



Intel® Edison Software

Release Notes

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Revision 009



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Revision History

Revision	Description	Date
001	Initial release.	July 7, 2014
002	Added workaround for Edison-411. Added Edison-1033.	July 9, 2014
003	Minor updates.	July 23, 2014
004	Minor updates.	September 9, 2014
005	Removed two (unused) internal files from the flash file: EDISON-1576. Generated source packages for all GPL components: EDISON-1544.	September 26, 2014
006	Added security disclaimer. Updated known and resolved issues.	October 24, 2014
007	Added support for Wi Fi Direct, multirole, and ad hoc networking; eight more Bluetooth* Low Energy (BLE) profiles; and messaging, security, and authentication enhancements. Assigned official document number: 332032 (was EBSPRN).	February 6, 2015
008	Software release 2.1: Added MCU support, audio support, and Flash Tool Lite.	May 1, 2015
009	Minor fixes to documentation.	May 12, 2015

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1 Introduction

This Intel® Edison software release provides increased functionality for projects using the Intel® Edison development board. Key enhancements include:

- MCU feature
- Audio support
- Flash Tool Lite

The Intel® Edison Getting Started Guide has been updated to reflect the new software release.

Note: See section 1.4 for details on the enhancements in this release.

1.1 Downloading the software release

Download the latest BSP software here:

<http://www.intel.com/support/edison/sb/CS-035180.htm>

This release contains multiple zip files.

Note: Make sure to use a USB2 port when flashing your Intel® Edison compute module.

1.2 Supported operating systems

The Intel® Edison software has been tested on the following operating systems:

- Windows*
- Mac OS X*
- Linux*: Ubuntu 12.04 (32-bit and 64-bit)

1.3 4.20g security disclaimer

This product is designed and configured as a developer device. As such, it includes only basic functionality and requires you as the developer to add the capabilities necessary for your particular uses. The device does not include any specific or enhanced security functionality and is configured by default to be openly accessible to aid your development. Specifically the device does not include or support any limitations or controls on what software can be executed or booted by the hardware. There is no secure boot, secure update, or other firmware control mechanisms. This means that anyone with physical access to the device can change the software (firmware) running on the device. By default the administrative access to the device, including the supplied Linux* software images, is also not access restricted. Anyone with physical access to the device can access administrative privileges (for example, "root" access) to inspect or modify the device without a password or other authentication. If your use requires these interfaces be secured, you are responsible for adding or configuring capabilities to do so.



1.4 New in this release

Table 1 lists the enhancements in this software release.

Table 1 Enhancements in this release

Comprehensive feature set	Details
Onboard MCU	
Viper RTOS.	Adds deterministic behavior to Linux* applications as a service.
SDK access to UART, I2C, and all device GPIOs.	Connects to a variety of sensors and extended interfaces.
SDK Interprocessor Communication (IPC) messaging with CPU wake.	Uses the MCU to filter sensor data, then wakes up the CPU for further analytics.
Flash Tool Lite	
	FTL is a simple GUI based flashing tool targeted at users for flashing new images to Intel® Edison boards.
Audio support	
I2S and PCM can be used with audio DSP.	The Audio DSP has to be the master of the Bus
SSP1 port is used by Bluetooth*.	Headset Audio Profiles
SSP2 port is available for audio codec.	Currently there is no audio codec hardware on the Intel® Edison module. Users can custom design an external audio codec expansion board to be used with the Intel® Edison module.





2 Resolved Issues

The following issues have been resolved or closed.

2.1 XDK-daemon error (EDISON-1923)

XDK-daemon error: dns service error : bad reference is continuously seen in journal log.

Affects: XDK IDE.

Workaround: The easiest workaround is to reboot the Intel® Edison device.

2.2 Edison host names need to be in lower case (EDISON-2282)

SSH converts mnemonic addresses passed on the command-line (for example, `ssh root@A.LOCAL`) to lowercase (`root@a.local`). This causes certificate authentication to fail for Intel® Edison modules that have uppercase characters in their host name.

Affects: lotkit Comm D2D (C, Node.js).

Workaround: Intel® Edison hostnames need to be lowercase letters (all of them).

2.3 ZMQ server client fails to communicate for C (EDISON-2395)

Affects: lotkit Comm secure communication using ZeroMq (C/C++ only).

Workaround: None.

2.4 Update iotkit to 1.6.4 (EDISON-2541)

Affects: lot Developer Kit using Arduino IDE.

Workaround: Connect Intel® Edison device to Internet, then upgrade the *iotkit-agent* by issuing the following *cli* command `npm -dg install iotkit-agent` and reboot the Intel® Edison device.

Note however that this will replace the *iotkit-agent* with a version that will not allow *iotkit-comm-js* and *iotkit-comm-c* to communicate with the *enableiot* cloud. The *iotkit-comm* libraries' dependency on *iotkit-agent* will be fixed in a later release.

2.5 In host mode, user can inject commands though host mode web portal (EDISON-2544)

Affects: Security flaw in OOB.



2.6 Other resolved issues

Table 2 lists other issues that have been resolved in this release.

Table 2 Resolved issues

Issue #	Description
EDISON-698	The flashall.sh script does not fail if partitions are too large.
EDISON-797	AaD, I want to use proper Yocto method for systemd services.
EDISON-1009	AaU, I want to be notified when flashing/disk-partitioning is complete.
EDISON-1314	AaU, I want a recovery flash mode without Phone Flash Tool dependency.
EDISON-1374	UART1 data bit options produce errors.
EDISON-1405	Wi-Fi: Cannot start AP on 5 GHz channel with new FW / country code XV/23 and XV/24.
EDISON-1888	Include NFS and NTP daemon in the default Yocto image.
EDISON-1923	XDK daemon needs to restart if mdns daemon restarts. (Resolved in 2.0.)
EDISON-2144	NPM fails to fetch some packages. (Resolved in 2.0.)
EDISON-2195	connman support.
EDISON-2196	connman tethering (e.g. USB eth -> Wi-Fi) not working.
EDISON-2230	While configuring WIFI device is in unknown/bad state.
EDISON-2231	Vi fails in the Intel® Edison device with error "vi: Can't read user input".
EDISON-2282	AaU, I need to upgrade SSH to 6.7 or apply linked patch.
EDISON-2298	Connman: P2P issues.
EDISON-2328	Wi-Fi: rkill issue since P2P has been enabled in wpa_supplicant.
EDISON-2338	MCU displays NO output after deploying the code.
EDISON-2356	Setting Arduino pin 7 to output causes Wi-Fi connection to become flaky.
EDISON-2371	AaD, I want to rename content of device-software layer.
EDISON-2372	AaD, I want to prepare for externalization of middleware and Arduino* layers.
EDISON-2373	AaD, I want clloader code moved somewhere public.
EDISON-2374	AaD, I want OOB code moved somewhere public.
EDISON-2375	AaD, I want the setup.sh script to git clone the external dependent layers instead of unzipping them.
EDISON-2387	Access UART1 from MCU.
EDISON-2404	Wi-Fi: Miss host wake interrupt in S0i3.
EDISON-2409	Using reboot OTA method of flashing on BRAND NEW PV Intel® Edison board does not change rootfs size.
EDISON-2410	MCU cannot access PWMs.
EDISON-2413	FTL: AaU, I want PFTL .json files included in Intel® Edison build images.
EDISON-2416	Home is not mounted after flashing from REL1 to REL2 with flashall --keep-data.
EDISON-2418	Intel® Edison device does not restore the hostIP state(WIFI AP-Mode) on reboot.
EDISON-2430	The command "timedatectl" is not available when the first time startup.
EDISON-2431	AaD, I want a download cache for downloaded upstream yocto layer.
EDISON-2432	libmraa in R2 beta does not match version required by Eclipse IDE.
EDISON-2438	snd_intel_sst fails loading some libs.
EDISON-2444	Audio: Replace Mplayer with GStreamer.
EDISON-2445	AaD, I want to move pwr-button-handler recipe.
EDISON-2446	AaD, I want to move edison-sst recipe.
EDISON-2447	AaD, I want to move edison-mcu recipe.
EDISON-2448	AaD, I want to remove meta-mingw layer from device-software.



Issue #	Description
EDISON-2449	Expired signature on IntelEdisonDriverSetup1.0.0.exe Windows driver installer.
EDISON-2450	Failure to load audio library after flash then a lot of warnings after reboot.
EDISON-2457	How to generate the kernel headers package in the Yocto environment.
EDISON-2462	Fix segmentation fault triggered when a nonexistent sensor is added to retrieve API.
EDISON-2467	Patches for CVEs in Intel® Edison SW R2.
EDISON-2468	AaD, I want to request creation of git repo meta-intel-edison.
EDISON-2470	FTL: Installed .deb with Ubuntu 14.04.
EDISON-2471	FTL: Missing library dependency on MAC.
EDISON-2475	FTL: List the components needed to build FTL.
EDISON-2476	MRAA wrongly set SPI pinmux.
EDISON-2480	AaD, I want to switch to meta-intel-iot-middleware from yoctoproject.org.
EDISON-2486	after configuration using oobe web interface host AP mode disable need to be persistent across power cycles.
EDISON-2487	Linux console must be disabled when Serial2 is used.
EDISON-2489	The setup.sh script does not properly update external git.
EDISON-2494	Aau, I want documentation on the open source working model.
EDISON-2501	Intel® Edison device fails to stream supported Vorbis and Flac formats using GStreamer.
EDISON-2505	Wi-Fi: Wi-Fi doesn't start automatically after reboot.
EDISON-2506	AaD, I want README and MAINTAINERS files in meta-intel-edison layer.
EDISON-2508	Wi-Fi scan can't work in connman with an error info.
EDISON-2510	Intel® Edison device fails to scan enabled Bluetooth* using connman.
EDISON-2517	Update cloader recipe to fetch code from github.
EDISON-2519	AaD, I want to readd upstream_to_edison.patch files in meta-intel-edison upstream layer.
EDISON-2528	Enable NFS server file system in kernel.
EDISON-2531	Upgrade OpenSSL package from 1.0.1j to 1.0.1k.
EDISON-2534	AaD, I want TF repo for meta-intel-edison-devtools layer.
EDISON-2535	AaD, I want TF repo for meta-intel-edison-devenv layer.
EDISON-2536	AaD, I want a repo manifest with open project.
EDISON-2541	Update iotkit-agent to version v1.7.0.
EDISON-2542	Native Windows SDK (64bits/32bits) cannot compile .c file successfully.
EDISON-2554	Tethering Wi-Fi via Bluetooth* doesn't work on Intel® Edison.
EDISON-2557	AaD, I want to update create_src_package script according to new repository organization.
EDISON-2559	AaD, I want to move the create_devtools_package script in the devtools layers.
EDISON-2561	Unable to flash a fresh off-the-shelf Intel® Edison board with FTL.
EDISON-2575	After I configure the MAC address, Intel® Edison device cannot connect to AP.
EDISON-2578	Home partition is not mounted after OTA update.
EDISON-2581	Move MCU license files to the MCU SDK root directory.
EDISON-2586	Add BSD-2 license description on sample code and external header files.
EDISON-2591	The flashall script help option broke in weekly-141.



3 Known and Unresolved Issues

The following are all known limitations.

3.1 Increase of rootfs size

In the previous release of the Intel® Edison software, the system partition had limited space for the user to install python modules, opkg packages, node global modules, and user-compiled/installed programs. Attempts to write additional data to the root file system may fail once the file system free space is exhausted, and this may cause some commands to fail unexpectedly. For example, Wi-Fi configuration and Arduino* sketch uploads are known to fail when the root file system is full.

If rootfs is full and the user tries to set the Wi-Fi config, the *wpa_supplicant.conf* file becomes corrupt. This results in *wpa_supplicant* and the *sshd* services not starting, and the user not being able to log on using *ssh*.

Software Release v2 includes changes to the flash partitioning, which will increase the default size of the root file system and should reduce miscellaneous failures that are caused by the lack of free space.

To take advantage of this improvement, you must flash the latest Intel® Edison software image to the device using the **Flash Tool Lite** software, a new GUI-based flashing utility.

Caution: Be aware that reflashing will remove all previous data on the Intel® Edison device.

You can still upgrade through EDISON REL2 image over mass storage interface, but in this case, flash partition sizes will remain the same.

3.2 Connman unable to scan Wi-Fi networks

When the second P2P virtual interface in the driver is enabled, the *rftkill* command sometimes does not take effect because it conflicts with the *rftkill* implementation handled by connman.

If connman starts with *technology wlan* disabled, it runs *rftkill block wlan* and the *wpa_supplicant* launch fails. If *technology wlan* is enabled in connman (saved in connman conf file), when connman restarts, it does not run *rftkill block wlan*, hence the start of *wpa_supplicant* is fine.

This is a known issue with connman.

If you encounter this error (Figure 1) when you enter the *scan wifi* command:

Figure 1 Scan wifi command

```
root@edison:~# connmanctl scan wifi
Error /net/connman/technology/wifi: Not supported
root@edison:~#
```

...enter the following commands first as a workaround to overcome this problem and later scan the Wi-Fi networks:

```
$ rftkill unblock wlan
$ systemctl start wpa_supplicant
$ systemctl start connman
```



3.3 Root password stored in clear text (EDISON-2439)

Root password is stored in clear text format in `/etc/hostapd/hostapd.conf`.

Recommended fix for this issue: Use `wpa_psk=` (64 hex digits) rather than `wpa_passphrase=` in `hostapd.conf` and `wpa_supplicant.conf` to avoid leaving root password or Wi-Fi passphrase unencrypted on disk. Can use `wpa_passphrase` command to obtain PSK as in:

```
echo "the passphrase" | wpa_passphrase theSSID | sed -n 's/^[^#]psk=(.*)/\1/p'
```

3.4 Wi-Fi scanning instability (EDISON-1878)

The `wpa_cli` command scans for available Wi-Fi access points for six seconds in the current implementation. A six-second scan may be insufficient to detect some access points.

3.5 Other unresolved Issues

Table 3 lists unresolved issues in this release.

Table 3 Currently unresolved issues

Issue #	Description
EDISON-2228	PulseAudio is running in system mode.
EDISON-2300	Mosquitto* daemon is run as root.
EDISON-2354	Wi-Fi latency is higher than expected: delay every 120 seconds. Synopsis: Some have noticed a 70 millisecond pause in data traffic every 120 seconds. From the logs, it appears that the pause always follows a <i>Clear to Send</i> signal. This is bound to the autocalibration done every 120 seconds by the 43340/firmware.
EDISON-2437	Problems on some Wi-Fi multirole TCs. Synopsis: When trying to establish an AP connection after a P2P connection with another Intel® Edison device, the second Intel® Edison device automatically loses its P2P connection (P2P-GROUP-REMOVED reason=IDLE) while the connection to the AP on the first device is unstable until the P2P group is removed.
EDISON-2459	ADC resolution is returning coarse values when aref is set to 3.3. Synopsis: This issue was first seen in the Arduino IDE, but it was verified that the issue is also present when reading the ADC value via the console. It is more obvious at lower voltage levels. User impact is ADC does not return accurate values at the affected range.
EDISON-2498	Intel® Edison device is failing to publish and subscribe the sensor data to the cloud.
EDISON-2551	Windows SDK name conflict.
EDISON-2599	e2fsprogs-resize2fs is missing in Debian image generated by Yocto.

