



# **Intel® Converged Security Engine Software**

**Installation and Configuration Guide**

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***Supporting Intel® CSE firmware version: 13.30***

***September 2019***

***Revision 1.1***



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## Revision History

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Revision Number	Description	Revision Date
0.5	<ul style="list-style-type: none"><li>• Initial Release</li></ul>	December 2017
0.6	<ul style="list-style-type: none"><li>• Update system requirement</li><li>• Removed Intel® IPT and IOC</li><li>• Update section 3.1 Intel® CSE SW Installer</li><li>• In section 4.1 , added the description of setupME.exe CL mode</li><li>• Add description about release version numbering in section 7</li></ul>	April 2018
0.7	<ul style="list-style-type: none"><li>• Align revision number</li></ul>	April 2018
0.8	<ul style="list-style-type: none"><li>• Update section 4.1 for Windows* 10 RS3 and beyond</li><li>• Add uninstall steps for extension INF drivers in section 6</li><li>• replace ME13.30 terms with CSE13.30</li></ul>	August 2018
0.81	<ul style="list-style-type: none"><li>• Updated references of Intel® CSE</li></ul>	December 2018
0.9	<ul style="list-style-type: none"><li>• Add section 3.3 ME_SW_DCH</li><li>• Update section 4.1 for DCH installer</li></ul>	February 2019
0.91	<ul style="list-style-type: none"><li>• Update description for SPD in section 2.4</li></ul>	March 2019
1.0	<ul style="list-style-type: none"><li>• Change current copyright year to 2019</li></ul>	July 2019
1.1	<ul style="list-style-type: none"><li>• Remove OEM extension INF since the function has been migrated to MEI driver</li><li>• Update the registry path in section 5</li><li>• Update the installation steps in section 4.1</li><li>• Remove Intel confidential remark</li></ul>	September 2019



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# **1 Introduction**

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This guide describes how to install, configure and troubleshoot the Intel® Converged Security Engine (Intel® CSE) software components.

For a list of software components, see *Software Components Overview*.

## **1.1 System Requirements**

To enable installation and use of the Intel® CSE software components, the following is required on the platform:

- Windows\* 10 RS3 or beyond





## 2 Software Components Overview

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This section lists the software components supplied with the firmware kit and provides a short overview of each component.

To view the installer options, enter the following in a Command window:  
**SetupME.exe -?** and the help dialog should appear.

### 2.1 Intel® Management Engine Interface (Intel® MEI)

This driver is the interface between the Intel® Converged Security Engine (Intel® CSE) firmware and the operating system. Drivers and applications on the host that wish to interact with Intel® CSE can use the Intel® MEI host Windows\* driver.

### 2.2 Intel® Dynamic Application Loader (Intel® DAL)

This is a service which exposes the host interface to usage of the Intel® Dynamic Application Loader infrastructure abilities, for loading/unloading signed applications to the Trusted Execution Environment and communicating with them. It will only be installed if the platform is Intel® Dynamic Application Loader capable. It is not available over Windows Server\* 2003, Windows Server\* 2008, Windows Server\* 2012 or Windows Server\* 2016.

### 2.3 Intel® Capability Licensing Services Client (iCLS Client)

Intel® Capability Licensing Services Client is a set of applications, services and dynamic libraries used to establish a trusted connection between FW and Intel's backend. It is responsible for:

- EPID group certificates provisioning to the FW
- Trusted Computing Base Recovery: EPID rekey
- Platform Trust Technology (firmware TPM) recertification
- Delivering assets to the FW (i.e. DRM keying material, signed permits)

### 2.4 Intel® Storage Proxy Driver (Intel® SPD)

Intel® Storage Proxy Driver is a host OS driver for UFS management. Intel® CSE and BIOS uses this proxy driver to perform the storage access during the Post OS boot scenario where storage head is owned by the OS storage driver



## 3 Installer List

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This section describes the installation packages for the Intel® CSE software.

### 3.1 Intel® CSE SW Installer

This installation program installs the Intel® CSE software components required for the platform on which you are installing, and installs only those components that match your platform's capabilities.

Following is a complete list of the components:

- Intel® Management Engine Interface (Intel® ME Interface)
- Intel® Dynamic Application Loader (Intel® DAL)
- Intel® Capability Licensing Service Client (iCLS Client)
- Intel® Storage Proxy Driver (Intel® SPD)

The following table describes the components that are installed for the different platform capabilities:

If the platform includes this capability....	These software components are installed	Comments
Intel® Dynamic Application Loader	Intel® MEI driver, Intel SPD driver, Intel® DAL service, Intel® iCLS	The Installer provides the option to install only Intel® MEI driver and Intel® DAL service by running the installer with the following flag: setupME.exe -meidalonly
PAVP	Intel® MEI driver, Intel SPD driver, Intel® iCLS	N/A
None of the above	Intel® MEI driver, Intel SPD driver	N/A

### 3.2 Intel® MEI-Only Installer

This package installs the Intel® MEI driver only.





## 4 Installing Intel® CSE Software Components

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### 4.1 How to Install

The software installer **SetupME.exe** is located in the firmware kit in the **Installers\ME\_SW\_DCH** folder.

There is also a version of the installer that installs only the MEI driver, and not the other software components. It is called **MEISetup.exe**, and is located at **Installers\MEI-Only Installer MSI**.

- 1) Double-click the installer to install the software components.
- 2) Follow the steps in the installation wizard to complete the installation.
- 3) When the installation is complete, click **Next** in the *Setup Progress* window, then click **Finish** in the *Setup is Complete* window.

The software installer also has command line mode for specific installing configuration, under command line mode execute SetupME.exe -? Will display the available options as follows:

-?

Displays this help dialog.

-b

Reboots the system without prompting after setup is complete.

-l <LCID>

Specifies the language of the setup dialogs.

-nodrv

Does not install the driver.

-overwrite

Ignores the overwrite warning.

-p <path>

Changes default directory location for application files.

-report <path>

Changes the default log path.

-s

Does not display any setup dialogs (silent install).

-ver

Displays driver versions.



-drvonly  
Installs drivers only.

-meidalonly  
Installs Intel® Management Engine Interface and Intel® Dynamic Application Loader.

-preinst  
Installs all drivers even if hardware is not present.

-tcs  
Installs only TCS.

The installation logs can be found at <user folder>\Intel\Logs

The driver for MEI, JHI, SPD and iCLS are provided as UWD INF installer. The component INFs are located in the firmware kit in the **Installers\WindowsDriverPackages** folder.

To install the drivers, right click on INF file, and click on install.

**Note that MEI driver is required to be installed before other drivers.**

MEI: heci.inf in Installers\WindowsDriverPackages\MEI\win10

SPD: SPD.inf in Installers\WindowsDriverPackages\SPD

iCLS: iclsClient.inf in Installers\WindowsDriverPackages\iclsClientUWD

JHI: DAL.inf in Installers\WindowsDriverPackages\JHI\win10

After the installation , there are devices shown in the device manager as following:

MEI: System devices \ Intel(R) Management Engine Interface

SPD: System devices \ Intel(R) Trusted Execution Engine Storage Proxy Device

JHI: Software components \ Intel(R) Dynamic Application Loader Host Interface

iCLS: Software components \ Intel(R) iCLS Client

System manufacturers can take advantage of the components in this folder do offline injection e.g. via DISM. More information about DISM can be found at:

<https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/what-is-dism>



## 4.2 Error Codes during Installation

Error code	Error String	Description
0	ERROR_SUCCESS	Operation was successful and a reboot is not needed. Use of the -b switch will not cause a reboot in this case.
1602	ERROR_INSTALL_USEREXIT	One of: <ul style="list-style-type: none"> <li>The user canceled the operation</li> <li>Setup was run silently but a downgrade was detected and the -overwrite switch was not used.</li> </ul>
1603	ERROR_INSTALL_FAILURE	General failure code. The error could have been an unanticipated error or one of the expected errors such as: <ul style="list-style-type: none"> <li>Not admin</li> <li>No device matches</li> <li>OS requirement not met</li> </ul>
1633	ERROR_INSTALL_PLATFORM_UNSUPPORTED	Architectures not supported
1641	ERROR_SUCCESS_REBOOT_INITIATED	A system reboot has been initiated either by the user choosing to "reboot now" or the -b switch was used in silent mode and setup requires a reboot. Note that depending on the OS and platform speed, the calling process may never get this code due to it being terminated as part of the shutdown procedure.
3010	ERROR_SUCCESS_REBOOT_REQUIRED	Successful, but a reboot is required to complete the process.

Note that the installer may return other error codes in cases where an application or other process called returns one. The error code returned will be passed through.

## 4.3 Firewall policy

To use DAL, applications need to be able to communicate with the DAL service over a network interface. The following traffic must not be blocked:

- Incoming traffic
  - From: Localhost
  - To process: jhi\_service.exe
  - Port: Any



## 5 Identifying Intel® CSE Software Components

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Once the Intel® CSE software stack is installed on a system, the contents that kit can be identified via a single Software Package Version (SPV) marker. The Single Package Versioning feature provides one unique version identifier for a package (i.e. anything that is updated in the package iterates the version number). This SPV is useful for systems which need to identify and manage installations such as Software Inventory Control applications used in large IT organizations.

Each Intel® CSE Software Installer package contains a file called the 'mup.xml' which can be used to identify the SPV. The mup.xml describes the following information:

**Example:**

```
<fullpackageidentifier>
  <msis>
    <msi componentID="100950">
      <identifyingnumber>{1CEAC85D-2590-4760-800F-
8DE5E91F3700}</identifyingnumber>

      <upgradecode>{1CEAC85D-2590-4760-800F-8DE5E91F3700}</upgradecode>

      <version>yyww.13.30.bbbb</version>

    </msi>
  </msis>
</fullpackageidentifier>
```

Typical release version numbering is as follows, yyww.mm.nn.bbbb where:

- yy – Build year
- ww – Build WorkWeek
- mm – Major version, set as 13 for CSE13.30
- nn – Minor version, set as 30 for CSE13.30
- bbbb – Build number

E.g. If the FW kit that was built on WW09'18 is: 13.30.0.xxxx, the SW kit will be: 1809.13.30.bbbb

The 'fullpackageidentifier' section points out where to look for the package version and what it should be in order to be the latest. The 'DisplayVersion' and {GUID} above are found Microsoft\* Windows\* registry in the locations below:

Win32:

HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{GUID}\DisplayVersion

Win64:



HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{GU  
ID}\DisplayVersion





## 6 Uninstalling Intel® CSE Software

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If you are installing CSME SW installer – SetupME.exe in ME\_SW\_DCH, uninstall the software via the Windows Control Panel:

- Double-click Intel® Management Engine Components to uninstall the Intel® CSE software components.
- The uninstall welcome window opens.
- Click **Next**. Uninstall will be performed.
- After uninstall operations are completed, click **Next** to reach the uninstall completion window.
- Restart is required for changes to take effect. Click **Finish** to end the uninstall.

If you are installing the inf drivers manually – from the WindowsDriverPackages folder, you should uninstall them manually from device manager

**Note:** Don't manually uninstall ME SW components via device manager if you are installing CSME SW using installer

**Note:** If some system dlls have been removed between the installation and uninstallation of the Intel® CSE software, the uninstallation may fail. This has been noted, for example, when uninstalling Microsoft\* Visual C.

For the extension INF driver(iCLS , JHI)

- Before uninstalling an extension driver, you must first uninstall the base driver(MEI). Next, run PnPUTil on the extension INF.
- Run pnputil /enum-drivers, search original name of the extension INF driver and get the published Name
- Run pnputil /delete-driver <published name> /uninstall

