

# **Intel® Converged Security and Management Engine Software**

**Installation and Configuration Guide**

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***Supporting Intel® CSME firmware version: 11.8, 12, 14, 15 and 16***

***June 2022***

***Revision 1.2***



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## Revision History

Revision Number	Description	Revision Date
1.0	<ul style="list-style-type: none"><li>• initial release</li></ul>	November 2019
1.1	<ul style="list-style-type: none"><li>• Change copyright year to 2021</li><li>• Remove Intel® Online Connect (IOC)</li><li>• Remove MEI-only installer</li><li>• Update uninstall method for INF drivers</li><li>• update OEMextension INF for removing Redundant software components in device manager.</li><li>• Update requirement for Windows 7*</li><li>• Update IMSS installation require Microsoft* .NET framework 4.6.2</li><li>• Replace Intel® iCLS with Intel® TCS</li><li>• Add description: Intel® DAL also known as JHI</li><li>• Add flag -wmionly in installer options</li><li>• Change the display name of MEI device</li><li>• Update the table for different platform capabilities</li><li>• Update supporting OS</li><li>• Add requirement of Intel® Wiman</li><li>• Add note for Wiman uninstallation</li><li>• Add extension INF description: IMSS_HSA_EXTENSION and WMIProvider</li><li>• Update description for "Information Unavailable" Displayed instead of Status</li></ul>	October 2021
1.2	<ul style="list-style-type: none"><li>• Update copyright year to 2022</li><li>• Remove ME_SW_MSI, MEI-Only Installer and advanced configuration of IMSS</li><li>• Add description about SOL LMS Extension and LMS installation requirement</li><li>• Update table in section 3.1</li><li>• Update supporting OS and add Windows 11* in system requirement</li><li>• Update uninstall requirement in section 8</li><li>• Update .NET framework requirement to 4.8</li></ul>	June 2022



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# **1 Introduction**

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

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





## 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.

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

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

### 2.2 Intel® Serial Over LAN (SOL) Driver

This driver enables the remote display of managed client's user interface through management console and emulates serial communication over standard network connection. This driver supports systems with one of the following technologies: Intel® AMT, Intel® Standard Manageability.

### 2.3 Intel® Local Manageability Service (Intel® LMS)

This service enables local applications running on Intel® AMT, Intel® SBA or Intel® Standard Manageability supported devices to use common SOAP and WS-Management functionality that is available to remote applications. It listens to the Intel® CSME IANA (Internet Assigned Names Authority) ports and routes all traffic to the firmware through the Intel® MEI.

It also provides Intel® CSME with various host operation abilities. For instance, it enables Intel® CSME technologies to write user notifications to the local host OS event log for the purpose of notifying end users of predefined events, such as when support personnel connect remotely to the platform for a healing session. Intel provides documentation on how ISVs can extract these events from the event log for use in their applications.

After Intel® MEI driver 2124.100.0.1096, SOL LMS Extension is required to be installed along with installation of Intel® LMS. LMS will be functional only if Intel® SOL device exists and SOL LMS extension INF is installed.

### 2.4 Intel® CSME WMI Provider

The Intel® CSME WMI provider enables ISV and IT administrators to perform Intel® AMT discovery and configuration operations using WMI technology. The Intel® CSME WMI provider complements the existing WS-Management API by abstracting low-level



Intel® MEI operations through WMI. In addition, the provider enables the user to subscribe to Intel® LMS events and receive them via WMI events.

Following are the main functionalities implemented in the Intel® CSME WMI provider:

- Discovery of Intel® CSME and Intel® AMT related attributes, such as firmware version and provisioning state.
- Local activation operation, performed as part of Remote Configuration.
- Hardware events.

The Intel® CSME WMI provider is implemented as a DLL (MeProv.dll) and operates as part of Windows\* WMI service.

Intel® CSME WMI Provider has switched to INF installation support. Refer to section 5.1 for more detail of installing method.

## 2.5 Intel® Management and Security Status (Intel® MSS) Application

**Note:** This application is a Microsoft Windows\* application that displays information about a platform's Intel® Active Management Technology (Intel® AMT), Intel® Small Business Advantage (Intel® SBA), Intel® Standard Manageability, and Intel® Anti-Theft services. The Intel® Management and Security Status application indicates whether Intel® AMT, Intel® SBA, Intel® AT and Intel® Standard Manageability are running on the platform.

When Intel® Management and Security Status application is running on the platform, an icon is displayed in the notification area. Clicking the icon opens the application.

By default, the icon is loaded and displayed every time Windows\* starts. The icon will be gray if the Intel® LMS is not running or the Intel® MEI driver is disabled or unavailable.

**Note:** If the Intel® Management and Security Status application starts automatically as a result of the user logging on to Windows\*, the icon will be loaded to the notification area only if Intel® AMT, Intel® SBA or Intel® Standard Manageability exists on the system. If the Intel® Management and Security Status application is started manually (via the Start menu or file manager), the icon is loaded even if none of these technologies exists.

**Note:** The information displayed in the Intel® Management and Security Status application is refreshed at pre-defined intervals. The application dynamically hides tabs that are not relevant. For example, on platforms that do not support Intel® AT, the Intel® AT tab is hidden.

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

Also known as Intel® JHI. 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.

## 2.7 Intel® Trusted Connect Service (Intel® TCS)

Also known as Intel® Capability Licensing Services (Intel® iCLS). It 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)

Intel® TCS will be not installed by Intel® CSME SW installer and will be no functional if Intel® CSME FW support On-Die Certificate Authority (ODCA), e.g., Tiger lake platform running FW 15.0.10.1368 or later. Detail refers to TA#634464.

## 2.8 Intel® Wireless Manageability (Intel® Wiman)

This driver includes CSME-related flows which once were in Windows\* WIFI driver. This driver is placed on the WLAN device stack and will be capable of filtering OS request, especially System-state and device power state queries and transitions. In addition this driver will be capable of filtering WDI - IHV requests and notifications, filtering and diverting Tx and Rx data traffic to CSME, injecting CSME data traffic to WLAN Tx path.

Note that Intel® Wiman driver is only present and functional on Corporate sku FW image for coffee lake platform and above.

To comply with Microsoft DC requirement, Intel® Wiman extension is required to be installed along with installation of Intel® Wiman driver. Intel® Wiman will be functional only if Intel® Wiman extension INF is installed.



## 3 Installer List

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

### 3.1 ME\_SW\_DCH

This installation program in SW\ME\_SW\_DCH installs the Intel® CSME 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 in the installer:

- Intel® Management Engine Interface (Intel® MEI)
- Intel® Serial Over LAN (SOL) driver
- Intel® Local Manageability Service (Intel® LMS)
- Intel® CSME WMI provider
- Intel® Dynamic Application Loader (Intel® DAL)
- Intel® Trusted Connect Service (Intel® TCS)
- Intel® Wireless Manageability (Wiman)

**Note:** IMSS application will not be installed by this installer. For installation of IMSS please refer to section 5.2.

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
Intel® AMT, Intel® SBA, Intel® Standard Manageability	Intel® MEI driver, Intel® SOL driver, Intel® TCS <sup>(1)</sup> , Intel® LMS, Intel® CSME WMI provider, Intel® Wiman <sup>(2)</sup> , Intel® DAL <sup>(3)</sup>
Intel® Dynamic Application Loader	Intel® MEI driver, Intel® DAL <sup>(3)</sup>
None of the above	Intel® MEI driver, Intel® CSME WMI provider

**Note:**

- (1) Intel® TCS is not installed by Intel® CSME SW installer and will be no functional if Intel® CSME FW support On-Die Certificate Authority (ODCA), e.g., Tiger Lake platform running Intel® CSME FW 15.0.10.1368 or later. Detail refers to TA#634464.



- (2) Intel® Wiman driver is only installed and functional on Corporate sku FW image for coffee lake platform and above.
- (3) The Installer provides the option to install only Intel® MEI driver and Intel® DAL service by running the installer with the following flag: setup.exe –meidalonly.

## **3.2 Drivers**

This package includes the INF installers for Intel® CSME software components and Intel® MSS APPX package.

- Intel® MEI: heci.inf in Drivers\MEI\
- Intel® SOL: mesrl.inf in Drivers\SOL (only applicable for corporate sku)
- Intel® TCS: iclsClient.inf in Drivers\ICLS
- Intel® LMS: LMS.inf in Drivers\LMS (only applicable for corporate sku)
- Intel® DAL: DAL.inf in Drivers\JHI\win10
- Intel® MSS APPX: Drivers\IMSS (only applicable for corporate sku)
- Intel® Wiman driver: Drivers\WiMan (only applicable for corporate sku)
- Intel® Wiman extension: Drivers\wiman\_wlan\_extension (only applicable for corporate sku)
- Intel® CSME WMI Provider: MEWMIProv.inf in Drivers\WMIProvider
- Intel® MSS HSA extension: ImssHsaExtension.inf in Drivers\IMSS\_HSA\_EXTENSION (only applicable for corporate sku)
- SOL LMS Extension: SOLLMSExtension.inf in Drivers\SOL\_LMS\_Extension (only applicable for corporate sku)





## **4 System Requirements**

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

- Windows 10\* / Windows 11\* / Windows Server 2019\*.
- Microsoft\* .NET Framework: version 4.8 or above, required if the Intel® Management and Security Status application is installed on the platform.
- Microsoft\* Visual C++ 2015 Redistributable: version 14.0.26905.0 or above, required if the Intel® Management and Security Status application is installed on the platform.





# 5 Installing Intel® CSME Software Components

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## 5.1 How to Install

The INF installers are in the Drivers folder.

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

System manufacturers can take advantage of the components in the SW\Drivers 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>

**Note:** MEI driver is required to be installed before other components.

Intel® Wiman Extension is required to be installed along with installation of Intel® Wiman driver. Intel® Wiman will be functional only if Intel® Wiman extension INF is installed.

SOL LMS Extension is required to be installed along with Intel® SOL device and installation of Intel® LMS. Intel® LMS will be functional only if Intel® SOL device exists and SOL LMS extension INF is installed.

The following devices will be shown in the device manager if the according drivers are installed on compatible devices:

MEI: System devices \ Intel(R) Management Engine Interface #1

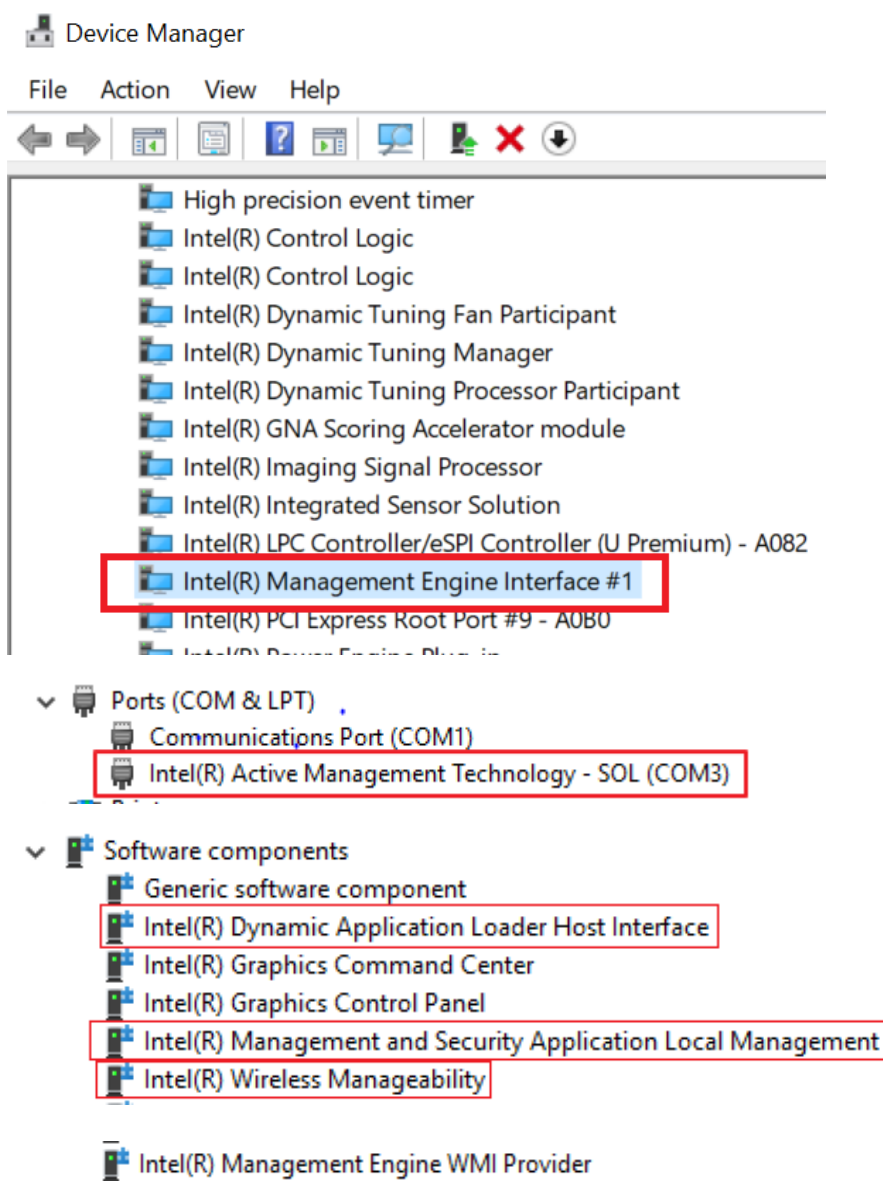
SOL: Ports(COM & LPT) \ Intel(R) Active Management Technology - SOL

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

LMS: Software components \ Intel(R) Management and Security Application Local Management

Wiman : Software components \ Intel(R) Wireless Manageability

WMIProvider: Software components \ Intel(R) Management Engine WMI Provider



User may use installer SetupME.exe in the ME\_SW\_DCH folder.

- 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 has command line option 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, if reboot is required.
- 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.  
**Warning** : User who chooses to use –p flag must make sure the destination directory is a secure folder (write access by admin). Otherwise it can lead to a security issue.
- 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® MEI and Intel® DAL only.
- preinst  
Installs all drivers even if hardware is not present.
- nowiman  
Does not install Intel® Wiman
- wmionly  
Install and register only Intel® CSME WMI Provider.

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



## 5.2 Intel® MSS

Intel® MSS is for Intel® AMT system only, it is not required to be installed on NON Intel® AMT system.

User may download and install Intel® MSS from Microsoft store, or install IMSS\_HSA\_EXTENSION INF, which will pull Intel® MSS from Microsoft store and install Intel® MSS in the background when Intel® SOL device exists.

Intel® MSS APPX for pre-install is in the **Drivers\IMSS** folder.

DISM is required to install Intel® MSS APPX. Refer to <https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/preinstall-apps-using-dism> for more detail.

For the OS without Microsoft Visual C++ 2015 Redistributable 14.0.26905.0 or later (e.g., fresh OS or pre-install OS without windows\* update), the DependencyPackagePath is required for installing Microsoft Visual C++ 2015 Redistributable along with Intel® MSS APPX.

the example DISM command for pre-install OS as below:

```
Dism /Image:c:\test\offline /Add-ProvisionedAppxPackage /PackagePath:<pre-install kit Folder Path>\< Intel® MSS APPX appxbundle file> /LicensePath:<pre-install kit Folder Path>\< Intel® MSS APPX License xml file> /DependencyPackagePath: :<pre-install kit Folder Path>\Microsoft.VCLibs_xxx_<OS sku>_xxx.appx
```

where c:\test\offline is the folder where you mounted the WIM image

<pre-install kit Folder Path> is the folder where the package is extracted to

the example DISM command for running OS as below:

```
Dism /online /Add-ProvisionedAppxPackage /PackagePath:<pre-install kit Folder Path>\< Intel® MSS APPX appxbundle file> /LicensePath:<pre-install kit Folder Path>\< Intel® MSS APPX License xml file> /DependencyPackagePath: :<pre-install kit Folder Path>\Microsoft.VCLibs_xxx_<OS sku>_xxx.appx /region=all
```

## 5.3 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> </ul>





Error code	Error String	Description
		<ul style="list-style-type: none"> <li>Setup was run silently but a downgrade was detected and the -overwrite switch was not used.</li> </ul>
1603	ERROR_INSTALL_FAILURE	<p>General failure code. The error could have been an unanticipated error or one of the expected errors such as:</p> <ul style="list-style-type: none"> <li>Not admin</li> <li>No device matches</li> <li>OS requirement not met</li> <li>.NET requirement not met</li> </ul>
1633	ERROR_INSTALL_PLATFORM_UNSUPPORTED	Architectures not supported
1641	ERROR_SUCCESS_REBOOT_INITIATED	<p>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.</p> <p>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.</p>
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.

## 5.4 Windows PE\*

The Intel® MEI driver can be installed on Windows PE\* OS, and this is primarily used during manufacturing, when attempting to run Windows\*-based manufacturing line tools.

More information can be found at:

<http://msdn.microsoft.com/en-us/library/windows/hardware/ff544208%28v=vs.85%29.aspx>

The required coinstallers can be found at:

<http://msdn.microsoft.com/en-US/windows/hardware/br259104>

## 5.5 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



## ***Installing Intel® CSME Software Components***

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

**§**



## 6 Identifying Intel® CSME Software Components

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Once the Intel® CSME software stack is installed by the installer SetupME.exe, the contents of the 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® CSME 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.mm.nn.bbbb</version>
    </msi>
  </msis>
</fullpackageidentifier>
```

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:

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

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

- yy – Build year
- ww – Build WorkWeek
- mm – Major version
- nn – Minor version
- bbbb – Build number

Service name for Intel® LMS, Intel® DAL or Intel® TCS can be found in Services tab in task manager or services in Microsoft Management Console:

Intel® LMS: LMS / Intel(R) Management and Security Application Local Management Service

Intel® DAL: jhi\_service / Intel(R) Dynamic Application Loader Host Interface Service



**Identifying Intel® CSME Software Components**

Intel® TCS: SocketHeciServer.exe / Intel(R) Capability Licensing Service TCP IP Interface

TPMProvisioningService.exe / Intel(R) TPM Provisioning Service





## 7 Configuring Intel® LMS

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Intel® LMS is able to write user notifications to the local host OS event log for the purpose of notifying end users of predefined events, such as when critical System Defense policies are applied by the Intel® CSME firmware. Intel® LMS also has additional functionalities, such as synchronizing the network configuration information between the host and the firmware. Intel provides documentation on how the ISV can extract these events from the event log for use in their application.

LMS.exe is installed along with the other software components. Note the following installation circumstances:

### 7.1 LMS Registry Configuration Parameters

User can add the following registry keys under **HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\LMS\IntelAMTUNS**:

**Note:** The following keys are not mandatory and Intel® LMS will function as required without their existence. All changes to registry keys are noted at Intel® LMS startup only. To force the changes to be noted, restart Intel® LMS.

**AllowFlashUpdate:** Allows Intel® LMS to invoke Partial FW Updates. This is a DWORD Value. Setting value to 0 will prohibit Intel® LMS from invoking Partial FW Update, while setting value to 1 allows Partial FW Update by LMS. Default behavior (i.e. no value) is Partial FW Update allowed.

**Note:** Partial Firmware Update is a feature new from Intel® ME 8 that allows update of specific sections of Intel ME, without requiring a system reset.

**Note:** Disabling Partial FW Update will eliminate the user's ability to change the user consent language and to replace the wireless adapter type without affecting Intel® AMT functionality over wireless LAN.

**PartialFWUIImagePath:** A custom path to the update partitions file, including the filename (using absolute or relative path), e.g. **C:\<path>\pfwupdateimg.bin**. Default is the LMS.exe path.

**Note:** The path can't point to a network shared folder. It must point to a local folder.

You can configure the following parameters in the HKEY\_LOCAL\_MACHINE\SOFTWARE\Intel\IntelAMTUNS\ConfigData registry key:

The following Registry keys could be added for configuring which events will be shown in Event Log. This is a DWORD Value. Setting value to 0 will prevent the event from appearing, while setting value to 1 will cause the relevant event to appear. Note that the settings only take effect when Intel® LMS is (re)started.



Registry Key	Event Log event
NETWORK_TRAFFIC_TX_CEASED	Security policy invoked. Some or all network traffic (TX) was stopped
NETWORK_CONNECTIVITY_TX_REDUCED	Security policy invoked. TX Network connectivity was reduced
NETWORK_TRAFFIC_RX_CEASED	Security policy invoked. Some or all network traffic (RX) was stopped
NETWORK_CONNECTIVITY_RX_REDUCED	Security policy invoked. RX Network connectivity was reduced
WLAN_WIRELESS_PROFILE_STATE_CHANGED	WLAN Wireless Profile sync enablement state changed WLAN interface
WLAN_SESSION_ESTABLISHED	Control preference for WLAN interface assigned to Intel(R) Converged Security and Management Engine. Intel(R) CSME will take control of WLAN interface when it is able
WLAN_SESSION_ENDED	Preference for WLAN interface assigned to operating system. Operating system will take control of WLAN interface when it is able
REMOTE_SOL_STARTED	A remote Serial Over LAN session was established
REMOTE_SOL_ENDED	Remote Serial Over LAN session finished. User control was restored
REMOTE_IDER_STARTED	A remote IDE-Redirection session was established. For platforms supporting USB-Redirection instead of IDE-Redirection, remote USB-Redirection session was established.
REMOTE_IDER_ENDED	Remote IDE-Redirection session finished. User control was restored. For platforms supporting USB-Redirection instead of IDE-Redirection, Remote USB-Redirection session finished. User control was restored

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## 8 Uninstalling Intel® CSME Software and Drivers

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If you are installing Intel® CSME software using any installer – in ME\_SW\_MSI or ME\_SW\_DCH, uninstall the software via the Windows\* Control Panel:

- Double-click Intel® Management Engine Components to uninstall the Intel® CSME 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 Drivers folder, you should uninstall them manually from device manager

- Right click the device name in device manger and choose **uninstall**

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

**Note:** Don't manually uninstall Intel® CSME software components via device manager if you are installing CSME software using installer

Intel® WiMan install will add wiman and wiman\_extension. Therefore, when uninstalling manually from device manager it will uninstall only the WiMan. User then need to uninstall manually the wiman\_extension that is shown in device manager as "Generic Software Component".

There are 3 different Intel® WiMan's (WiMan-WiFi for CNL/WHL, WiManH for CML/TGL, WiManHu for ADL and above). When user use NIC that is relevant for CNL/WHL on upper platform version he will get the WiMan-WiFi as hidden device in device manager and it will be as a "zombie".



## 9 Troubleshooting Intel® CSME Software Components

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### 9.1 Error Message when Intel® MSS Loads

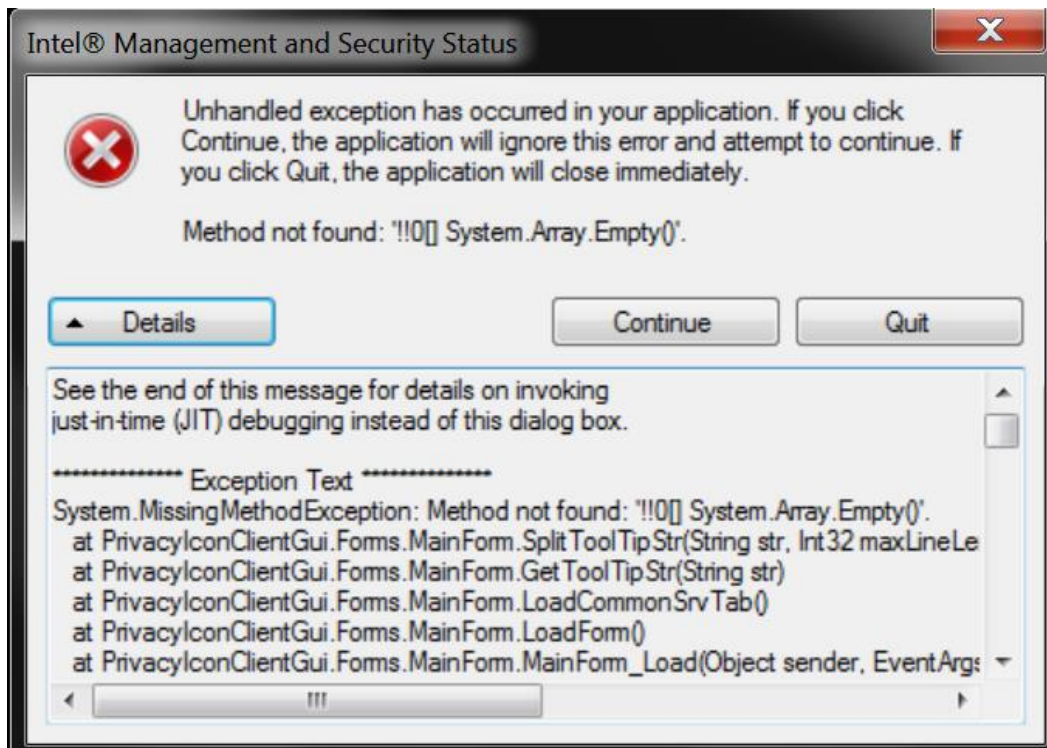
Microsoft\* .NETapplications fail when executed in an environment that has no Microsoft\* .NETframework installed. Microsoft\* does not provide a safeguard mechanism in such conditions.

The Intel® Management and Security Status application will display the following error message if no Microsoft\* .NETframework is present in the system:



The Intel® Management and Security Status application will display the following error message if no Microsoft\* .NETframework version is not 4.8 or above:





If these happen, install Microsoft\* .NET Framework version 4.8 or above and then re-open the application.

## 9.2 “Information Unavailable” Displayed instead of Status

The service status of Intel® Active Management Technology or Intel® Standard Manageability in the General tab depends on which technology is operational on the system.

If “Information Unavailable” displays on the systems supporting Intel® Active Management Technology or Intel® Standard Manageability, Check that:

1. Intel® Active Management Technology or Intel® Standard Manageability is functioning properly in Intel® CSME firmware.
2. Intel® LMS is installed, running normally and starts automatically on Windows\* startup.
3. Intel® MEI driver is installed, enabled and functioning properly.

## 9.3 Client Initiated Remote Access Connection Failure

Failure to connect to the Information Technology network can be caused by the following:




1. Intel® LMS is not running. It can be started through the Services pane in the Computer Management window. If it is not installed, reinstall the software components.
2. The network cable is disconnected, or the network connection is not configured properly.

If the actions above do not resolve the problem, it is recommended to contact your Information Technology department.

## 9.4 Grayed-Out Notification Icon

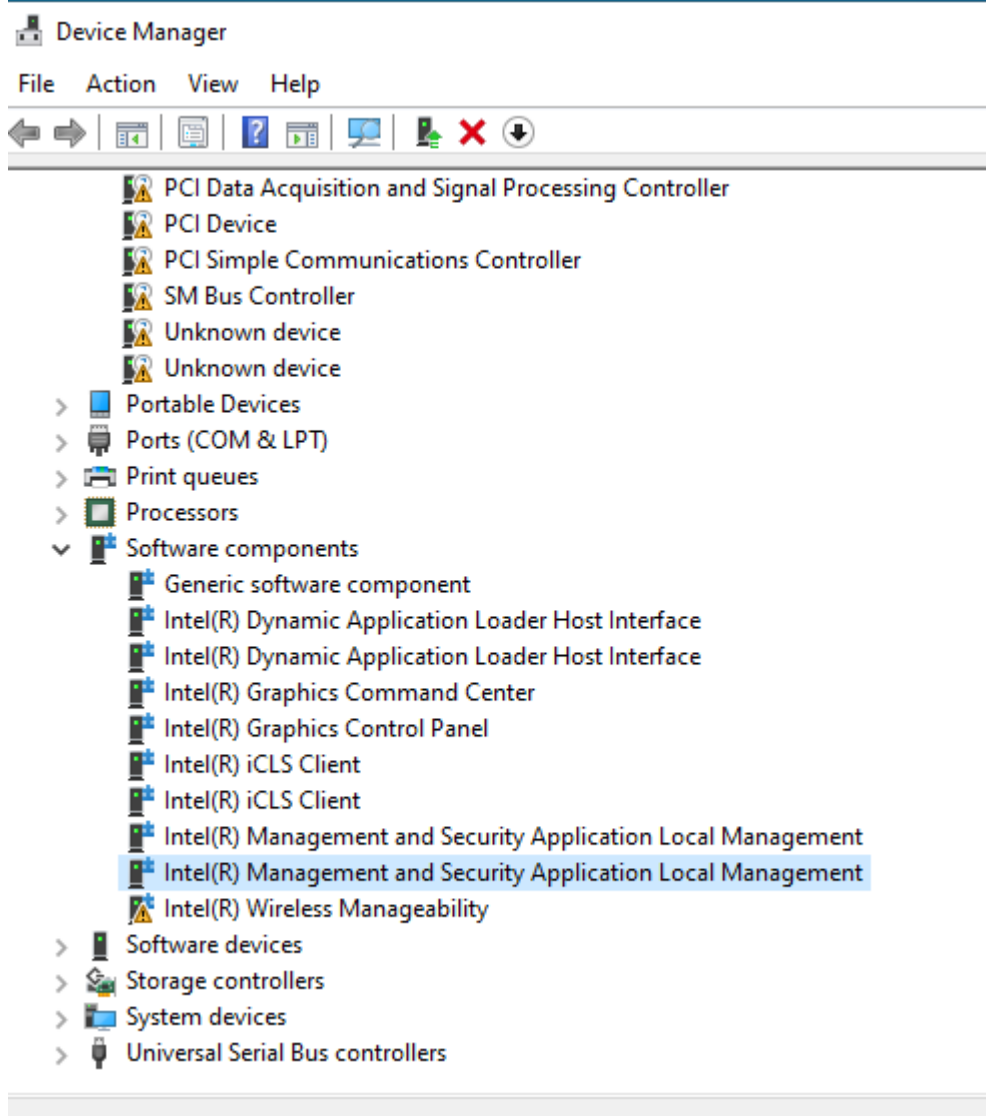
Whenever either Intel® AMT, Intel® SBA or Intel® Standard Manageability is enabled, Intel® Management and Security Status icon is loaded into the notification area when Windows\* starts. It can also be started by clicking **Start> All Programs\Intel\Intel® Management and Security Status\ Intel® Management and Security Status**.

While the Intel® Management and Security Status application is running, the Intel® Management and Security Status icon is visible in the notification area.  This icon will appear blue if any one of the aforementioned technologies is enabled on the computer. In any other case, the icon will appear gray.

**Note:** The icon will also be gray if the LMS service is not running or the Intel® MEI driver is disabled or unavailable.

## 9.5 Redundant software components in device manager

After Intel® MEI driver 1931.14.0.1323, the functionality of add components is migrated from oemextension INF to Intel® MEI driver. For the system on which the legacy OEM extension INF has been installed (and not removed), user will see redundant software components in device manager after Intel® MEI driver is installed/updated with version 1931.14.0.1323 or later.



This symptom doesn't impact the functionality of Intel® TCS, Intel® DAL and Intel® LMS. If user still wants to remove these duplicate components from device manager, user may remove oemextension INF via pnputil.

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