



# **MAGE: Mutual Attestation for a Group of Enclaves without Trusted Third Parties**

*Guoxing Chen, Shanghai Jiao Tong University; Yinqian Zhang, Southern University of Science and Technology*

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**This artifact appendix is included in the Artifact Appendices to the Proceedings of the 31st USENIX Security Symposium and appends to the paper of the same name that appears in the Proceedings of the 31st USENIX Security Symposium.**

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## A Artifact Appendix

### A.1 Abstract

This artifact is an implementation of the proposed mutual attestation mechanism, *i.e.*, MAGE, for Intel SGX. It includes an SDK library `libsgx_mage` that facilitates developers to use mutual attestation.

### A.2 Artifact check-list (meta-information)

- **Run-time environment:** Developed and tested under Ubuntu 18.04.6 LTS.
- **Hardware:** An Intel CPU that supports Software Guard eX-tensions (SGX), *e.g.*, Intel Core i5-6200U
- **How much disk space required (approximately)?:** 10 GB
- **How much time is needed to prepare workflow (approximately)?:** Couple of hours.
- **How much time is needed to complete experiments (approximately)?:** Couple of hours.
- **Publicly available?:** Yes, open-sourced on Github.
- **Code licenses (if publicly available)?:** BSD License

### A.3 Description

#### A.3.1 How to access

`libsgx_mage:` <https://github.com/donnod/linux-sgx-mage/tree/713fbd7479a37d1b768c615b3fd656c1774d9601>

#### A.3.2 Hardware dependencies

An Intel CPU that supports Software Guard eXtensions (SGX) is needed for the evaluation. Disk space requirement: 10 GB.

#### A.3.3 Software dependencies

This artifact is developed and tested under Ubuntu 18.04.6 LTS.

### A.4 Installation

Installation instructions can be found in the README.md file.

### A.5 Experiment workflow

- Install `libsgx_mage` following the instructions in the README.md file.
- Go to sub-folder: `SampleCode/MutualAttestation`, and run `make` in the terminal to build the application.
- Run the built binary.

### A.6 Evaluation and expected results

**Main claim.** A group of enclaves could derive the other's measurements without trusted third parties.

**Steps.** The example code builds three enclaves, each of which could derive the others' measurements. Particularly, in the output of the executable, each enclave prints its own measurements and three derived measurements.

**Key and expected results.** Three enclaves output the same list of three derived measurements. Each of the derived measurement is the same as one of the enclaves' own measurements.

The performance evaluation instructions and expected results are in the "Artifact Evaluation" section of the README.md file.