invoking the *show()* method from *MaterialDialog* class which is invoking the android API *show()* method. Since the bug is not replicated in these 31 objects and must probably the bug is not in the Android API, I moved my focus to the other methods.

The next step is to analyze the *checkBoxPromptRes()* method. This method sets the attributes of the *checkBox* variable of a *MaterialDialog* object. Performing a deeper analysis the *DialogInit* class maps this variable to the xml file. This path leads us to *md\_dialog\_list\_check.xml* file where I spot the bug.

By removing the items list, the check-box is visible in the landscape mode, as we can see in Figure 2 . My conclusion is that the *ScrollView* is hiding the check-box and this why we can't see both of them in the landscape mode.

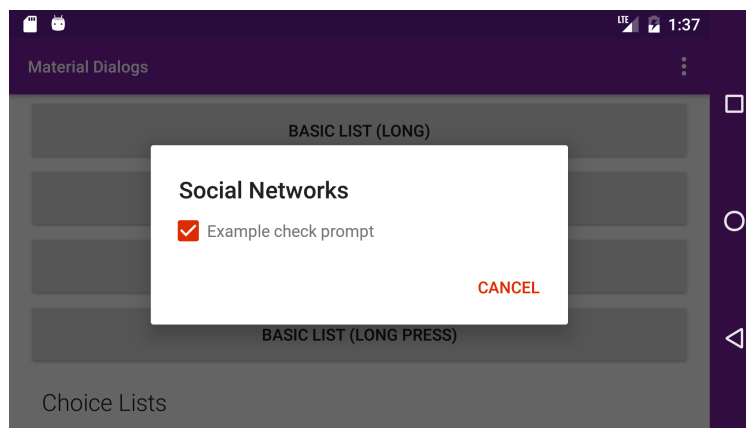


Figure 2: Check box

## Changes impact

The *md\_dialog\_list\_check.xml* file creates the *BASIC LIST (CHECK BOX PROMPT)*'s window interface only. If we make changes in this file, the changes will not affect other dialog windows or other files.

## Plan

My plan is to create 2 layouts, one for the scroll-view and one for the check-box, instead of having them in the same layout.