

SSA-180635: Denial-of-Service Vulnerabilities in SIMATIC S7-1500 CPU Family

Publication Date: 2019-01-08
Last Update: 2020-02-10
Current Version: V1.1
CVSS v3.1 Base Score: 7.5

SUMMARY

Older versions of the S7-1500 CPU are affected by two Denial-of-Service vulnerabilities. Siemens has released updates for the currently supported hardware versions.

AFFECTED PRODUCTS AND SOLUTION

Affected Product and Versions	Remediation
SIMATIC S7-1500 CPU family (incl. related ET200 CPUs and SIPLUS variants): All versions \geq V2.0 and $<$ V2.5	Update to V2.5 or newer https://support.industry.siemens.com/cs/de/en/view/109478459
SIMATIC S7-1500 CPU family (incl. related ET200 CPUs and SIPLUS variants): All versions \leq V1.8.5	Update to V2.5 or higher or when this is not possible (because of Hardware restrictions) see recommendations from section workarounds and mitigations

WORKAROUNDS AND MITIGATIONS

Siemens has identified the following specific workarounds and mitigations that customers can apply to reduce the risk:

- Protect network access to port 80/tcp and port 443/tcp of affected devices.
- Apply cell protection concept
- Apply defense-in-depth

GENERAL SECURITY RECOMMENDATIONS

As a general security measure, Siemens strongly recommends to protect network access to devices with appropriate mechanisms. In order to operate the devices in a protected IT environment, Siemens recommends to configure the environment according to Siemens' operational guidelines for Industrial Security (Download: <https://www.siemens.com/cert/operational-guidelines-industrial-security>), and to follow the recommendations in the product manuals.

Additional information on Industrial Security by Siemens can be found at: <https://www.siemens.com/industrialsecurity>

PRODUCT DESCRIPTION

Products of the SIMATIC S7-1500 CPU family have been designed for discrete and continuous control in industrial environments such as manufacturing, food and beverages, and chemical industries worldwide.

SIPLUS extreme products are designed for reliable operation under extreme conditions and are based on SIMATIC, LOGO!, SITOP, SINAMICS, SIMOTION, SCALANCE or other devices. SIPLUS devices use the same firmware as the product they are based on.

VULNERABILITY CLASSIFICATION

The vulnerability classification has been performed by using the CVSS scoring system in version 3.1 (CVSS v3.1) (<https://www.first.org/cvss/>). The CVSS environmental score is specific to the customer's environment and will impact the overall CVSS score. The environmental score should therefore be individually defined by the customer to accomplish final scoring.

An additional classification has been performed using the CWE classification, a community-developed list of common software security weaknesses. This serves as a common language and as a baseline for weakness identification, mitigation, and prevention efforts. A detailed list of CWE classes can be found at: <https://cwe.mitre.org/>.

Vulnerability CVE-2018-16558

Specially crafted network packets sent to port 80/tcp or 443/tcp could allow an unauthenticated remote attacker to cause a Denial-of-Service condition of the device.

The security vulnerability could be exploited by an attacker with network access to the affected systems on port 80/tcp or 443/tcp. Successful exploitation requires no system privileges and no user interaction. An attacker could use the vulnerability to compromise availability of the device.

At the time of advisory publication no public exploitation of this security vulnerability was known.

CVSS v3.1 Base Score	7.5
CVSS Vector	CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:N/I:N/A:H/E:P/RL:O/RC:C
CWE	CWE-20: Improper Input Validation

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CWE	CWE-20: Improper Input Validation

ACKNOWLEDGMENTS

Siemens thanks the following parties for their efforts:

- Artem Zinenko from Kaspersky for pointing out that SIPLUS should also be mentioned

ADDITIONAL INFORMATION

For further inquiries on security vulnerabilities in Siemens products and solutions, please contact the Siemens ProductCERT:

<https://www.siemens.com/cert/advisories>

HISTORY DATA

V1.0 (2019-01-08): Publication Date
V1.1 (2020-02-10): SIPLUS devices now explicitly mentioned in the list of affected products

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