

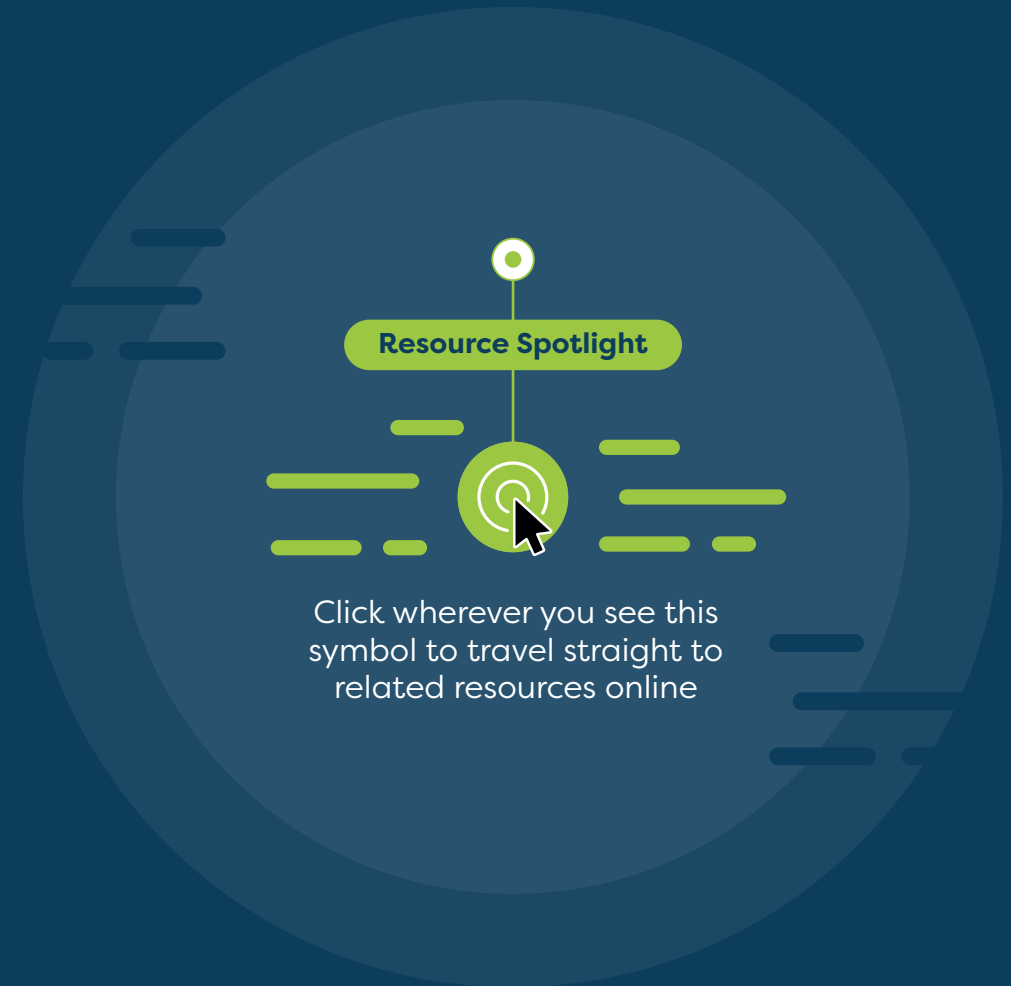


Annual Report / 2023



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All information in this report is as of 31 December 2023

EMV® is a registered trademark in the U.S. and other countries and an unregistered trademark elsewhere. The EMV trademark is owned by EMVCo, LLC.

Message from the Chair

The EMVCo community collaborated across the world in 2023, helping to advance the EMV® Specifications as new payment use cases continue to emerge.

In 2023, EMVCo delivered on key initiatives to support emerging use cases

We established the **Electric Vehicle Open Payments Task Force**, engaging with industry bodies such as CharIN, the International Organization for Standardization (ISO) and the Secure Technology Alliance, to explore how EMV payment technology could help support a secure and seamless electric vehicle (EV) charging payment experience. Advancing this work to deliver new specifications will be one of EMVCo's priorities in 2024.

EMVCo also worked to establish additional minimum acceptance criteria to evaluate mobile devices for contactless payment acceptance, based on learnings from the **TapToMobile** Early Adopter Programme. These Reduced Range Acceptance criteria will be published in early 2024.

To help balance convenience and security, we also engaged with the industry to explore the development of performance and security requirements for **biometric cards**, as well as approval and evaluation frameworks. This initiative solely focused on the use of a fingerprint as a biometric authentication mechanism on a payment card.

Enhancing existing EMV Specifications

EMV Specifications are not static and we work with the industry to evolve enhancements that offer consistent, convenient and secure payments, helping merchants reduce fraud and lower cart abandonment. This work involves the valuable input of our Board of Advisors, including our merchant community.

For example, to help simplify online checkout, EMVCo published the draft **EMV Click to Pay Customer Experience (CX) Guidelines**, which, following feedback from Associates, Subscribers and subsequent public review, will be finalised and published in the first half of 2024.

Also in 2023, EMVCo released security requirements to support the development of **Multi-Factor Authentication (MFA)** solutions capable of preventing or detecting attacks that could compromise the security of payment authentication. We also continued to evolve the **EMV 3-D Secure (EMV 3DS)** Specifications to improve support for Secure Payment Confirmation (SPC) and automated out-of-band (OOB) authentication features.

Collaboration, engagement and accessibility

Active engagement and collaboration with the payments industry is key to EMVCo's proven model for creating, evolving and promoting globally adopted specifications that support innovation and address marketplace needs. Once again, we saw valuable engagement with EMVCo Associates and Subscribers at ten EMVCo events, with 260 attendees joining us in-person across the globe, supported by 175 virtual attendees.

We were pleased to establish new industry liaison partnerships through collaboration with CharIN, Java Card Forum, FIRa Consortium and the OpenWallet Foundation. This brings our total partnerships up to almost twenty, adding to long-standing relationships with FIDO Alliance, GlobalPlatform, ISO, NFC Forum, PCI SSC, W3C and more. EMVCo representatives also connected with industry stakeholders worldwide by speaking in over twenty sessions at leading conferences in 2023.



Thank you to our EMVCo Associates and Subscribers, industry partners and other stakeholders that contributed their expertise and insights over the last twelve months to help advance seamless and secure payments.

We look forward to continued engagement and collaboration in 2024.

Carey Ferro,
Chair of the
EMVCo Board
of Managers



Why EMV®?

Millions of card-based payments are made and accepted daily.* Whatever you are buying, wherever you are in the world, you expect your payment card to work.

For in-store, e-commerce or remote transactions, the process needs to be familiar, convenient and secure. EMV technology helps make this possible.



EMVCo enables card-based payments to work seamlessly and securely worldwide



Mission:

To facilitate the worldwide interoperability of secure payment transactions by developing and publishing the EMV® Specifications and their related testing processes

Specifications

Create, evolve and promote EMV Specifications

Approvals and Evaluations

Facilitate approval and evaluation of products for compliance with EMV Specifications

EMVCo Marks

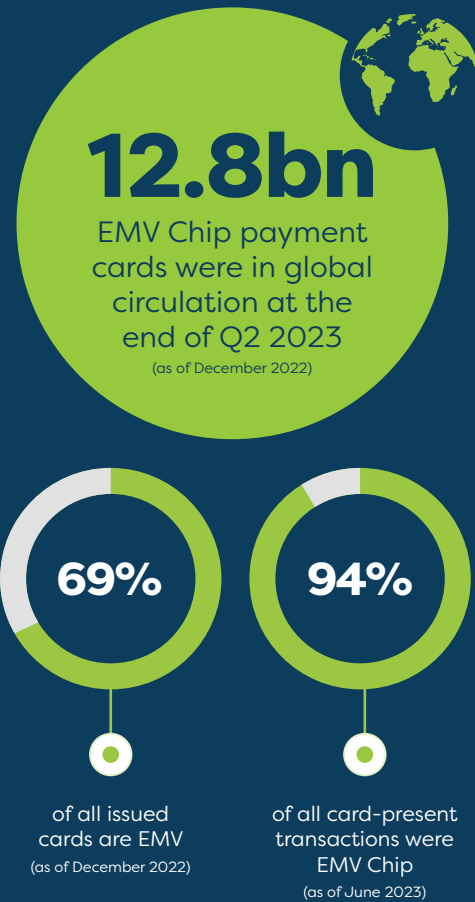
Manage marks that denote implementation of the EMV Specifications

Industry Engagement and Collaboration

Engage and collaborate with the payments industry

2023 in Numbers

Worldwide EMV® Deployment Statistics



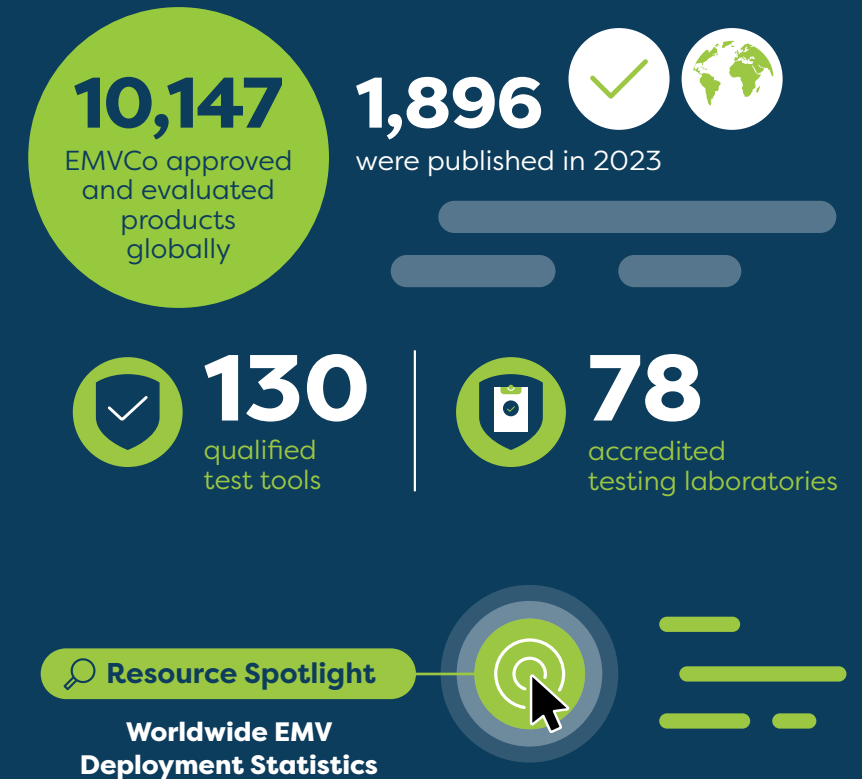
EMVCo engages and collaborates...

...with hundreds of industry stakeholders, technical bodies and regulators to develop EMV Specifications that support innovation and address marketplace needs.



EMVCo Approvals and Evaluations...

...support the development and launch of secure and reliable payment products and solutions that deliver trusted and convenient in-store and remote payments to consumers, merchants and businesses, wherever they are in the world.



EMV[®] Technology Milestones 2023

Emerging Payments

Electric Vehicle Open Payments (EVOP)

EMVCo announced the formation of an Electric Vehicle Open Payments Task Force, which is working with industry stakeholders to explore how EMV payment technology could help support a secure and seamless electric vehicle (EV) charging payment experience. Priorities for the EV Open Payments Task Force include examining opportunities for integrating EMV Specifications with existing EV charging standards and protocols to support interoperable, open payments.



Biometric on Card

EMVCo commenced work to support the growing use of biometric payment cards through the development of performance and security requirements for fingerprint sensors and processors on card. EMVCo is also exploring approval and evaluation frameworks that can help to balance convenience and security, while taking into account the unique considerations for biometric cards.

A SIM was held in November and as an initial next step, the performance requirements document is planned to be published for Associate review in 2024.

Resource Spotlight

How EMVCo is Supporting the Development of Biometric Payment Cards



EMV[®] Technology Milestones 2023

Emerging Payments

TapToMobile Acceptance Criteria

EMVCo defined the introduction of minimum acceptance criteria and a supporting approval process for TapToMobile acceptance devices. This is in addition to traditional payment devices and defines two additional Reduced Range acceptance criteria with different requirements relating to read range and positioning, as outlined within the EMV Contactless Interface Specification.

Resource Spotlight

How are EMVCo, PCI SSC and NFC Forum Supporting Payment Acceptance on Mobile Devices?



Wireless Payment: Considerations for Use of EMV Chip White Paper

EMVCo's Wireless Task Force published its white paper

Wireless Payment: Considerations for Use of EMV Chip

which explores the data and security considerations for wireless payments across multiple use cases and is part of EMVCo's ongoing evaluation of the role wireless technologies can play in supporting in-store payment experiences. EMVCo thanks all stakeholders for their engagement, particularly FiRa Consortium, with whom EMVCo collaborated extensively.

Resource Spotlight

Wireless Payment: Considerations for Use of EMV Chip



EMV® Technology Milestones 2023

EMV Contact and Contactless Chip

EMV Contact Chip Specification Version 4.4



EMVCo published a new version of the EMV Contact Chip Specification.* The new Version v4.4 includes all existing specification bulletins in the current Version 4.3 of EMV Book 1/2/3/4.

**EMV Integrated Circuit Card Specifications for Payment Systems*

Resource Spotlight

EMV Chip Quick Resource



EMV Contactless Specifications for Payments Systems: Book E – Security and Key Management



Version 1.1 of the EMV Contactless Kernel Specification is now simplified by removing the cryptographic functions and instead cross-references EMV Contactless Specifications for Payments Systems: Book E – Security and Key Management.

Book E is a new, dedicated document that defines the approaches and cryptographic methods – including Elliptic Curve Cryptography (ECC) – to facilitate adequate security functionality for EMV Contactless, similar to Book 2 for EMV Contact. EMVCo published Book E in 2023, following Associate review.

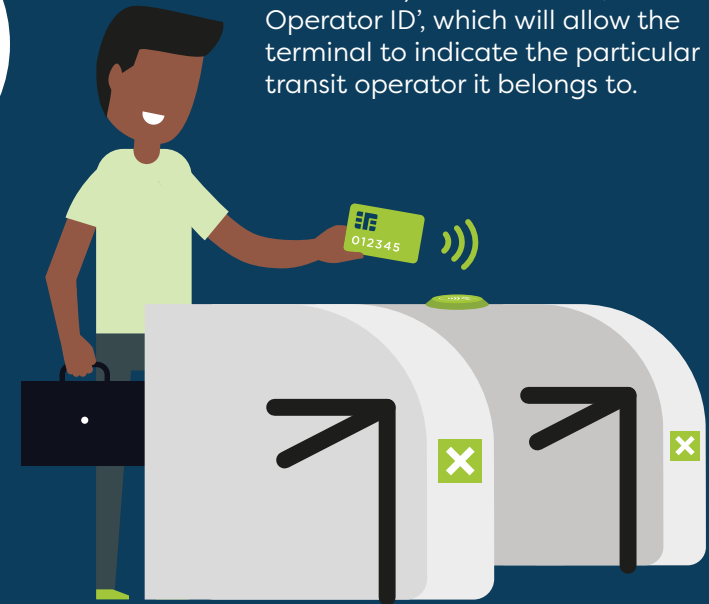
Resource Spotlight

EMV Contactless Quick Resource



New POI Information Identifier for Transit Operators

EMVCo announced an update for the EMV Contactless Specifications for Payment Systems, Book B Entry Point Specification, Version 2.11, which will take place in early 2024. It adds a new POI (Point Of Interaction) Information ID, ‘Transit Operator ID’, which will allow the terminal to indicate the particular transit operator it belongs to.



EMV® Technology Milestones 2023

EMV 3-D Secure

EMV 3DS Version 2.3.1.1 Specification

Following the release of Version 2.3.1.0 of the EMV 3DS Specifications in 2022, additional updates and improvements were identified to optimise implementations. This includes improved support for Secure Payment Confirmation (SPC) and out-of-band (OOB) authentication features. To incorporate these elements and other additional clarifications, EMVCo published Version 2.3.1.1 of the EMV 3DS Specifications. Testing will be updated to reflect the latest enhancements and EMVCo is engaging with laboratories, test platform providers and EMV 3DS product providers to support the transition.

Resource Spotlight

EMV 3-D Secure White Paper: Use of FIDO Data in 3-D Secure Messages to Support Issuer Validation of FIDO Authentication Data



EMV 3DS Bulletin n° 21: Activation of the Approval Testing Process for Products Supporting 3-D Secure Protocol Version 2.3.1

EMVCo updated the EMV 3DS approval process to support the testing of 3-D Secure Server (3DSS) supporting the Version 2.3.1.1 of the 3-D Secure Protocol Specification (3DS Protocol Version 2.3.1).



Security Requirements for MFA Payment Solutions

EMVCo released security requirements to support the development of multi-factor authentication (MFA) solutions capable of preventing or detecting attacks that could compromise the security of payment authentication. The **'Multi-Factor Authentication Solutions for Payments Security Requirements'** document is publicly available from the [EMVCo website](#).



EMV® Technology Milestones 2023

EMV Click to Pay CX Guidelines and EMV Payment Tokenisation

EMV Click to Pay Customer Experience (CX) Guidelines

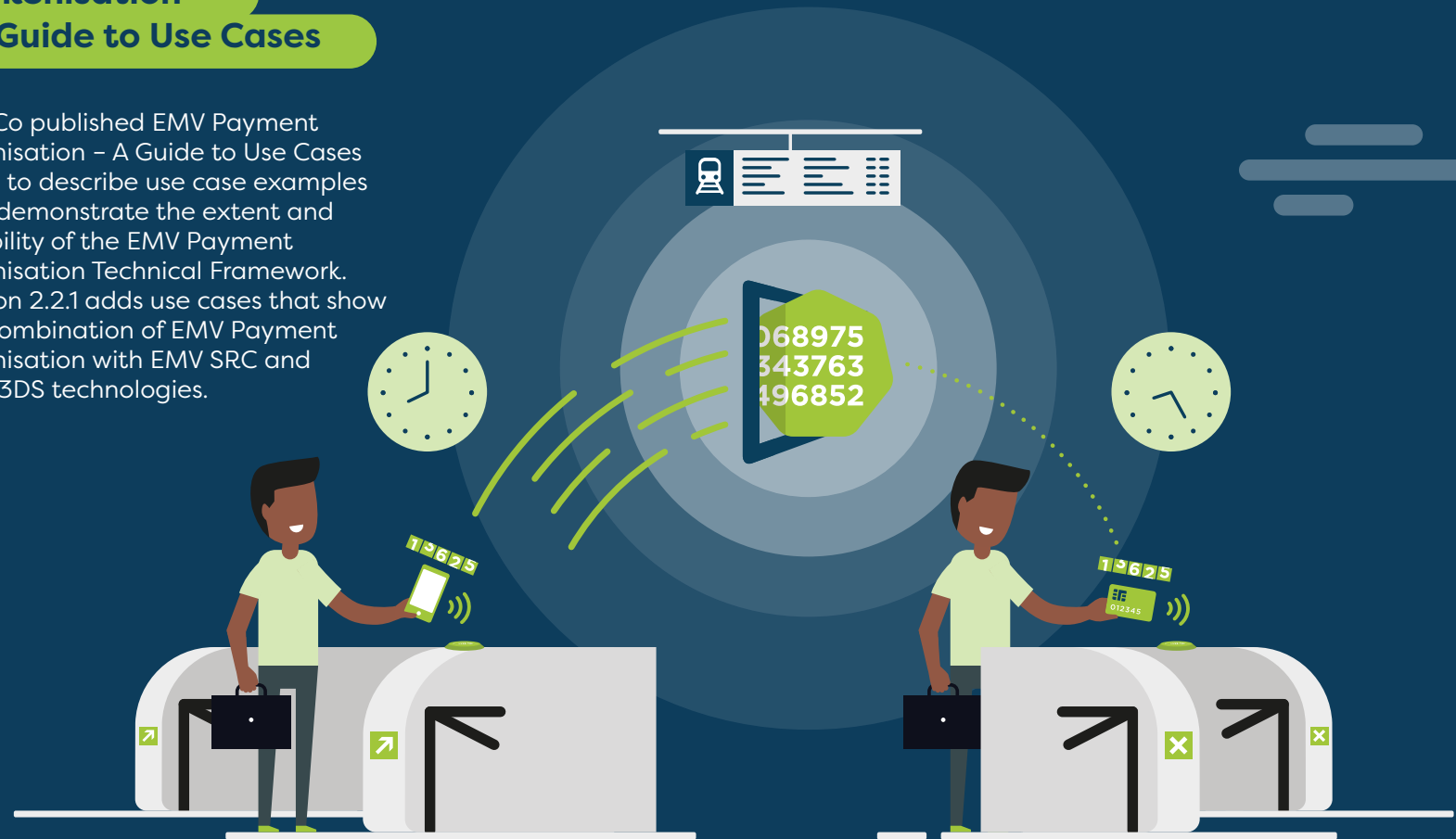
EMVCo released the draft **EMV Click to Pay Customer Experience (CX) Guidelines** for public review and feedback. The draft guidelines aim to support merchants, payment service providers, product owners, developers and CX designers in simplifying online checkout and making it more consistent, convenient and secure. This can help merchants to reduce fraud and lower cart abandonment.



The draft guidelines follow the introduction of the 'Merchant Orchestrated Checkout Model' in Version 1.3 of the EMV SRC (Secure Remote Commerce) Specifications, where the payment experience and interaction are developed by the merchant or their payment service provider. This model enables the merchant to integrate the user experience and manage customer recognition.

EMV Payment Tokenisation – A Guide to Use Cases

EMVCo published EMV Payment Tokenisation – A Guide to Use Cases v2.2.1 to describe use case examples that demonstrate the extent and flexibility of the EMV Payment Tokenisation Technical Framework. Version 2.2.1 adds use cases that show the combination of EMV Payment Tokenisation with EMV SRC and EMV 3DS technologies.



Enhancing Seamless and Secure Payments in 2024

Emerging Payments

Since creating the **Electric Vehicle Open Payments (EVOP)** Task Force in 2023, EMVCo has established liaison agreements with ISO and CharIN to examine opportunities for integrating EMV® Specifications with existing EV charging standards and protocols to support interoperable, open payments. In 2024, EMVCo, alongside its Associates, will progress development of these specifications, based on the ISO 15118 'Plug & Charge' Standard.

2024 is the time to drive engagement forward and EMVCo has welcomed interest and input from EV manufacturers and charge point operators. This includes welcoming TotalEnergies as a new Associate. EMVCo will then aim to release a final specification later in the year, once its publication is approved by the EMVCo Board of Advisors.

Elsewhere, using a smartphone or similar handheld device to accept a payment is becoming increasingly common. Hundreds of thousands of devices are already in the field today, with a wide variety of user

experiences. To enhance the payment acceptance experience on mobile, EMVCo will publish the **TapToMobile** Level 1 Test Guidelines and Acceptance Criteria in early 2024 so that test tool providers and testing laboratories can begin approvals and evaluations.

One year after the Type Approval process is activated, EMVCo will communicate on a mid-term roadmap to raise the Acceptance Criteria. EMVCo is also discussing payment specific requirements with NFC Forum as part of NFC Forum's initiative to increase the NFC read range.

EMVCo is also developing the optimal test process and laboratory accreditation procedures for **Biometric on Card** and will work with its relevant Working Groups in 2024 to implement the testing process and necessary approval programme for biometric cards/sensors.



Enhancing Seamless and Secure Payments in 2024

EMV® Contact and Contactless Chip

In the late 1990s, certain EMV Contact Chip Specification features were designed to support the rollout of the technology in various marketplaces. While these features played an important role at the time, the evolution of card payments technology and the acceptance landscape means that some are no longer required to ensure seamless and secure payments.

In response, EMVCo has worked closely with its Associates and Subscribers to identify **EMV Contact Chip** specification features that could be sunset. This includes security features like velocity checking, Static Data Authentication (SDA) and Offline Plaintext PIN; and optimisation features including Combined Cardholder Verification Method.

Removing these unused features aims to collectively improve security, optimise the usability of the specifications and simplify editorial understanding. EMVCo is planning for the sunset process to commence in 2025 and be completed in two phases, although dates may be subject to change.

Towards the middle of 2024, we aim to enable the test release of the **Contactless Kernel Book C-8 2024 Specification v1.1** so it can be implemented by test tool vendors. This aims to reduce the development cycle, increase test efficiency and speed up testing with automation. Dates are subject to change depending on comments received from Associates during the draft bulletin review currently underway.

EMVCo will also work closely with its new liaison partner, the **Java Card Forum**, to explore adding the BDH (Blinded Diffie-Hellman) and ECSDSA API (Elliptic Curve Schnorr Digital Signature Algorithm) into the chip card development process, helping improve both performance and security.



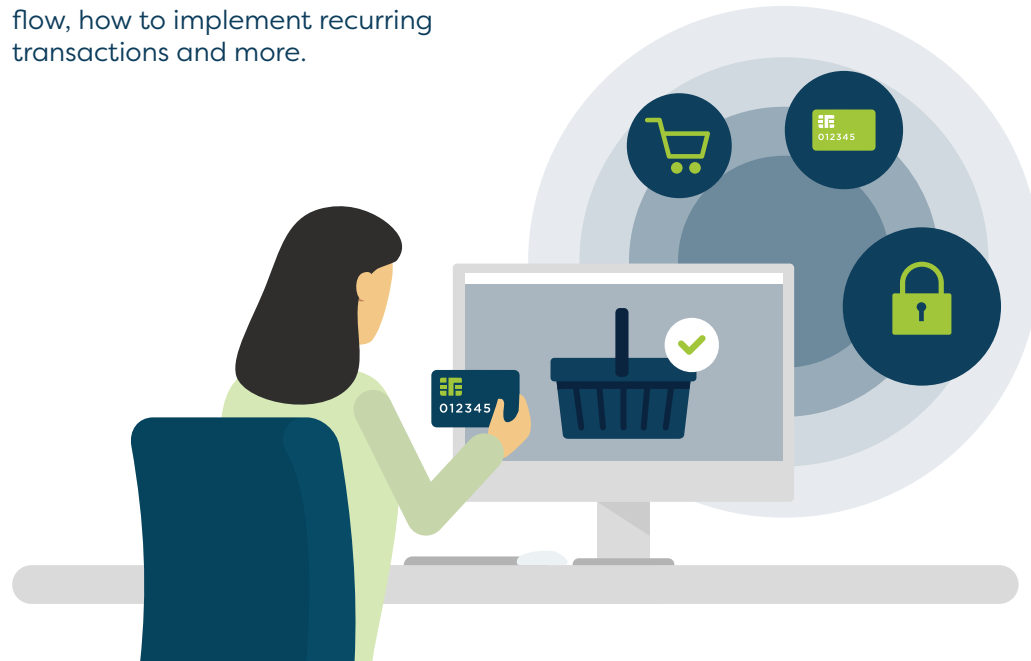
Enhancing Seamless and Secure Payments in 2024

EMV® 3-D Secure

In 2024, EMVCo aims to enhance the **EMV 3DS UI/UX Design Guidelines**, building a set of agreed design goals and principles, validated assumptions, and design recommendations. We also intend to publish Wrapped-SDK Best Practices for EMV 3DS, to support frictionless flows, SMS-OTP (Short Message Service - One Time Password) and OOB (out-of-band) app switching.

The EMV 3DS Working Group will also add further industry business use cases to the EMV 3-D Secure White Paper, which was published in November 2023, providing further guidance on how to better achieve a frictionless flow, how to implement recurring transactions and more.

EMVCo will also review developments within FIDO Alliance related to passkeys, with a view on regulated markets/use cases. Passkeys allow FIDO credentials created on one device to be used across multiple (supported) devices owned by the user. They are intended to fully replace passwords and remove the user friction associated with using existing credentials on a new device. We will continue to work with FIDO Alliance on future updates on this topic and present new developments in 2024. EMVCo Associates are welcome to provide input and considerations.



Security

As part of the SBMP (Software-Based Mobile Payment) Security Evaluation Process, EMVCo will aim to optimise the Multi-Factor Authentication (MFA) Security Evaluation Process in 2024. These Security Requirements are capable of preventing or detecting attacks that could compromise the security of payment authentication. This work leverages EMVCo's existing Security Evaluation Process, enabling solution providers to test their products and demonstrate that they meet payment security guidelines.

EMV Secure Remote Commerce

Following industry feedback that identified demand for additional guidance on the user experience, EMVCo produced the draft EMV Click to Pay CX Guidelines in 2023. Pending reviews with Associates, Subscribers and the wider industry, the final guidelines will be published in early 2024 and become part of the EMV SRC Specifications.



EMVCo: Part of a Collaborative and Engaged Industry

EMVCo engages and collaborates with hundreds of industry stakeholders, technical bodies and regulators to develop EMV® Specifications that support innovation and address marketplace needs.

This results in specifications used across the payments industry to create products and services that deliver trusted and convenient payments for merchants and consumers around the world.



EMVCo Events 2023

Board of Advisors Meetings

- Amsterdam, March
- Nashville, October

Technical Meetings

- Singapore, April
- Barcelona, November

Special Interest Meetings (SIMs)

- EMV Secure Remote Commerce, April
- Sunsetting Obsolete EMV Contact Features and Crypto Function Requirements for Cards, June
- EMV 3DS Testing, November
- Biometric on Card, November

EMV User Meeting

- San Diego, June

Educational Webinars

- Combatting E-Commerce Payment Fraud in APAC, June (conducted with APSCA, Australian Payments Network and Nectetera)



EMVCo was joined by guest speakers from APSCA, CharIN, FIDO Alliance, PCI SSC and Transports Metropolitans de Barcelona. We encourage all EMVCo Advisors and Associates to submit to present in 2024 and beyond!

[View EMVCo's events for 2024](#)



Connecting at Conferences

EMVCo connected with industry stakeholders worldwide by speaking at **20 sessions** at **17 leading conferences** during 2023.

- APSCA Next-Generation Payments
- EPSM
- FIDO Authenticate
- Infineon Member-only Banking Day
- MAC Level Up
- MAG Mid-Year Conference and Tech Forum
- Money 20/20 USA
- MPE Berlin
- MRC Authentication Summit
- MRC Singapore
- PCI SSC Europe Community Meeting
- PCI SSC North America Community Meeting
- USPF Fall Member Meeting
- USPF STA Payments Summit
- USPF Webinar
- Vendorcom
- W3C TPAC

EMVCo was joined on stage by representatives from Associates including **Adyen, Broadcom, Modium** and **Netcetera**, as well as industry partners, **PCI SSC** and **FiRa Consortium**, to jointly provide education on topics including EMV® 3DS, EMV SRC, EMV Payment Tokenisation, TapToMobile, authentication, wireless technologies and Electric Vehicle Open Payments:



Industry Partners and Liaisons

EMVCo works closely with regional and global technical bodies and industry associations. This collaboration supports the development of specifications and initiatives that improve seamless and secure payment experiences around the world.



New partners for 2023:



“

EMVCo is a global leader in its field and one of the world’s most respected payments technical bodies. We are honored to enter into an industry liaison agreement and look forward to a future with great open wallets that can help create seamless and secure payments.

”

*Daniel Goldscheider,
Founder and Executive Director of the
OpenWallet Foundation*



Current EMVCo Participants*



*Participants as of 31 December 2023

Associates that joined EMVCo in 2023

Approvals and Evaluations

EMV® product approval and evaluation refers to the testing processes that EMVCo defines to confirm products and solutions meet EMV Specifications and/or EMVCo functional requirements, EMVCo security requirements and EMVCo security guidelines when deployed.

EMVCo facilitates the approval and evaluation of payment products for compliance with EMV Specifications. This includes functional approvals, security evaluations, accreditations and qualifications, and registrations.



Why is this work important?

- EMVCo Approvals and Evaluations verify that payment products and solutions meet EMV Specifications for **security, performance and compatibility** when deployed, so that they will work anywhere in the world.
- They promote trust, confidence and transparency across the payments ecosystem.
- They support streamlined product development.

10,147

EMVCo Approved and Evaluated Products Globally (cumulative total)

130

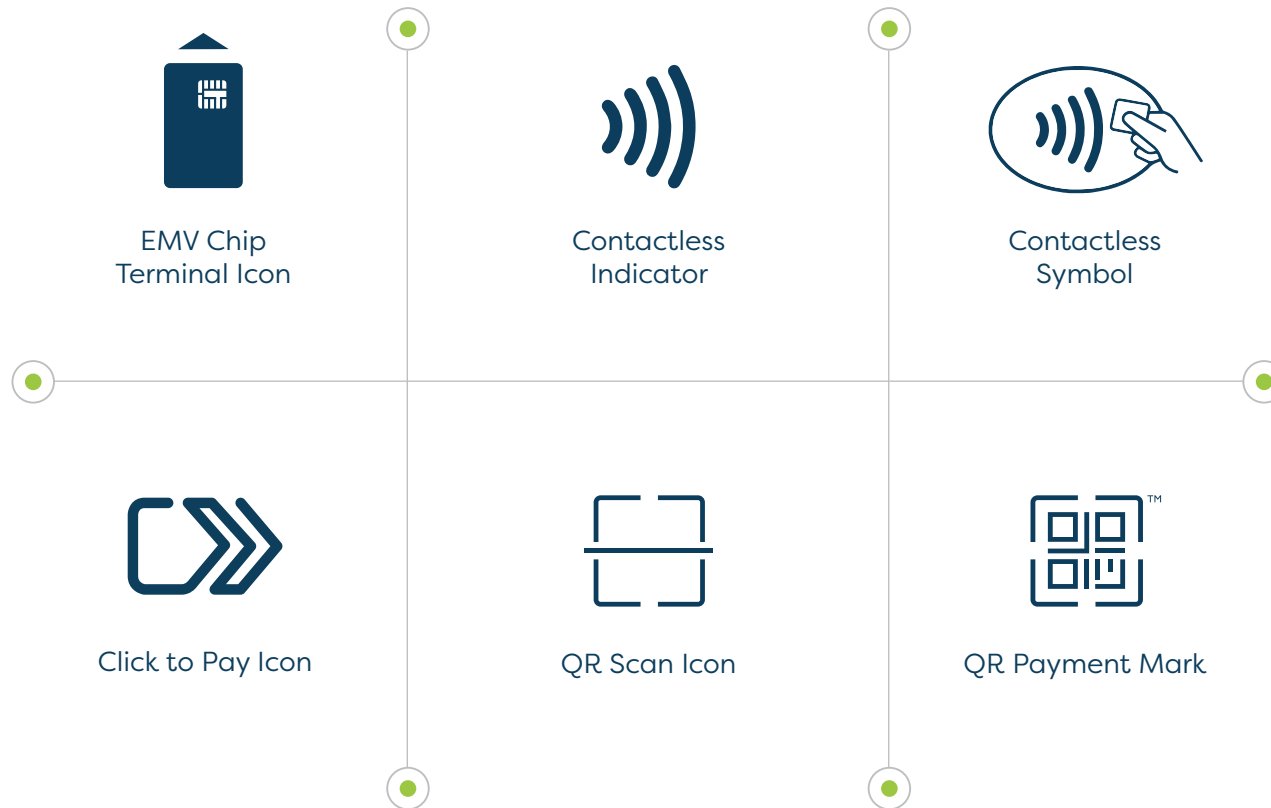
Qualified Test Tools

78

Accredited Testing Laboratories

EMVCo Trademark Centre

EMVCo manages and licenses trademarks (EMVCo Marks) that indicate payment technology which uses and is aligned to the EMV® Specifications. This promotes confidence and trust in payment technology both in-store and for e-commerce transactions.



Why the EMVCo Marks are Important

Marks promote payment trust, familiarity and consistency.

- EMVCo Marks encourage a payment landscape that can be trusted by all parties and promotes confidence across the payment industry.

EMVCo Marks demonstrate implementation of the EMV Specifications.

- Businesses use EMVCo Marks on their products and solutions to show that they have met EMVCo expectations for functional performance, compatibility and security.

Recognisable visual marks inspire consumer confidence.

- Easy-to-recognise symbols at point-of-payment provide consistency and familiarity to the payment experience and inspire consumer confidence during the checkout process.

[Visit the Trademark Centre](#)



Thank You

Visit the **EMVCo Knowledge Hub** for access to all EMVCo educational resources on EMV® topics, including **EMV Insights** and the **Talking Payments with EMVCo** podcast.



Subscribe directly to receive notifications on the latest updates.

CLICK HERE

Want to get involved in EMVCo's work?

Explore the different ways to participate.



Associate

EMVCo Associates can contribute their knowledge and expertise to shape the development of EMV Specifications.



Subscriber

EMVCo Subscribers can receive advance insights on EMV Specifications and provide direct feedback.



Public

All industry participants can review and provide comments on new EMV Specifications and major updates before final publication.

Connect with EMVCo

Join us on LinkedIn:
[linkedin.com/company/emvco](https://www.linkedin.com/company/emvco)

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x.com/emvco

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