C-TAP

The interoperable terminal specifications for SEPA multi-brand cross-border card acquiring

Acquiris a.i.s.b.l. is the payment terminal specification and certification body within the SEPA region. In close co-operation with stakeholders, Acquiris keeps the specifications in line with market demands and technological developments.

HIGHLIGHTS OF THE C-TAP SPECIFICATION

Leading requirement

Reflect the arrangements a merchant made with one or more acquirers for card acceptance of one or more brands on a standardised payment terminal infrastructure.

C-TAP

Delivers a terminal specification that allows multi-acquirer multi-brand card transaction processing. Acquiris manages card selection criteria and the acquirers' connectivity data. These are remotely loaded to terminals. The merchant selection of brands and acquirers is stored in the terminal for immediate card recognition. Each acquirer can customise its transaction flow.

Requirement

Provide specifications that describe how chip, mag-stripe and contactless cards and NFC smartphones interface with the terminal application.

C-TAP

Interfaces to the kernel specification provided by EMVCo and, for contactless payments, by the major schemes.

Requirement

Provide specifications that describe how card transactions are initiated and processed following, where suitable, the recommendations of the European Payments Stakeholders Group (EPSG) Book of Requirements.
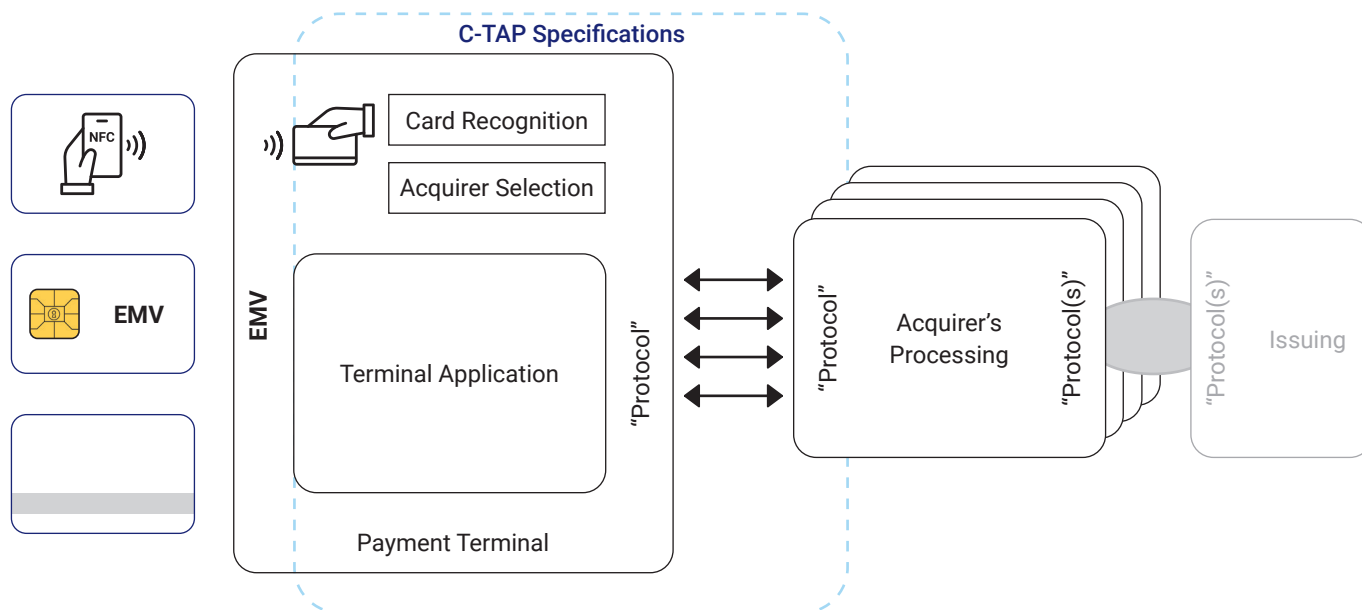
C-TAP

C-TAP provides detailed specifications for transaction processing:
- attended and unattended terminals
- multiple card data capture and cardholder validation methods
- direct and deferred payments
- on-line and off-line modes of operation
- payments, partial approval, cash advance, pre-authorisation, update pre-authorisation, payment completion, card validity check, cancellation, refund, extra amount, voice referral, back-up modes
- Dynamic Currency Conversion

The transaction business logic is described for the terminal as well as for the message handling system of the acquiring hosts.

Scope for the C-TAP Specifications

Requirement

As an individual terminal connects to multiple acquirers, each acquirer must be in position to safely load the acquirer specific symmetric keys to this terminal for on-line PIN transmission and message authentication.

C-TAP

C-TAP provides a mechanism to safely load multiple sets of keys to terminals under the control of the acquirer and the support of a Security Provider function.

Requirement

Even if the transactional business logic is leading, the message flow between a terminal and the multiple acquiring hosts must be precisely described, preferably relying on international standards.

C-TAP

The C-TAP specifications rely on a central data dictionary. Data fields and messages are presently described using the Tag-Length-Value methodology also used by EMVCo,

Requirement

Terminals can connect to acquirers using multiple telecommunication channels.

C-TAP

The C-TAP specifications support open internet, virtual private networks, GPRS.
IP connectivity is protected by TLS v1.2 RSA or ECC based Mutual authentication.

The Acquiris ecosystem

A not-for profit Association

Acquiris is a member-driven organisation and recognises various types of membership (Principal members, associate members and observers).

Both principal and associate members are active in the industry of acquiring card transactions in a role for which terminal specification are instrumental, i.e. as acquirer or acquirer processor (principal members) or terminal vendors (associate member).
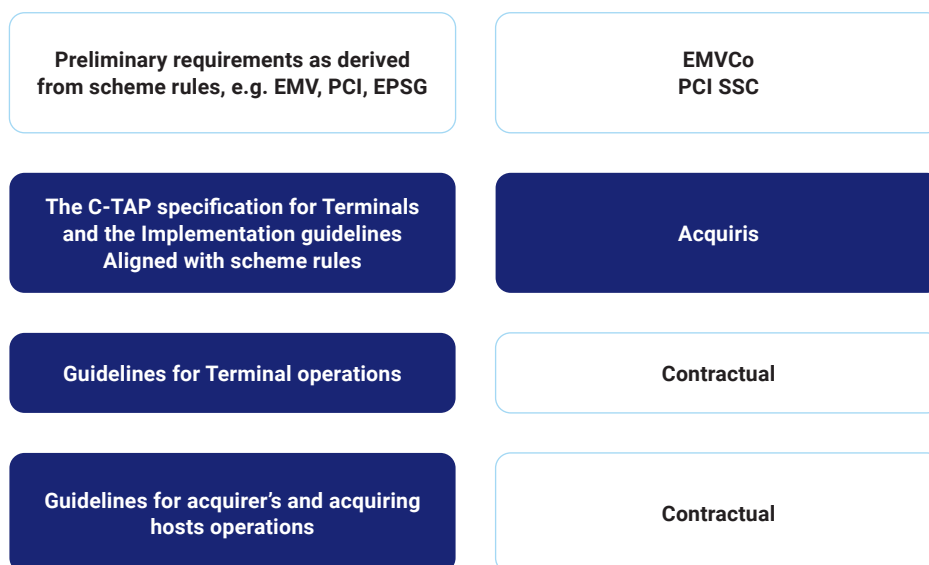
A licensing body

Acquiris provides licenses to members (free of charge). Members participate in a cost-sharing agreement.

A specification body

Acquiris manages the C-TAP specifications with its members and makes the resulting documentation available.

A certification body

Preliminary requirements as derived from scheme rules, e.g. EMV, PCI, EPSG	**EMVCo PCI SSC**
The C-TAP specification for Terminals and the Implementation guidelines Aligned with scheme rules	**Acquiris**
Guidelines for Terminal operations	**Contractual**
Guidelines for acquirer's and acquiring hosts operations	**Contractual**

The terminal certification by Acquiris relies on preliminary certifications mandated by the members as acquirers of e.g. international schemes. Terminal vendors terminals are certified using Acquiris tools and test cases followed by pre-production testing in Acquirers staging environments.

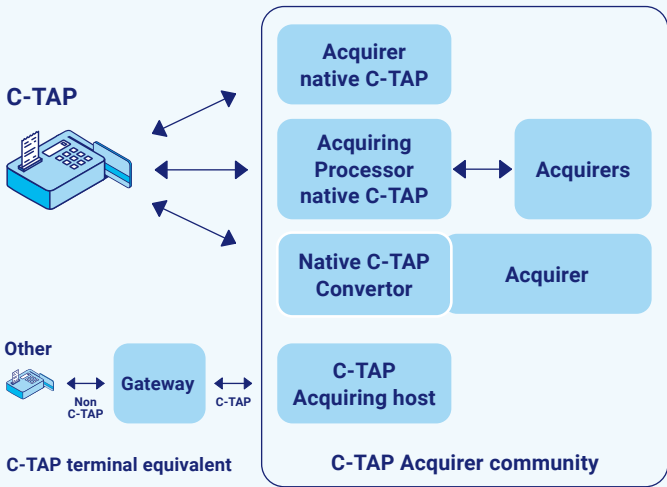## A Public Key Certification and Registration Authority (CA/RA)

Acquiris provides CA services to its members to support acquirer's key distribution TSC or TLS v1.2 with either RSA and ECC cryptography.
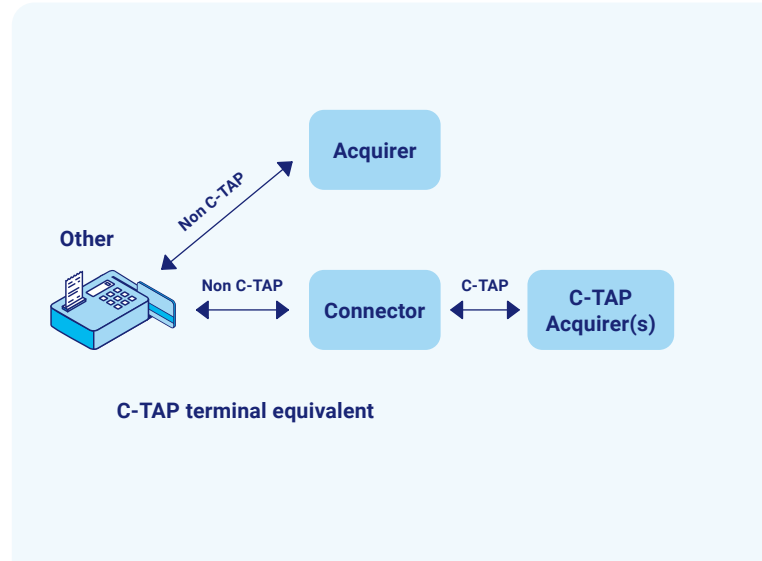
Acquiris in practice

- Established as Acquiris in 2011
- Resulting from the merger of EPCI (BE - active with C-TAP since 2004) and C-TAP Authority (NL – C-TAP since 2007)
- Presently 25 members
- First consolidated SEPA specs published in March 2012
- +612.000 C-TAP terminals in operation
- 9 host implementations – all major terminal vendors
- +30 brands (global brands, local brands, luncheon vouchers, loyalty, special purpose cards)
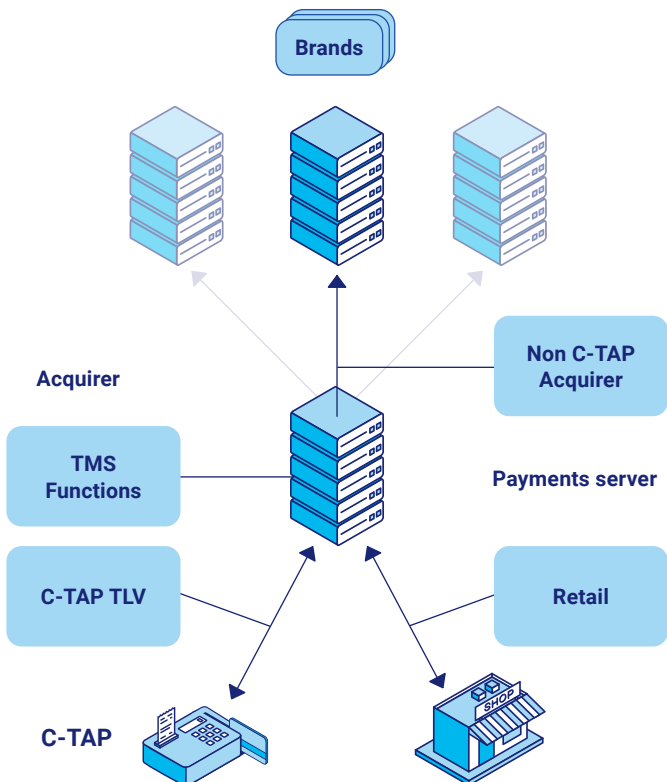
Operational context

The "Native" C-TAP deployment model
… provide a solution in the multi-acquirer market

C-TAP

Acquirer native C-TAP

Acquiring Processor native C-TAP ↔ Acquirers

Native C-TAP Convertor | Acquirer

Other

Gateway

Non C-TAP | C-TAP

C-TAP Acquiring host

C-TAP terminal equivalent

C-TAP Acquirer community

Non-C-TAP terminals interoperable with the C-TAP acquiring community – The "Connector"

Acquirer

Other

Non C-TAP

Non C-TAP

Connector

C-TAP

C-TAP Acquirer(s)

C-TAP terminal equivalent

The "Component" Large retailers go for in-house consolidation

Brands

Acquirer

TMS Functions

C-TAP TLV

Non C-TAP Acquirer

Payments server

Retail

C-TAP