

[Investigation] Settings-4853 : Back key not working in FireTv keypad

Jira - <https://issues.labcollab.net/browse/SETTINGS-4853>.

Background

Valtron Psp team facing issue on payment page(webview). On numeric fields like CVV, Card number when they press back key on FireTv remote they were not able to exit from the numeric keypad.

Investigation

- “Previous” key code has different implementations for webview and non-webview (android application) text fields. When user clicks “Previous” key in on-screen keyboard or presses back button in remote,
 - If webview – Close current shown keypad and exit.
 - If non-webview – Close current shown keypad → Navigate to previous text field → Open keypad for previous text field. (If there is NO previous text field, simply exit)Some code snippets for reference - <https://tiny.amazon.com/p8o8xbry/paste>
- *This previous key behaviour in FireTV (#2) was introduced to lower customer churns to enter text input in applications using on-screen keyboard with remote. Without this, customer needs to press back to close the current shown keypad, move the focus to previous text field and again press “D-Pad center” button to open keyboard again.*
- For background, we cannot have above #2 behaviour in #1, because we would not be able to know whether there is any previous text field or not in webview from FireTvKeyboard. This behaviour differs based on how webpages are structured and may provide inconsistent UX between different webpages. Hence, instead of looking for a previous field, we simply close the shown keypad in webview.

Possible approaches to resolve the issue

#1BY CHANGING THE INPUTTYPE TO MAKE MISWEBVIEW TRUE

In our initial investigation we came up with a fix. There we checked the value of `editorInfo.inputType`. It was zero. As we checked in android docs we got `inputType` as

```
InputType.TYPE_NUMBER_VARIATION_NORMAL
```

- The core issue is in numeric keypad where FireTvKeyboard has no mechanisms to identify whether the field is from a webview or a non-webview (android application) component. This issue does not happen with full text keypad since Android provides a different input type variation for text input type if the text field is from webview (`InputType.TYPE_TEXT_VARIATION_WEB_EDIT_TEXT`) when compared to non-webview (`InputType.TYPE_TEXT_VARIATION_NORMAL`). But unfortunately, it does not provide different input text variation for number input type.

Code Pointer: <https://tiny.amazon.com/d23a6nt7/FireTvKeyboard/mainline/FireTVIME.java#L977-L979>

```
final int inputTypeVariation = editorInfo.inputType & InputType.TYPE_MASK_VARIATION;
mIsWebView = inputTypeVariation == InputType.TYPE_TEXT_VARIATION_WEB_EMAIL_ADD;
```

```
inputTypeVariation == InputType.TYPE_TEXT_VARIATION_WEB_PASSWORD ||  
inputTypeVariation == InputType.TYPE_TEXT_VARIATION_WEB_EDIT_TEXT;
```

Conclusion - It will cause regression in setting applications(non-webview).

#2BY PASSING AN EXTRA ("ISWEBVIEWCLIENT") IN EDITORINFO#EXTRAS FROM CLIENT APPLICATION

To solve this issue – Client applications have to pass an extra ("isWebViewClient" as "true") in EditorInfo#extras. This editor info extra will be parsed in FireTvKeyboard app to know whether keyboard is invoked from webview or not.

Some code snippets for reference - <https://tiny.amazon.com/zdc5rybt/paste>

Keyboard side change code snippets for reference - <https://tiny.amazon.com/vxzq0koj/paste>

Conclusion - Disadvantage of this solution would be scalability – we cannot ask individual clients to pass this extra from every web view implementation.

#3BY PASSING AN EXTRA ("ISWEBVIEWCLIENT") IN EDITORINFO#EXTRAS FROM AMAZON WEBVIEW LAYER TO IME

Recommended Approach

we request to pass this editor info extra ("isWebViewClient") from Amazon WebView layer to IME. This is same solution we mention in #2 just the change is instead of passing extra from client application we requesting to passing it from Amazon webview layer.

Some code snippets for reference - <https://tiny.amazon.com/zdc5rybt/paste>

Keyboard side change code snippets for reference - <https://tiny.amazon.com/vxzq0koj/paste>

Conclusion - This change would not affect or cause regression in any other web view implementation.