



a Clear2Pay company

INQ® End-to-End Payment Platform

EMV Card Test Suites

Description

The main concern when testing EMV cards is quality assurance. The payment system or card manufacturer needs to issue a high-quality, low-cost product in very large numbers. EMV cards contain not only a relatively expensive and sensitive microprocessor, but also sensitive software that cannot easily be modified. To avoid replacement costs, it must be ensured that the smartcards are of high quality - before the start of distribution and installation. The cards must be 100% according to the relevant specifications.

To test cards, the Card Test configuration of Integri's Payment End-to-End Platform is a very versatile solution. Using a smartcard reader, the test tool is connected to the smartcard to be tested. The tester can test interactively, by selecting one of the request APDU templates, modifying it and sending it to the card reader. The tool can automatically check the response by comparing it to the card model.

Tests can also be automated in test scripts, covering all possible valid and invalid requests. Each test script sends a number of commands to the smartcard and evaluates the received responses using an embedded reference implementation of the EMV application. The clear structure of the script files and the INQ test tool's simple user interface make it easy to create new test scenarios.

A comprehensive log allows tracing and analyzing transactions between the tool and the smartcard. All TLV tags are automatically parsed and represented with full tag description.


Test results are stored in database, allowing comparing different test runs during non-regression testing, to make reports, etc...

A number of international EMV card and test specifications have been published by different payment systems. Test Suites, developed according to these standards, are available off-the-shelf from Integri. The test suite organization follows the outline of the standards, such that it is easy to check the correspondence.

Highlights

- Indispensable for debugging and quality assurance of EMV cards
- Tests can be executed interactively or in an automated way
- Test Suites are available for all relevant EMV implementations. Test scripts are available in source code.
- User can easily modify or add test scripts.
- Comprehensive log, containing the full details of completed transactions
- Easy non-regression testing with the possibility to analyze the differences between different test runs

Out of the box testing



Technical Specifications

Following test suites are available:

- J-Smart Card Test Suite (J-Smart 2.0), based on
 - JCB IC card specification – version 2.0, April 2002
 - JCB specifications annexes – version 2.0, April 2002
 - JCB specification errata – version 2.0
- M/Chip 4 Card Test Suite (M/Chip Lite 4 and M/Chip Select 4), based on
 - M/Chip 4 Card application specifications for credit and debit – version 1.0, October 2002
 - M/Chip 4 Security and Key Management – version 1.0, October 2002
 - M/Chip 4 Card personalization for application type approval, Version 1.8, October 19, 2005
 - Addendum to M/Chip 4 Card application specification, December 2005
 - Errata sheet for addendum to M/Chip 4 card application specification, March 24, 2006
- VISA Card Test Suite (VIS 1.3.2 and VIS 1.4.0), based on
 - VISA Integrated Circuit Card –Specification version 1.3.2, July 1999
 - VISA Integrated Circuit Card – Specification version 1.4.0, September 2005
 - VIS 1.4.0 Corrections, Updated September 2005
- EMV CCD L2 Card Test Suite, based on
 - EMVCo COMMON CORE DEFINITIONS IMPLEMENTATION CONFORMANCE STATEMENT LEVEL 1 & 2, November 2007
 - EMVCo Card Type Approval - CCD Level 2 Test Cases v4.1.c, November 2007
 - EMVCo Card Type Approval CCD Level 1 and Level 2 Card Images Requirements, Version 4.1.c, November 2007
- EMV CPA Card Test Suite, based on
 - EMVCo Card Type Approval CPA Level 2 Test Cases Version 1.0.c, November 2007
 - EMVCo COMMON PAYMENT APPLICATION IMPLEMENTATION CONFORMANCE STATEMENT LEVEL 1 & 2, November 2007
 - EMVCo Card Type Approval CPA Level 1 and Level 2 Card Images Requirements, Version 1.0.c, November 2007

Tailor made Test Suites can be prepared on request.

Product Family

Requires the "INQ End-to-End Payment – Card Testing" configuration

Requires a Micropross STAR or PC/SC compliant card reader.

Useful extensions: Integri's Smartcard-Terminal Logger or Integri's Level 2 Player utilities.

Can also be used with the contactless card readers.

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Integri is a wholly owned, autonomous business unit of Clear2Pay, an international financial technology company focused on delivering globally applicable solutions for secure, timely electronic payments. Clear2Pay operates from 13 international offices and currently employs over 400 staff.

Integri headquarters

Leuvensesteenweg 325/3
B-1932 Zaventem
Belgium
P: +32 2 717 69 00
F: +32 2 717 69 67
E: info@integri.com
W: www.integri.com