Intel® CSME Version Detection Tool

User Guide

June 2020

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1 *Introduction*

This document will guide you through multiple processes to detect the following security vulnerabilities:

- SA-00086

- SA-00125

- SA-00213

- SA-00241

- SA-00295

- SA-00404

- SA-00391

For more information, refer to the relevant Intel Security Advisory list at *https://www.intel.com/content/www/us/en/support/articles/000031784/technologies.html*.

If you are a user of a single Windows* PC and you wish to determine its status:
We have provided the **Intel® CSME Version Detection Tool GUI** application
(*CSME-Version-Detection-Tool.exe*) for local analysis of a single or standalone Windows* system.

If you want to determine the status for multiple Windows* machines:
We have provided the **Intel® CSME Version Detection Tool Console** application (*CSME-Version-Detection-Tool-console.exe*). This tool can perform detection and write its findings to the local Windows* Registry, and (optionally) to an XML and/or .txt file, for subsequent collection and analysis.

If you are a user of a Linux* system and you wish to determine its status:
We have provided the **Intel® CSME Version Detection Tool Console** application (*intel_csme_version_detection_tool*) for analysis of Linux* systems.

Note: The Detection Tool does not support MacOS.

2 *Using the Intel® CSME Version Detection Tool*

What is the Intel® CSME Version Detection Tool?

The **Intel® CSME Version Detection Tool** can be used by local users or by an IT administrator to determine whether a system is vulnerable to the exploits documented in one or more of the following security advisories:

- SA-00086
- SA-00125
- SA-00213
- SA-00241
- SA-00295
- SA-00404
- SA-00391

The Detection Tool is offered in two versions for Windows* and in a single version for Linux*:

- For Windows* there is an interactive GUI tool that retrieves the device's hardware and software details and provides an indication of risk assessment. This version is recommended for evaluating a single local Windows* system.

- The second version, for Linux* and Windows*, is a console executable that can perform the risk assessment and optionally save the detection information to the Windows* registry (Windows* only), to an XML file, and/or to a text file. This version is more convenient for IT administrators who need to perform bulk detection operations across multiple machines.

The tool is available for download at https://downloadcenter.intel.com/download/28632.

2.1 System Requirements

Windows*:

- Microsoft* Windows* 7, 8, 8.1, 10 (including 10 S), or 2012 R2 for servers (x64) (Windows*10 IOT Core is not supported)

- .Net version 4.5 or later

- Intel® Management Engine Interface (Intel® MEI) driver

- Administration privileges

Linux*:

- Ubuntu* LTS 16.04 (for client), Redhat 7.2 (for Server)

- Python* 2.6.6

- Local operating system administrative access

2.2 Installing the Tool – Linux*

Unzip the package into a directory.

Ensure that Execute permission is set on the following files:

- intel_csme_version_detection_tool

2.3 Running the Linux* Console Tool

From the installation directory, if Python 2.x is installed, execute the command:
sudo ./ *intel_csme_version_detection_tool*

Note: If Python 3.x (and not Python 2.x) is installed, execute the command:
sudo python3 *intel_csme_version_detection_tool*

Note: The Linux* tool accepts no command line options.

2.4 Installing the Tool – Windows*

Unzip the downloaded package into a directory.

The console tool can be found in the **DiscoveryTool** subdirectory. The GUI tool can be

found in the **DiscoveryTool.GUI** directory.
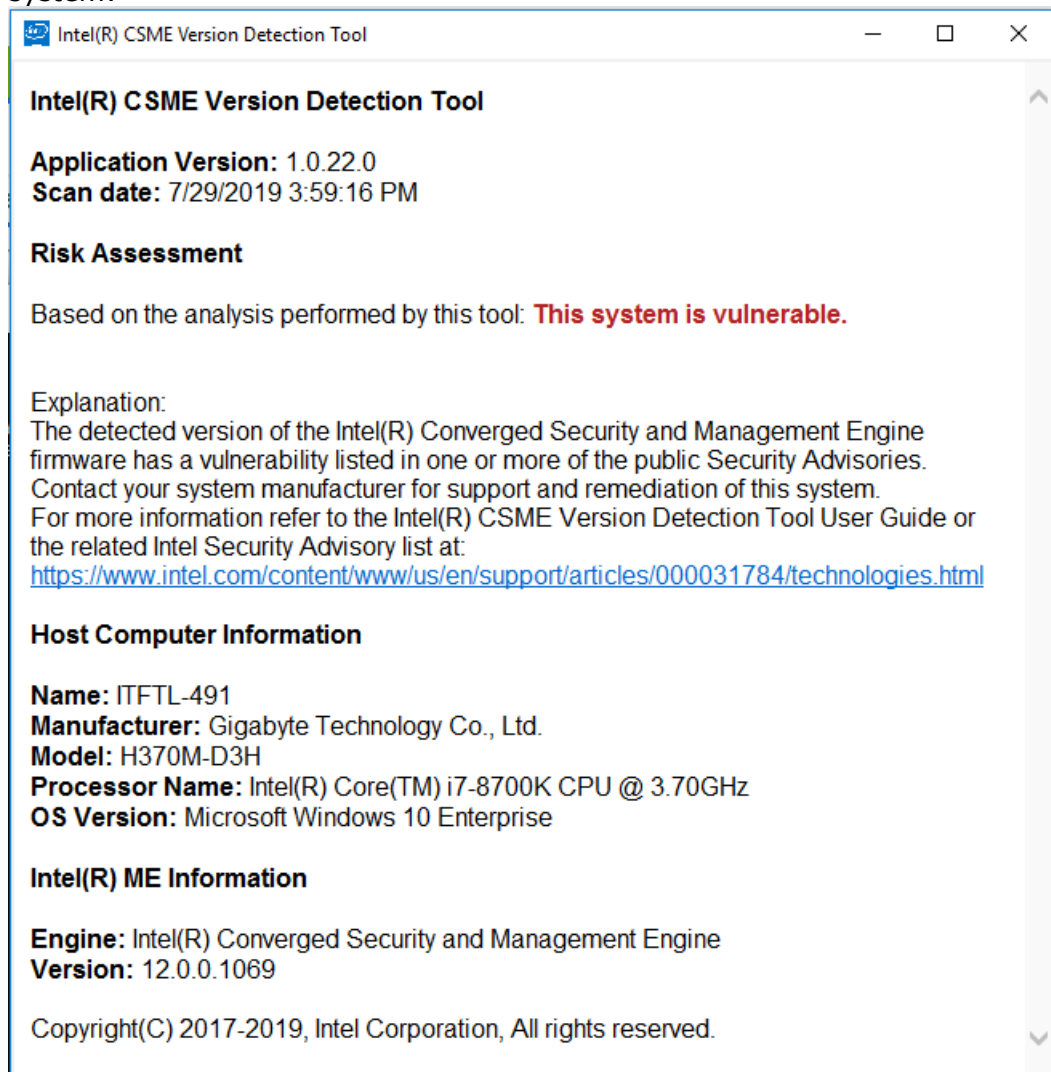
2.5 Running the GUI Tool

Intel-CSME-Detection.exe is designed to run on a single system. The tool outputs
the detection information to the screen.

To run the GUI tool on a Windows system:

- Double-click **CSME-Version-Detection-Tool.exe**. The tool displays the platform's status.

Following is an example of the program's output when run on a vulnerable system:
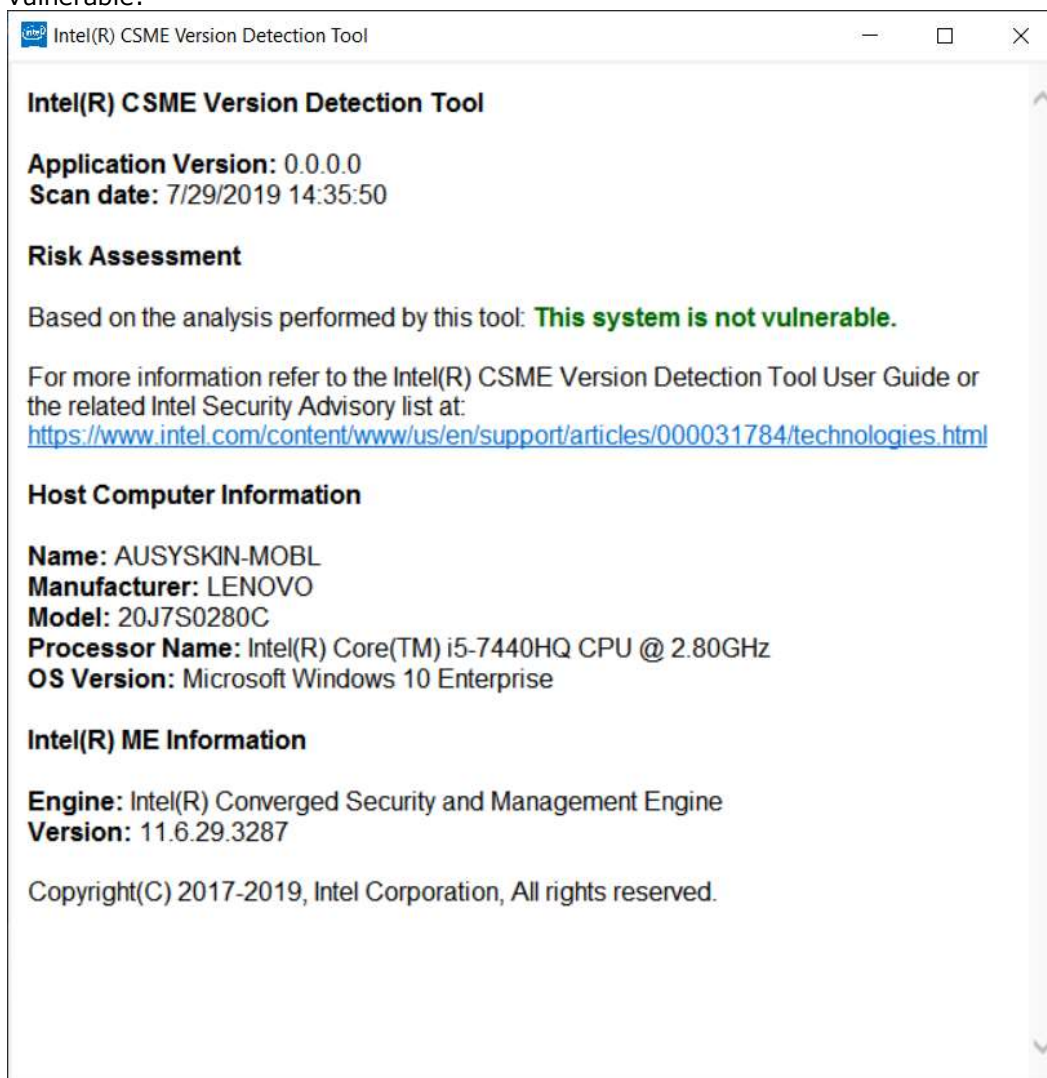

Intel(R) CSME Version Detection Tool

Intel(R) CSME Version Detection Tool

Application Version: 1.0.22.0
Scan date: 7/29/2019 3:59:16 PM

Risk Assessment

Based on the analysis performed by this tool: **This system is vulnerable.**

Explanation:
The detected version of the Intel(R) Converged Security and Management Engine firmware has a vulnerability listed in one or more of the public Security Advisories. Contact your system manufacturer for support and remediation of this system.
For more information refer to the Intel(R) CSME Version Detection Tool User Guide or the related Intel Security Advisory list at:
https://www.intel.com/content/www/us/en/support/articles/000031784/technologies.html

Host Computer Information

Name: ITFTL-491
Manufacturer: Gigabyte Technology Co., Ltd.
Model: H370M-D3H
Processor Name: Intel(R) Core(TM) i7-8700K CPU @ 3.70GHz
OS Version: Microsoft Windows 10 Enterprise

Intel(R) ME Information

Engine: Intel(R) Converged Security and Management Engine
Version: 12.0.0.1069

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Figure 1: Output example for a vulnerable system

Following is an example of the program's output when run on a system that is not vulnerable:

Intel(R) CSME Version Detection Tool

Intel(R) CSME Version Detection Tool

Application Version: 0.0.0.0
Scan date: 7/29/2019 14:35:50

Risk Assessment

Based on the analysis performed by this tool: **This system is not vulnerable.**

For more information refer to the Intel(R) CSME Version Detection Tool User Guide or the related Intel Security Advisory list at:
https://www.intel.com/content/www/us/en/support/articles/000031784/technologies.html

Host Computer Information

Name: AUSYSKIN-MOBL
Manufacturer: LENOVO
Model: 20J7S0280C
Processor Name: Intel(R) Core(TM) i5-7440HQ CPU @ 2.80GHz
OS Version: Microsoft Windows 10 Enterprise

Intel(R) ME Information

Engine: Intel(R) Converged Security and Management Engine
Version: 11.6.29.3287

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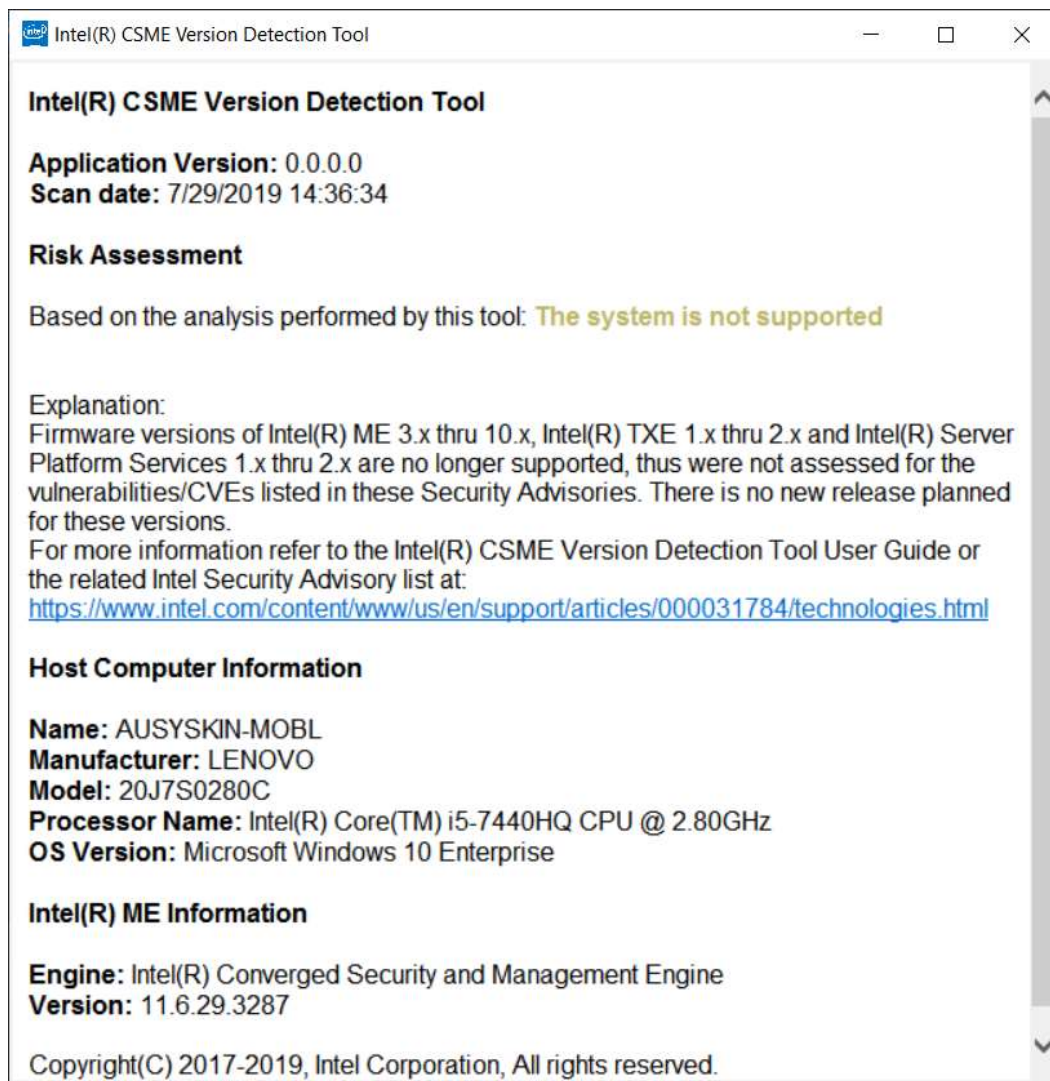**Figure 2: Output example for system that is not vulnerable**

Following is an example of the program's output when run on a system that is not supported by the tool:

Figure 3: Output example for system not supported by the tool

Note: *On SPS platforms, the recovery version is displayed in the Intel® ME Information section.

Note: If the tool displays a "Not Supported" message, and your Intel® ME version is between 6.x and 10.x, refer to https://downloadcenter.intel.com/download/29057/ for the tool that is applicable for your platform.

2.6　Running the Windows* Console Tool

Execute **CSME-Version-Detection-Tool-console.exe** from a command prompt.

Syntax: CSME-Version-Detection-Tool-console.exe [[option...]]

The following table shows the program's available options:

Command Line Option	Functionality
-n, --noregistry	Prevents writing results to the registry
-c, --noconsole	Prevents results from being displayed on the console
-p <filepath>, --filepath <filepath>	Path to the directory in which to store the output file.
-h, --help, -?	Displays these command line switches and their functions

Figure 4: Windows* Console Tool Options

Following is an example of the **CSME-Version-Detection-Tool-console.exe** output:

Figure 5: Console Output Example

The following table describes the logic that is used to determine a risk assessment:

Message	Meaning
Vulnerable	The detected version of the Management Engine firmware is considered vulnerable for one or more of the following: • SA-00086 • SA-00125 • SA-00213 • SA-00241 • SA-00295 • SA-00404 • SA-00391
Not Vulnerable	The system meets the "Not Vulnerable" criteria described in *Identifying impacted systems using the **Intel-CSME-Detection** Detection Tool*.
May Be Vulnerable	Tool could not communicate with the Intel® MEI/TXEI Driver. Platform vulnerability cannot be ascertained.
Unknown	The tool did not receive a valid response when requesting hardware inventory data from your computer. Contact the system manufacturer for assistance in determining the vulnerability of this system.

Message	Meaning
Not Supported	Firmware versions of Intel® ME 3.x thru 10.x, Intel® TXE 1.x thru 2.x and Intel® Server Platform Services 1.x thru 2.x are no longer supported, thus were not assessed for the vulnerabilities/CVEs listed in these security advisories There is no new release planned for these versions.

Figure 6: Risk Assessment Logic

3   *Results*

The amount of data returned by the **Intel–CSME-Detection** command depends on whether the Intel manageability driver stack is loaded onto the system. If the Intel® Management Engine Interface (Intel® MEI) driver is present, a more verbose set of data will be displayed. Some of the fields may not be supported by the manufacturer.

3.1   Registry Location

The values from the results table can be found in the following registry key:

HKLM\SOFTWARE\Intel\CSME Version Detection Tool

Under this location, **System Status/System Risk** contains the vulnerability status and **System Status/System Risk Value** contains the application's return code.

3.2   XML

If you choose to write results to an XML file, that file will be stored in the directory from which you executed **CSME-Version-Detection-Tool-console.exe** or in the path specified by the command line options. The results include information such as hardware inventory and OS. The filename will have the format **CSME-Version-Detection-Tool-**<ComputerName>-<date>-<Time>**.xml**.

3.3   Console Return Codes

Number	Status	Meaning
0	NOTVULNERABLE | STATUS_OK	Platform is not vulnerable
10	HECI_NOT_INSTALLED	Intel® ME driver is not installed on the platform. Unable to determine platform vulnerability.
11	HECI_ERROR	Error communicating with the Intel® ME driver. Unable to determine platform vulnerability.
100	DISCOVERY_VULNERABLE_NOT_PATCHED	Platform is vulnerable.
101	DISCOVERY_NOT_VULNERABLE_PATCHED	Platform is not vulnerable, it has been patched
102	NOT_SUPPORTED	This platform is no longer supported. No firmware update is available for security issues.
200	DISCOVERY_UNKNOWN	Unable to determine platform vulnerability

3.4   Console Output Values

Value	Location	Description
Application Version	Version of the scanning tool used	
Scan Date	Date and time of the scan	
Computer Name	Hardware inventory	Name of the computer scanned
Computer Manufacturer	Computer's manufacturer	
Computer Model	Computer's model	
Processor	Computer's processor model	
Engine	Intel® ME Firmware information	ME, CSME, TXE or SPS
ME Version	A string value with the full Intel® ME firmware version number in the following format: Major.Minor.Hotfix.Build	
SVN	Firmware Security Version Number	
*** Risk Assessment ***	Risk Assessment	Refer to Figure 6: Risk Assessment Logic

Figure 8: Console Output Values

4   *Troubleshooting Signature Validation Issues*

The Detection tool makes every effort to validate its own authenticity before running.

In the event that the tool cannot validate itself, a message similar to the following is displayed:

The signature of the file cannot be validated.Please refer to the Intel® CSME Version Detection Tool user guide for more information.

Note: In case of a validation issue, you should ensure that the latest Root Certificate update for Windows* has been installed. For more information, refer to https://support.microsoft.com/en-us/help/931125/how-to-get-a-root-certificateupdate-for-windows