SSA-589891: Multiple PAR File Parsing Vulnerabilities in Solid Edge

Publication Date: 2024-01-09
Last Update: 2024-01-09
Current Version: V1.0
CVSS v3.1 Base Score: 7.8

SUMMARY

Siemens Solid Edge 2023 has released Update 10, that fixes multiple vulnerabilities that could be triggered when the application reads PAR files. If a user is tricked to open a malicious file using the affected application, this could lead to a crash, and potentially also to arbitrary code execution on the target host system.

Siemens has released a new version for Solid Edge SE2023 and recommends to update to the latest version.

AFFECTED PRODUCTS AND SOLUTION

Affected Product and Versions	Remediation
Solid Edge SE2023: All versions < V223.0 Update 10	Update to V223.0 Update 10 or later version https://solidedge.siemens.com/ See further 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:

- Avoid to open untrusted files from unknown sources in Solid Edge

Product-specific remediations or mitigations can be found in the section Affected Products and Solution. Please follow the General Security Recommendations.

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

Solid Edge is a portfolio of software tools that addresses various product development processes: 3D design, simulation, manufacturing and design management.

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-2023-49121

The affected application is vulnerable to heap-based buffer overflow while parsing specially crafted PAR files. This could allow an attacker to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-122: Heap-based Buffer Overflow

Vulnerability CVE-2023-49122

The affected application is vulnerable to heap-based buffer overflow while parsing specially crafted PAR files. This could allow an attacker to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-122: Heap-based Buffer Overflow

Vulnerability CVE-2023-49123

The affected application is vulnerable to heap-based buffer overflow while parsing specially crafted PAR files. This could allow an attacker to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-122: Heap-based Buffer Overflow

Vulnerability CVE-2023-49124

The affected applications contain an out of bounds read past the end of an allocated structure while parsing specially crafted PAR files. This could allow an attacker to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-125: Out-of-bounds Read

Vulnerability CVE-2023-49126

The affected applications contain an out of bounds read past the end of an allocated structure while parsing specially crafted PAR files. This could allow an attacker to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-125: Out-of-bounds Read

Vulnerability CVE-2023-49127

The affected applications contain an out of bounds read past the end of an allocated structure while parsing specially crafted PAR files. This could allow an attacker to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-125: Out-of-bounds Read

Vulnerability CVE-2023-49128

The affected application contains an out of bounds write past the end of an allocated buffer while parsing a specially crafted PAR file. This could allow an attacker to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-787: Out-of-bounds Write

Vulnerability CVE-2023-49129

The affected applications contain a stack overflow vulnerability while parsing specially crafted PAR files. This could allow an attacker to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-121: Stack-based Buffer Overflow

Vulnerability CVE-2023-49130

The affected application is vulnerable to uninitialized pointer access while parsing specially crafted PAR files. An attacker could leverage this vulnerability to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-824: Access of Uninitialized Pointer

Vulnerability CVE-2023-49131

The affected application is vulnerable to uninitialized pointer access while parsing specially crafted PAR files. An attacker could leverage this vulnerability to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-824: Access of Uninitialized Pointer

Vulnerability CVE-2023-49132

The affected application is vulnerable to uninitialized pointer access while parsing specially crafted PAR files. An attacker could leverage this vulnerability to execute code in the context of the current process.

CVSS v3.1 Base Score	7.8
CVSS Vector	CVSS:3.1/AV:L/AC:L/PR:N/UI:R/S:U/C:H/I:H/A:H/E:P/RL:O/RC:C
CWE	CWE-824: Access of Uninitialized Pointer

ACKNOWLEDGMENTS

Siemens thanks the following party for its efforts:

- Michael Heinzl for coordinated disclosure

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 (2024-01-09): Publication Date

TERMS OF USE