

Information Disclosure and Remote Code Execution Vulnerabilities in MELSEC-Q/L Series CPU Module

Release date: March 14, 2024
Last update date: June 13, 2024
Mitsubishi Electric Corporation

Overview

Information disclosure and remote code execution vulnerabilities due to Incorrect Pointer Scaling (CWE-468¹) and Integer Overflow or Wraparound (CWE-190²) exist in MELSEC-Q/L Series CPU modules. A remote attacker may be able to read arbitrary information from a target product or execute malicious code on a target product by sending a specially crafted packet. (CVE-2024-0802, CVE-2024-0803, CVE-2024-1915, CVE-2024-1916, CVE-2024-1917)

CVSS³

CVE-2024-0802	CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:H	Base Score : 9.8
CVE-2024-0803	CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:H	Base Score : 9.8
CVE-2024-1915	CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:H	Base Score : 9.8
CVE-2024-1916	CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:H	Base Score : 9.8
CVE-2024-1917	CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:H	Base Score : 9.8

Affected products

The following products and firmware versions are affected:

Series	Product name	Firmware Version
MELSEC-Q Series	Q03UDECPU, Q04/06/10/13/20/26/50/100UDEHCPU	The first 5 digits of serial No. "26061" and prior
	Q03/04/06/13/26UDVCP	The first 5 digits of serial No. "26061" and prior
	Q04/06/13/26UDPVCPU	The first 5 digits of serial No. "26061" and prior
MELSEC-L Series	L02/06/26CPU(-P), L26CPU(-P)BT	The first 5 digits of serial No. "26041" and prior

Description

The following five vulnerabilities exist in MELSEC-Q/L series CPU units.

- CVE-2024-0802: Information disclosure and remote code execution vulnerability due to Incorrect Pointer Scaling (CWE-468)
- CVE-2024-0803: Remote code execution vulnerability due to Integer Overflow or Wraparound (CWE-190)
- CVE-2024-1915: Remote code execution vulnerability due to Incorrect Pointer Scaling (CWE-468)
- CVE-2024-1916: Remote code execution vulnerability due to Integer Overflow or Wraparound (CWE-190)
- CVE-2024-1917: Remote code execution vulnerability due to Integer Overflow or Wraparound (CWE-190)

Impact

[CVE-2024-0802]

A remote attacker may be able to read arbitrary information from a target product or execute malicious code on a target product by sending a specially crafted packet.

[CVE-2024-0803, CVE-2024-1915, CVE-2024-1916, CVE-2024-1917]

A remote attacker may be able to execute malicious code on a target product by sending a specially crafted packet.

Countermeasures for Customers

Take the following Mitigations / Workarounds.

We have released the fixed version as shown below, but updating the product to the fixed version is not available. Please consider replacing to MELSEC iQ-R Series.

¹ <https://cwe.mitre.org/data/definitions/468.html>

² <https://cwe.mitre.org/data/definitions/190.html>

³ <https://www.first.org/cvss/v3.1/specification-document>

Countermeasures for Products

The following products have been fixed.

Series	Product name	Firmware Version
MELSEC-Q Series	Q03UDECPU, Q04/06/10/13/20/26/50/100UDEHCPU	The first 5 digits of serial No. "26062" or later
	Q03/04/06/13/26UDVCP	The first 5 digits of serial No. "26062" or later
	Q04/06/13/26UDPVCP	The first 5 digits of serial No. "26062" or later
MELSEC-L Series	L02/06/26CPU(-P), L26CPU(-P)BT	The first 5 digits of serial No. "26042" or later

Mitigations/Workarounds

Mitsubishi Electric recommends that customers take the following mitigation measures to minimize the risk of exploiting these vulnerabilities:

- Use a firewall, virtual private network (VPN), etc. to prevent unauthorized access when Internet access is required.
- Use within a LAN and block access from untrusted networks and hosts through firewalls.
- Restrict physical access to the affected product as well as to the personal computers and the network devices that can communicate with it.
- Install antivirus software on your personal computer that can access the affected product.

Acknowledgement

Mitsubishi Electric would like to thank Anton Dorfman (Positive Technologies) who reported these vulnerabilities.

Contact information

Please contact your local Mitsubishi Electric representative.

<Inquiries | MITSUBISHI ELECTRIC FA>

<https://www.mitsubishielectric.com/fa/support/index.html>

Update history

June 13, 2024

Add modules that have been fixed to "Countermeasures for Products".

Q03UDECPU, Q04/06/10/13/20/26/50/100UDEHCPU,

Q03/04/06/13/26UDVCP, Q04/06/13/26UDPVCP

May 16, 2024

"Countermeasures" divided into "Countermeasures for Customers" and "Countermeasures for Products".

Add modules that have been fixed to "Countermeasures for Products".

L02/06/26CPU(-P), L26CPU(-P)BT