

*The following security alert was issued by the Information Security Division of the Mississippi Department of ITS and is intended for State government entities. The information may or may not be applicable to the general public and accordingly, the State does not warrant its use for any specific purposes.*

**TLP: WHITE**

**Disclosure is not limited. Subject to standard copyright rules, TLP: WHITE information may be distributed without restriction.**

<https://www.us-cert.gov/tlp/>

**DATE(S) ISSUED:**

07/02/2019

**SUBJECT:**

Multiple Vulnerabilities in Google Android OS Could Allow for Arbitrary Code Execution

**OVERVIEW:**

Multiple vulnerabilities have been discovered in the Google Android operating system (OS), the most severe of which could allow for arbitrary code execution. Android is an operating system developed by Google for mobile devices, including, but not limited to, smartphones, tablets, and watches. Successful exploitation of the most severe of these vulnerabilities could allow for arbitrary code execution within the context of a privileged process. Depending on the privileges associated with this application, an attacker could then install programs; view, change, or delete data; or create new accounts with full user rights. If this application has been configured to have fewer user rights on the system, exploitation of the most severe of these vulnerabilities could have less impact than if it was configured with administrative rights.

**THREAT INTELLIGENCE:**

There are currently no reports of these vulnerabilities being exploited in the wild.

**SYSTEMS AFFECTED:**

- Android OS builds utilizing Security Patch Levels issued prior to July 5, 2019.

**RISK:**

**Government:**

- Large and medium government entities: **High**
- Small government entities: **High**

**Businesses:**

- Large and medium business entities: **High**
- Small business entities: **High**

**Home users: High**

**TECHNICAL SUMMARY:**

Multiple vulnerabilities have been discovered in Google Android OS, the most severe of which could allow for arbitrary code execution within the context of a privileged process. Details of these vulnerabilities are as follows:

- An arbitrary code vulnerability in System. (CVE-2019-2111)
- An information disclosure vulnerability in Framework. (CVE-2019-2104)
- Multiple arbitrary code vulnerabilities in Library. (CVE-2019-2105)
- Multiple arbitrary code vulnerabilities in Media framework. (CVE-2019-2106, CVE-2019-2107, CVE-2019-2109)
- Multiple elevation of privilege vulnerabilities in System. (CVE-2019-2112, CVE-2019-2113)
- Multiple information disclosure vulnerabilities in System. (CVE-2019-2116, CVE-2019-2117, CVE-2019-2118, CVE-2019-2119)
- Multiple vulnerabilities in Qualcomm closed-source components. (CVE-2019-2235, CVE-2019-2236, CVE-2019-2237, CVE-2019-2238, CVE-2019-2239, CVE-2019-2240, CVE-2019-2241, CVE-2019-2253, CVE-2019-2254, CVE-2019-2322, CVE-2019-2327, CVE-2019-2334, CVE-2019-2346)
- Multiple vulnerabilities in Qualcomm components. (CVE-2019-2276, CVE-2019-2278, CVE-2019-2305, CVE-2019-2307, CVE-2019-2308, CVE-2019-2330, CVE-2019-2326, CVE-2019-2328)

Successful exploitation of the most severe of these vulnerabilities could allow for arbitrary code execution in the context of a privileged process. These vulnerabilities could be exploited through multiple methods such as email, web browsing, and MMS when processing media files. Depending on the privileges associated with the application, an attacker could then install programs; view, change, or delete data; or create new accounts with full user rights. If this application has been configured to have fewer user rights on the system, exploitation of the most severe of these vulnerabilities could have less impact than if it was configured with administrative rights.

**RECOMMENDATIONS:**

The following actions should be taken:

- Apply appropriate updates by Google Android or mobile carriers to vulnerable systems, immediately after appropriate testing.
- Remind users to only download applications from trusted vendors in the Play Store.
- Remind users not to visit un-trusted websites or follow links provided by unknown or un-trusted sources.
- Inform and educate users regarding threats posed by hypertext links contained in emails or attachments, especially from un-trusted sources.

## REFERENCES:

### Google Android:

<https://source.android.com/security/bulletin/2019-07-01.html>

### CVE:

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2104>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2105>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2106>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2107>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2109>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2111>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2112>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2113>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2116>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2117>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2118>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2119>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2235>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2236>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2237>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2238>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2239>

<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2240>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2241>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2253>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2254>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2276>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2278>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2305>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2307>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2308>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2322>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2326>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2327>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2328>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2330>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2334>  
<http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-2346>

**TLP: WHITE**

**Disclosure is not limited. Subject to standard copyright rules, TLP: WHITE information may be distributed without restriction.**

<https://www.us-cert.gov/tlp/>

**Ryan Thomas**  
Security Operations Analyst  
MS Department of Information Technology Services  
601-432-8032 | [www.its.ms.gov](http://www.its.ms.gov)



DISCLAIMER: This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. This message contains confidential information and is intended only for the individual named. If you are not the named addressee you should not disseminate, distribute or copy this e-mail. Please notify the sender immediately by e-mail if you have received this e-mail by mistake and delete this e-mail from your system. If you are not the intended recipient you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited