Intel Security Libraries for Data Center
Release Notes

***Intel(R) SecL-DC Version 1.6 ***

- Added the Signed Flavor feature
  - Allows the Verification Service to sign Flavors and verify the signature at attestation time to maintain the integrity of the Flavors.
- Added the Workload Confidentiality feature
  - Allows image owners for virtual machines or Docker containers to encrypt the source images of their workloads. Encryption keys remain under the image owner's control, and are released to specific servers, sealed to that server's TPM, upon a successful integrity attestation with attributes that meet policy requirements determined by the workload image owner. Because the image decryption key is sealed to the TPM of the host that was attested, this means that only a server that meets the requirements of the image owner as proven by an attestation report can successfully access the image.
- Adds the new Workload Service (WLS)
  - The Workload Service manages mapping image IDs (as they exist in image storage, ie OpenStack Glance) to key IDs
- Adds the new Workload Agent (WLA)
  - Manages the compute node/worker node operation, intercepting attempted launch of encrypted workloads, makes requests for keys, and manages crypto volumes for accessed images
- Adds the new Key Broker Service (KBS)
  - Acts as the policy manager for handling key requests. Verifies that received attestation reports are signed by a known Verification Service and that the attestation attributes match policy requirements.
- Adds the new Workload Policy Manager (WPM)
  - Application that encrypts a new workload image
- Authentication for new components (WLS, WLA) now uses token-based authentication provided by the new Authentication and Authorization service (AAS). This is planned to replace the existing authentication mechanisms for all Intel SecL services in the 1.6 release version.
- Added the new Certificate Management Service (CMS). This service will replace and centralize all existing certificate management functions in all Intel SecL services for the 1.6 release version. In the BETA release, this is currently integrated for the AAS and WLS.

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***Intel(R) SecL-DC Version 1.5***

- Updated algorithms to use SHA384 instead of SHA256
- Updated key generation to use RSA-3K
- Added support for additional Root of Trust options – Intel BootGuard and UEFI SecureBoot – including removing the tboot requirement if UEFI SecureBoot is enabled (due to incompatibility)
- Added integration support for Kubernetes pod scheduling based on Intel® SecL security attributes
- Added the Application Integrity feature
  - Allows the Chain of Trust to extend above the OS kernel using a new measurement agent (tbootXM) built into initrd
  - Supports boot-time measurement and attestation of any static files/folder on the bare-metal Linux file system, allowing administrators to identify application-specific collections of files and folders to attest as part of a new SOFTWARE Flavor part
  - Includes a default manifest of Intel® SecL Trust Agent components so that the Agent itself will be included in Platform Integrity attestation
- Example use cases include creating a SOFTWARE Flavor for QEMU/KVM and Libvirt for virtualization platforms, or for docker.d or other container runtimes for container-based platforms

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***Intel(R) SecL-DC Version 1.4***

Resolved Bugs:
- Additional security enhancements following penetration testing

New Features:
- Changed "BIOS" Flavor part to "PLATFORM" Flavor Part for more accurate naming and applicability for future features
- Removed "COMBINED" Flavor. This feature is better served using Flavorgroups without making special Flavors that do not match the normal Flavor standards.
- Updated to support RedHat Enterprise Linux 7.6
- Changed TPM interface to use TSS APIs instead of tpm2-tools and tpm-tools

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***Intel(R) SecL-DC Version 1.3***

Resolved Bugs:
- Updated the versions of some of the 3rd party open source dependent components to the latest version to address the CVEs found in them.
- Updated to use the latest .NET framework and VC runtime version for the Windows Trust Agent.

New Features:
- Script for Installing the Pre-Requisite Packages for the Linux Build System
- Script for automating the complete build process from source and generate docker containers binaries for Linux Trust Agent, Verification Service and Integration Hub
- Documentation on steps to run the Pre-Requisiste and Build Scripts for Linux and
***Intel(R) SecL-DC Version 1.2***

New Features:
- Added support for running the ISecL services in Docker Containers (Verification Service, Trust Agent, and Integration Hub)
- Added support for Platform Attestation of TPM 2.0 ESXi hosts with vSphere 6.7u1. Asset Tag is currently not supported for TPM 2.0 with VMWare hosts at this time; TPM 1.2 ESXi hosts remain supported

***Intel(R) SecL-DC Version 1.1***

New Features:
- Added support for RHEL 7.5 (Verification Service, Trust Agent, and Integration Hub)
- Added support for OpenStack Rocky integration

System Improvements:
- Improved database structure for improved performance and scalability
- Added database rotation to natively prevent unbounded disk utilization and improve query performance
- Updated default database and other configuration settings for stability at large scale
- Improved error handling and performance of queue operations (flavor matching, etc)

***Intel(R) SecL-DC Version 1.0.1***

Updated Javadoc REST API documentation

***Intel(R) SecL-DC Version 1.0***

New Features:
- Hardware-rooted Platform Trust Attestation
Intel Security Libraries leverage Intel Trusted Execution Technology and the Trusted Compute Group standards to establish a measured boot environment for servers that use Intel Xeon processors and a Trusted Platform Module. This measured boot environment allows a server's actual boot state to be compared to known-good values, which enables the detection of malicious code injection, rootkits, unacceptable
firmware or software version, etc. Remote attestation of this comparison through
ISEcL allows a clear audit report of the boot state of servers in the datacenter to
ensure compliance and improve security.
- Asset Tag Attestation
Intel Security Libraries allow the generation and provisioning of user-defined
key/value pairs that can be securely provisioned into the physical TPM of a host and
included in the remote attestation process. This allows datacenter administrators
or cloud consumers to gain visibility into tagged attributes, such as the location
of the server hardware.
- Support for Red Hat Enterprise Linux, Microsoft Windows Server, and VMWare vSphere
- Support for TPM 1.2 and TPM 2.0
- Unified "Flavor" whitelisting architecture
"Flavors" describe acceptable configuration elements in server firmware and software
in a standardized, extensible format.
- Automatic Flavor Matching for easy datacenter lifecycle management
The ISecL Host Verification Service features automatic matching of Flavors to Hosts
in the datacenter, allowing for easy yet extremely customizeable management of
acceptable datacenter configurations.
- Parallel delivery of functionality through integration libraries and combined
Services
Intel Security Libraries is distributed in two forms:
- As a set of integration libraries targeted at system integrators, ISVs,
  and customers who want to develop their own solutions based on ISecL functions
- As a set of full Service components that offer already-integrated
  functionality and a ready-to-use REST interface
- Integration Hub provides an easy integration point for scheduler services
Scheduler services (such as in OpenStack) can consume the Trust and Asset Tag
attestation information to make scheduling decisions, controlling where workloads
are allowed to launch or move based on the attestation status or asset tags of the
hosts in the datacenter.