

# ***Intel<sup>®</sup> Software Guard Extensions (Intel<sup>®</sup> SGX) Platform Software for Linux\* OS***

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## **Release Notes**

16 January 2020

Revision: 2.8.0 Open Source (version: 2.8.100.3)

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# Introduction

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This document provides system requirements, installation instructions, limitations, and legal information for the Intel® Software Guard Extensions (Intel® SGX) Platform Software (PSW).

## Product Contents

The Intel® Software Guard Extensions PSW package includes:

- Intel® SGX Application Enclaves
- Intel® SGX Runtime System Library
- Intel® SGX Application Enclave Service Manager (AESM)

# What's New

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Intel® Software Guard Extensions PSW includes the following changes in 2.8.100:

- Added support for modularized installation.
- Added support for running SGX applications inside Docker containers.
- Fixed bugs.

## Changes in Previous Releases

Intel® Software Guard Extensions PSW includes the following changes in 2.7.101:

- Fixed bugs.

Intel® Software Guard Extensions PSW includes the following changes in 2.7.100:

- Added support for new version Intel® Provisioning Certification Server interfaces.
- Added new libraries libsgx\_epid.so, libsgx\_launch.so, libsgx\_platform.so and libsgx\_quote\_ex.so.
- Removed Intel® SGX Platform Service Operation and Provisioning bundles. As a result, tae\_service library API and sgx\_report\_attestation\_status() API would return error code which indicates the service is unavailable.
- Fixed bugs.

Intel® Software Guard Extensions PSW includes the following changes in 2.6.100:

- Added support for both EPID and ECDSA-based quote for quoting related interfaces in sgx\_uae\_service library.
- Updated key exchange library to support both EPID and ECDSA-based remote attestation.
- Added support for a new interface to check platform information blob from remote attestation response message.
- Fixed bugs.

Intel® Software Guard Extensions PSW includes the following changes in 2.5.100:

- Added support for ECDSA quote based remote attestation
- Fixed bugs

Intel® Software Guard Extensions PSW includes the following changes in 2.4.100.48163

- Supported Intel® SGX Enclave Common Loader library
- Updated Intel® Architecture Enclaves to use Intel® IPP Cryptography 2019 Update 1 library
- Fixed bugs

Intel® Software Guard Extensions PSW includes the following changes in 2.3.100.46354:

- Added support for Ubuntu\* 18.04 LTS 64-bit Desktop and Server version
- Updated the Intel® SGX PSW installer for Ubuntu\*. The following changes are introduced:
  - Using .deb installer

- Using name `libsgx-enclave-common_{version string}-1_amd64.deb`.
- Installing the Intel® SGX Enclave Common loader library.
- Fixed SGX Quoting enclave bug, which caused the invalid signature error when a user upgraded the SGX PSW 1.6 version to a higher version and did remote attestation
- Updated the SGX Provisioning Cert Enclave to fix error code bug
- Fixed bugs.

Intel® Software Guard Extensions PSW includes the following changes in 2.2.100.45311:

- Added support for Switchless Calls, a new mode of operation to perform calls from/to SGX enclaves
- Fixed bugs.

Intel® Software Guard Extensions PSW includes the following changes in 2.1.103.44322 release:

- Updated the cryptography lib to the Intel® Integrated Performance Primitives Cryptography 2018 Update 2.1. Mitigated security vulnerability CVE-2018-3617(<https://cve.mitre.org/cgi-bin/cvename.cgi?name=2018-3617>). For more details, refer to Intel Security Advisory INTEL-SA-00106(<https://security-center.intel.com/advisory.aspx?intelid=INTEL-SA-00106&languageid=en-fr>) and INTEL-SA-00135(<https://security-center.intel.com/advisory.aspx?intelid=INTEL-SA-00135&languageid=en-fr>).
- Updated the Intel® SGX platform service Dal applet.
- Fixed bugs.

Intel® Software Guard Extensions PSW includes the following changes in 2.1.102.43402 release:

- Mitigated security vulnerability CVE-2018-3689 (<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-3689>). For more details, refer to Security Advisory INTEL-OSS-10004 (<https://01.org/security/advisories/intel-oss-10004>)
- Mitigated security vulnerability CVE-2018-3626 (<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-3626>). For more details, refer to Security Advisory INTEL-SA-00117 (<https://security-center.intel.com/advisory.aspx?intelid=INTEL-SA-00117&languageid=en-fr>).

Intel® Software Guard Extensions PSW includes the following changes in 2.1.101.42529 release:

- Updated security to the Intel® SGX PSW.

Intel® Software Guard Extensions PSW includes the following changes in version 2.1.100.42002:

- Added support for CentOS\* 7.4
- Added support for SUSE\* Linux Enterprise Server 12
- Fixed bugs.

Intel® Software Guard Extensions PSW includes the following changes in version 2.0.100.40905:

- Added support for 3072 bit Intel® SGX provisioning server public key
- Added support for the Intel® SGX Enclave Dynamic Memory Management (EDMM)
- Added support for Red Hat\* Enterprise Linux\* Server 7.4.

Intel® Software Guard Extensions PSW includes the following changes in version 1.9.100.39124:

- Fixed bugs.

Intel® Software Guard Extensions PSW includes the following changes in version 1.8.100.37689:

- Added support for the Trusted Platform Service
- Added support for RedHat\* and CentOS\*.

# System Requirements

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## Hardware Requirements

- 6th Generation Intel® Core™ Processor or newer.

## Software Requirements

- Supported Linux\* OS distributions:
  - Ubuntu\* 16.04 LTS 64-bit Desktop and Server version
  - Ubuntu\* 18.04 LTS 64-bit Desktop and Server version
  - Red Hat\* Enterprise Linux\* Server 8.0 (for x86\_64)
  - Red Hat\* Enterprise Linux\* Server 7.4 (for x86\_64)
  - CentOS\* 7.5 (for x86\_64)
  - SUSE\* Enterprise Server 12 (for x86\_64)
  - Fedora\* 27 Server version

### Note:

1. Intel® SGX PSW supports the Intel® Xeon® Processor E3 Server V5 and onwards platforms if the platform processor and BIOS supports the Intel® SGX. Please check with OEM/ODM regarding BIOS support for enabling the Intel® SGX.
2. If you need to use the Intel® SGX platform service, install the Intel® Management Engine (Intel® ME) software components. This is optional, you can skip this if you do not need to use the Intel® SGX platform service.
3. Intel® SGX platform service is not supported on the Intel® Xeon® Processor E3 Server platforms.

## *Known Issues and Limitations*

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- Intel® SGX PSW 2.8 does not include the latest functional and security updates. Intel® SGX PSW 2.8.1 is targeted to be released in March 2020 and will include additional functional and security updates. Customers should update to the latest version as it becomes available.
  - OpenSSL 1.1.1d with an unmitigated CVE ([CVE-2019-1551](#)) is used in untrusted part. The CVE is not exploitable in SGX software stack.
- Occasionally Intel® SGX aesmd service fail to retrieve enclave launch white-list from internet, this may cause failure to load those enclaves which need latest enclave launch white-list support. User can work around this through restarting Intel® SGX aesmd service.

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