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Dräger Product Security Advisory PSA-19-255-03

Infinity® Acute Care System and M540 security vulnerabilities

Legal Notice

This Product Security Advisory is based on all our findings that we had at the time of publication. However, the facts of the case are being reviewed on an ongoing basis and it is possible that this may result in changed assessments or that assessments contained in this advisory may turn out to be incorrect. We also reserve the right to change or revoke any recommendations. In addition, differences may result from the circumstances of the individual case on site. This information is naturally not available to us and has not been taken into account. Dräger can therefore accept no responsibility that the information presented here is conclusive or comprehensively correct for you. Therefore, please check carefully to what extent deviations can arise for your individual case. If necessary, you will be informed about new findings through following advisories.

1 Publication Date

Initial: 2019-09-12

Update: 2022-01-24

2 Overview

Several Cybersecurity vulnerabilities have been discovered in the Dräger Infinity Acute Care System™ and the Standalone Infinity® M540 patient monitors (software version VG4.2,VG4.1.1/VG4.0.3 and lower) which may cause the device to reboot and/or lose functionality.

The full text of this advisory can be accessed through https://static.draeger.com/security.

3 Affected Products

The following Dräger devices are affected by these vulnerabilities:

- Dräger Infinity Acute Care System software version VG4.2 (partially affected, see section 8), VG4.1.1/VG4.0.3 and lower

- Dräger Standalone Infinity M540 patient monitor software version VG4.2 (partially affected, see section 8), VG4.1.1 and lower

4 How to verify if the product is affected

On the M540 go to **Menu > System setup > System information** and review the **S/W revision**

5 Vulnerability Description

1. **Spoofed and Tampered Data**
   Data sent by the M540 or Cockpit is compromised
   Data received by the M540 or Cockpit is compromised

2. **Denial of Service**
   Quantity of incoming data overwhelms system.

6 Impact

1. **Disclosure of Data**

   Spoofing or tampering can compromise data sent by an M540 or Cockpit which would affect network consumers of monitor data. If this were to occur, the M540 will maintain essential performance (continue to display real-time waveform data and vital sign information on the display as well as initiate physiological and technical alarms).

2. **Possible to modify device settings**

   Spoofing or tampering can compromise data received by an M540 or Cockpit in other ways as well. If this were to occur, the M540 continues to display real-time patient waveform and vital sign information on the display. However, if the M540 is configured to accept remote control from the Infinity Central Station (ICS) the alarms could be turned OFF or the alarm limits modified. If heart rate and arrhythmia alarms are turned off, a banner is displayed on the M540 and remotely on the ICS to indicate that the alarms are disabled. In addition, the alarm status icon in the vital sign parameter box is updated to indicate alarms are disabled.

3. **Denial of Service**

   Excessive network traffic on the wired interface of IACS Cockpit can cause it to reboot. The Infinity Acute Care System will no longer be connected to the network. The M540, however will maintain essential performance (continue to display real-time waveform data and vital sign information on the

display as well as initiate physiological and technical alarms). Because the device is no longer on the network, the M540 alarm volume will increase to 100% and the network alarms will annunciate to indicate that the M540 is no longer connected to the cockpit and Infinity Network.

A Standalone M540, connected to either a wired or wireless network, may reboot if challenged with excessive network traffic. If wireless option is enabled, wireless functionality is only utilized while the M540 device is on transport. Wireless is disabled upon docking to the M500 standalone or the IACS configuration.

7 Severity

CVSS 3.1 Score
Base Score: 8.6
Severity: High
Vector: CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:L/I:L/A:H

8 Remediation

For customers who currently have Infinity Acute Care System or M540 patient monitor, VG4.1.1/VG4.0.3 or lower software releases of the affected components can be upgrade to Infinity Acute Care System VG4.2 and Standalone M540 patient monitors to VG4.2 software release. The software is currently available on Draeger ServiceConnect. VG4.2 improves the robustness of M540 by implementing partial packet storm protection and implementing additional data validation checks to improve handling of malformed network messages.

We also recommend following best recommended practices to limit access to the Infinity Network by assigning separate VLANs and protecting the network by setting up firewalls.

For questions about your specific installation please contact your local Dräger Service Representative.

9 Contact Information

If you have any further questions related to the impact of the vulnerabilities, please contact your designated regional marketing manager. For reporting incidents and potential vulnerabilities in our devices, please refer to https://static.draeger.com/security to contact the Product Security team directly.

Revisions

Version	Date	Change
1	2019-09-12	Initial Document
2	2021-10-19	Update CVSS score and added VG4.2 as the fixed software version
3	2022-01-24	Add VG4.2 as affected versions. Minor updates.

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