



# Acquirer Systems

is a specialist software company, founded in 1997 in Dublin, Ireland. We develop high performance, Windows-based test and certification software for the payment services industries in all areas from the stress-testing of high-end issuing and acquiring hosts, through to certification of back-office systems and payment terminals.

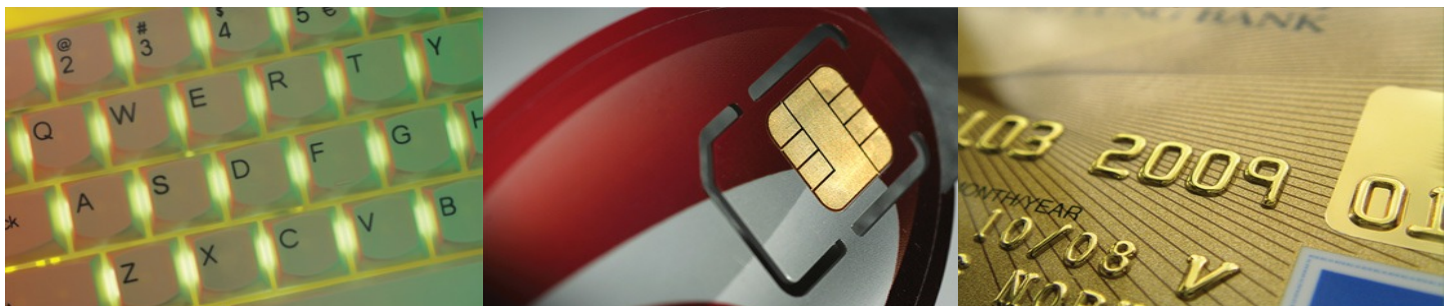
We have extensive implementation experience of EMV, and its cryptographic framework, at the card, terminal, acquirer and issuer levels and can provide you with independent and accurate advice at any point in the payments chain.

Acquirer Systems' RAT-Pack certification package fully supports the Visa ADVT 3.2 and MasterCard ETEC 5.0a (and earlier) certification tests allowing full pre-certification to be carried out in the comfort of your own offices.

Acquirer Systems customers are involved in all aspects of payment processing and include:

Allied Irish Banks, Alphyra Ireland, Bank of Ireland, Barclaycard Merchant Services, CreditCard Services Company SAL, Diebold, FeXco, First Data Corp, FöreningsSparbanken, GE Consumer Finance, IBM Canada, MBNA Technology Inc, Point International AB, Thales e-Transactions Sweden, Visa CEMEA and others.

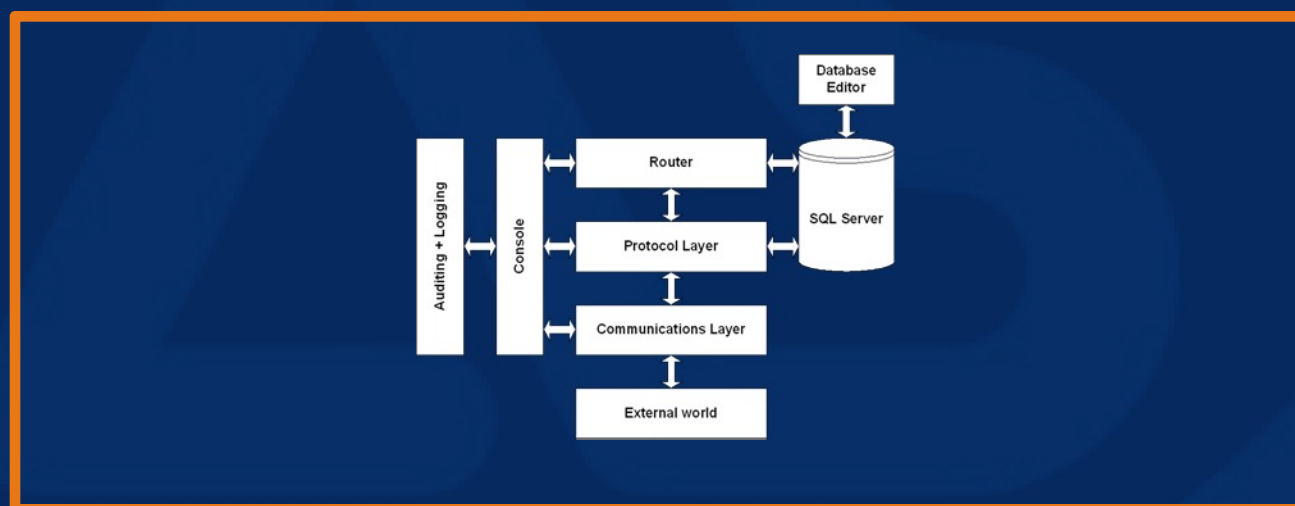
We are a small, technically talented company and are actively working to increase our customer-base world-wide. If you're involved with any aspect of the payments industry, then we, and our certification software and experience, will be able to help you.



# ASCert - EFT Testing

ASCert is a Windows-hosted multi-threaded component-based software architecture designed to support the rapid development of transaction-based Electronic Funds' Transfer (EFT) applications. The diagram below shows ASCert's basic design, its major components and the data flow between each other.

The lowest layer of the architecture, the communications layer, is responsible for the physical data transfer back and forth from ASCert's upper layer and the external world. Above the communications layer lies the protocol layer which acts as a translator, either converting an incoming transaction and packaging it for the router at the top layer, or generating an outbound transaction from an incoming message from the router. For inbound messages, the router can either stand-in and authorize the transaction immediately, or else route it to another protocol handler for delivery to a separate transaction sink. With the addition of the router's authorization and routing services, ASCert operates as a full transaction switch.



A wide range of protocol handlers are supported including APACS 30, APACS 40, Visa BASE I, MasterCard CIS, MasterCard Host-EM (V5), BASE24 Host ISO, GICC, NDC+, BASE24 SPDH, as well as a number of special protocol handlers, including an PCSC EMV Level 2 interface, an interface to our ICC/terminal hardware analyzer, an ICC card personalization service, and finally, a script engine which generates virtual transactions in both one-off and stress-test modes. Multiple protocol handlers can operate simultaneously in sequential and parallel configurations allowing ASCert to emulate, for example, hundreds of ATM's or POS devices, each generating a variety of individual transactions.

Included, as standard, are both single and triple DES, DUKPT, many PIN encoding variants as well as support for M/Chip, VSDC, ETEC, CCD/CPA, and AEIPS card cryptography, all with full support for Issuer Script generation, interpretation and MAC'ing.



**ASCert - an acquirer host system emulator**

For software and hardware vendors, ASCert can emulate an acquirer host system using standard communications (dial-up, TCP/IP and X.25) together with a variety of POS and ATM protocols, including APACS 30/40, SPDH and NDC+.

All protocols support EMV, triple DES PIN where available, and the ability to process multiple simultaneous transaction in one-off and stress-test modes.

The benefits of using ASCert in a device development, testing and certification project are:

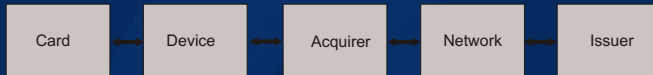
- ☞ Reduced development timescale
- ☞ Improved quality
- ☞ Fast acquirer certification



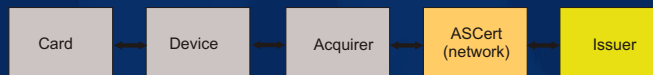
**Smart Card Interface Monitor**

The Smart Card Interface Monitor (SCIM) is a hardware interface monitoring device placed between a ICC card and the POS or ATM device. Connected by a USB Cable to the host PC, the SCIM delivers detailed logging and diagnostics, permitting system developers to:

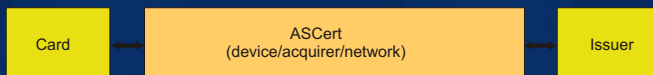
- ☞ Verify device operation
- ☞ Solve interoperability issues
- ☞ Trace ICC interaction at hardware level



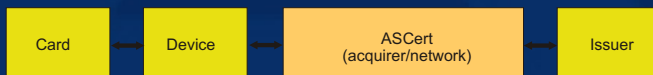
Standard Payment card transaction flow



ASCert delivering transactions as a network



EMV card, ASCert acting as device and network



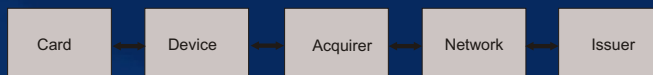
EMV card, device, ASCert acting as acquirer/network

ASCert can be used to test issuer host systems which are migrating to EMV.

Phase 1 uses ASCert to generate transactions which test functionality, cryptography and performance. Transaction rates of up to 200 TPS (magstripe) and 100 TPS (EMV) are supported per test node.

Phase 2 uses ASCert's EMV Level 2 capability to validate EMV cards from the issuer's card production systems. Transactions are processed in real-time using test cards with ASCert emulating a variety of devices including POS, ATM and unattended terminal devices.

Phase 3 uses ASCert's switching capability to accept transactions from real devices, where the EMV test cards are used to confirm their "live performance". This allows issuers to test and validate cards in an independent environment.



Standard Payment card transaction flow



ASCert acting as network and issuer



ASCert acting as device and network/issuer



EMV card, device, ASCert acting as device/network/issuer

ASCert can be used to test acquiring host systems migrating to EMV.

Phase 1 links an existing acquiring infrastructure through to ASCert, operating as a combined network and issuer platform. In this mode, ASCert is able to authorize magstripe and EMV transactions against its internal database. Full real-time EMV support for all common cryptographic standards is automatic (ARQC/ARPC and Issuer Scripts).

Phase 2 uses ASCert simultaneously in device emulation mode, and issuing host emulation mode. This allows ASCert to stress-test an acquiring infrastructure at rates of up to 100 TPS (EMV) and 200 TPS (magstripe) per test node.

Phase 3 uses ASCert's EMV level-2 terminal interface to acquire transactions which are routed through to ASCert's outbound device emulator, permitting a wide variety of test transactions and scenarios to be simulated.



is an innovative provider of leading-edge payments solutions and services targeting the Middle East, North Africa & South Asia regions. We provide our customers access to best-of-breed payments products through exclusive alliances with international market leaders in the EFT payments arena.

Abbrevia's founding partners have an accumulated electronic payments experience in excess of 85 man years covering a full range of business and technical skills. The team as a whole has very much been part of the evolution of the payments landscape within the GCC region over the past fifteen years and have an intimate knowledge of local and regional payments standards and paradigms which provides a deep insight in assessing and anticipating future payments technology trends within the region.

Located in the prestigious Dubai Internet City technology hub, we present the best technology available to our customers and pass on the cost and service advantages of our local presence to our business partners.

Our regional offices are staffed with local payments experts who are aware of the market conditions and are able to respond to our customers' needs effectively and efficiently in step with our Dubai Internet City Head Office.

At Abbrevia, we realise that today's payments strategies focus on flexibility, teamwork and technology to meet the challenges of the ever-changing business environment. We appreciate that payments providers' success hinges on their ability to cultivate an innovative, efficient, responsive and customer oriented culture. With this in mind, we are continuously evolving our products and services to meet the challenges in the payments sector resulting in solutions and services that offer the technology and flexibility to our customers to re-evaluate and reorganise to achieve their business objectives.

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