

# **Intel® Active Management Technology (Intel® AMT) 7.1.20 Release**

## **Linux Enablement Guide**

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## Table of Contents

1.	Introduction .....	3
1.1	Purpose and Scope .....	3
1.2	Acronyms .....	3
2.	Intel® AMT Linux Components.....	4
2.1	Supported Distribution.....	4
2.2	Intel® Management Engine Interface driver .....	4
2.3	Intel® Local Manageability Service .....	4
2.4	Intel® AMT IDE-R kernel patch .....	4
3.	Intel® AMT feature limitation on Linux.....	5
4.	How to install Intel® AMT drivers on Linux .....	6
4.1	Intel® MEI driver.....	6
4.1.1	Building the Intel® MEI Driver: .....	6
4.1.2	Installing The Intel® MEI Driver: .....	6
4.1.3	Manually Loading and Unloading of the Intel® MEI Driver: .....	6
4.1.4	Uninstalling the Intel® MEI Driver: .....	6
4.1.5	Installing the Intel® MEI Driver using the RPM: .....	6
4.1.6	Uninstalling the Intel® MEI Driver using the RPM: .....	7
4.2	Intel® LMS driver .....	7
4.2.1	Building and installing the LMS: .....	7
4.2.2	Uninstalling the LMS: .....	7
4.2.3	Installing LMS using the RPM: .....	7
4.2.4	Uninstalling LMS using the RPM: .....	7

# 1. Introduction

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## 1.1 Purpose and Scope

This document covers Intel® AMT Linux enablement guidelines, Intel® AMT over Linux limitations and Intel® AMT Linux driver details. This document only covers Linux specific information which is not part of the Intel® ME FW bring-up guide. For detailed Intel® ME FW bring-up instructions refer to Intel® ME FW bring-up guide in Intel® ME FW 7.1.20 kit. If you don't have access to the Intel® ME FW kit, please request your Intel support representative

## 1.2 Acronyms

Acronym or Term	Definition
Intel® AMT	Intel® Active Management Technology
Intel® MEI	Intel® Management Engine Interface
Intel® MEI Driver	Intel® Management Engine Interface Driver
Intel® LMS	Intel® Local Management Service
IDE-R	Integrated Device Electronics-Redirect
CIRA	Client Initiated Remote Access. This is a remote access session initiated by client to the management console.
Intel® METS	Intel® Management Engine Test Suite

## 2. Intel® AMT Linux Components

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Intel® Active Management Technology (Intel® AMT) Linux support includes two components that allow interaction between the Intel® AMT FW and the Linux OS: MEI (Intel® Management Engine Interface) driver and LMS (Local Management Service) driver. Intel® MEI driver allows application to communicate with the FW using host interface, and LMS driver allows applications to access the Intel® AMT FW via the local Intel® Management Engine Interface (Intel® MEI).

Intel® MEI and Intel® LMS drivers can be downloaded from <http://software.intel.com/en-us/articles/intel-active-management-technology-downloads/> → Intel® AMT Drivers for Linux

### 2.1 Supported Distribution

For 7.1.20 project we are only supporting SLED 11 x64 distribution. User can download the sources and compile them for other distributions but support will not be available.

### 2.2 Intel® Management Engine Interface driver

The Intel® MEI driver allows applications to access the Intel® Management Engine FW via the host interface (as opposed to a network interface). The Intel® MEI driver is meant to be used mainly by the Local Manageability Service (LMS). Messages from the Intel® MEI driver are sent to the systems log (i.e. /var/log/messages). Once the Intel® MEI driver is running, an application can open a file to it, connect to an application on the firmware side, and send and receive messages to that application.

### 2.3 Intel® Local Manageability Service

The Local Manageability Service (LMS) allows applications to access the Intel® Active Management Technology FW via the local Intel® Management Engine Interface (Intel® MEI). The LMS is dependent on the Intel® MEI driver. Intel® MEI driver should be installed prior to installing the LMS. The LMS runs as a daemon. Messages from the service will be sent to the syslog. The LMS messages will be marked with a source of "LMS". Once the LMS is running, it listens for incoming connection requests on the following ports:

- Port 16992 for soap and WS-Management requests.
- Port 623 for WS-Management requests.

If secure connection with the Intel® AMT device is enabled (TLS), LMS also listens on these ports:

- Port 16993 for secure soap and WS-Management requests.
- Port 664 for secure WS-Management requests.

### 2.4 Intel® AMT IDE-R kernel patch

IDE-R support: IDE-R support on Linux is enabled via a kernel patch. Without this patch IDE-R virtual devices will not be visible in Linux. The patch will be merged to mainline kernel in 2.6.37

Details can be found here <http://git.kernel.org/?p=linux/kernel/git/torvalds/linux-2.6.git;a=commitdiff;h=60039a5295b3d82a48fe132c699987d2e1408675>

### 3. Intel® AMT feature limitation on Linux

All Intel® AMT features which are not mentioned below are supported on Linux

Feature Limitation	Blocking SW component	Impact
<b>No Intel® AMT over WLAN</b>	Linux WLAN driver coexistence	Intel® AMT over wireless not available in Linux
<b>No events to OS event log</b>	No UNS support on Linux	There will be no Intel® AMT events recorded in OS even log
<b>No Static IP synch</b> <b>No NAC/NAP</b>	No NAC/NAP agents	Static IP cannot be synchronized
<b>No Privacy Icon</b>	No IMSS support in Linux	User will not be notified of AMT presence in Linux
<b>No SW CIRA start</b>	No IMSS support in Linux	CIRA cannot be triggered from Linux. MEBx trigger works.
<b>No KVM stop</b>	No IMSS support in Linux	KVM session cannot be closed by used from IMSS. There will be no pop-up notice provided to user
<b>No Intel® AMT Language update</b>	No IMSS support in Linux	Intel® AMT language update in not supported
<b>Limited ACU support</b>	SCS	Following configuration are limited: No Kerberos, No automatic certificate issue, No Admin control mode, No 802.1x, No SCS GUI, no RCS.
<b>IDER support only via kernel patch</b>	Kernel patch	IDER virtual devices will be visible in Linux only with the kernel with IDER patch. The patch will be merged to mainline kernel in 2.6.37.
<b>No Intel® AMT compliance support</b>	Intel® METS	Intel® AMT compliance testing using Intel® METS can be run only on windows
<b>No local debug tool support</b>	Debug tools	ME/AMT debug tools which run on the client is not supported on Linux. Tools need to run over windows.

## 4. How to install Intel® AMT drivers on Linux

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### 4.1 Intel® MEI driver

Intel® MEI and Intel® LMS drivers can be downloaded from <http://software.intel.com/en-us/articles/intel-active-management-technology-downloads/> → Intel® AMT Drivers for Linux

#### 4.1.1 Building the Intel® MEI Driver:

To build the Intel® MEI driver, call "make" which builds the Intel® MEI driver for the current Linux Kernel. To clean the files that were created during the build process call "make clean", which cleans all the Intel® MEI driver binary and object files in the build directory.

#### 4.1.2 Installing The Intel® MEI Driver:

To install the Intel® MEI driver so it will be loaded automatically on next OS boot, call "make install". The Intel® MEI Driver will be installed under: /lib/modules/{Kernel Version}/kernel/drivers/char

The Intel® MEI driver may also be built and installed manually for one time by first calling "make", then "insmod mei.ko". Remove it by calling "rmmod mei.ko".

Note: The Intel® MEI driver sources must be in a path that does not contain special characters (e.g. \$, :, ; , < , > , " ") including spaces.

#### 4.1.3 Manually Loading and Unloading of the Intel® MEI Driver:

To manually load and use the driver call "modprobe mei". To unload the driver call "modprobe -r mei".

Note: You will not be able to unload the driver if it is being used by one or more applications.

#### 4.1.4 Uninstalling the Intel® MEI Driver:

Call "make uninstall" to uninstall and remove the Intel® MEI driver. "make uninstall" does not unload the driver from the kernel memory.

#### 4.1.5 Installing the Intel® MEI Driver using the RPM:

User can install the Intel® MEI for SLED 11, kernel 2.6.32.12-0.7-default only, by calling: `Rpm -i mei-7.1.20-x.x86-64.rpm`

### **4.1.6 Uninstalling the Intel® MEI Driver using the RPM:**

User can uninstall the Intel® MEI for SLED 11, kernel 2.6.32.12-0.7-default only, by calling: `Rpm -e mei`

## **4.2 Intel® LMS driver**

Intel® MEI and Intel® LMS drivers can be downloaded from <http://software.intel.com/en-us/articles/intel-active-management-technology-downloads/> → Intel® AMT Drivers for Linux

### **4.2.1 Building and installing the LMS:**

To build and install the LMS, call `./configure` with no arguments. Next, call `make install`.

To start the LMS use `service lms start`.

To ensure that the LMS will load upon startup, use `chkconfig --level 35 lms on` command to activate the service in specific runlevels.

### **4.2.2 Uninstalling the LMS:**

Use `chkconfig --del lms` to remove LMS from all runlevels.

Stop the service by using `service lms stop`, and then call `make uninstall`.

### **4.2.3 Installing LMS using the RPM:**

User can install the LMS for SLED 11, kernel 2.6.32.12-0.7-default only, by calling: `Rpm -i lms-7.1.20-x.x86-64.rpm`. MEI RPM should be installed before installing the LMS RPM

### **4.2.4 Uninstalling LMS using the RPM:**

User can uninstall LMS from SLED 11, kernel 2.6.32.12-0.7-default only, by calling: `Rpm -e lms`