EUROPEAN CENTRAL BANK

EUROSYSTEM

The offline digital euro

ERPB

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Agenda

1. Refresher on the fundamentals of the offline digital euro
2. Main components of the offline solution
3. Frequently asked questions

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Refresher on the fundamentals of the offline digital euro

Refresher on the fundamentals of the offline digital euro

Comparable to a **bearer-instrument**

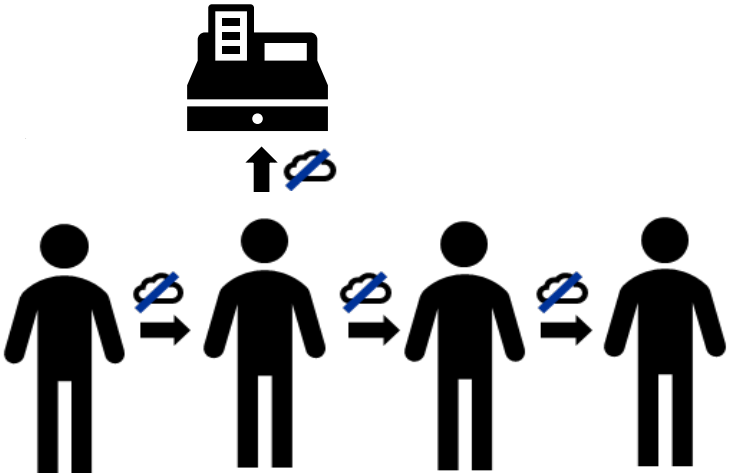
- Funds spendable without connectivity for payer and payee
- Funds can be immediately re-spent offline
- Funding and deposit online through PSPs

Proximity-based payment method

- Contactless technology.

Immediate, **private** and **secure**

- Final settlement occurs locally
- Cash-like privacy
- High level of security.



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Main components of the offline solution

The offline issuance component

The offline issuance component is responsible for **the issuance and redemption of offline digital euro.**

Connects to the corresponding balance adjustment in a **dedicated cash account** (**DCA**) that belongs to the relevant intermediary.

Keeps track of the **total amount of offline digital euro** in circulation.

Operates within the **Eurosystem domain**.

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The offline applet and SDK

The offline applet and SDK together enable end-users to perform consecutive, local **offline digital euro transactions and hold offline digital euro funds.**

- The **offline applet** is the software running on a secure element, facilitating the secure storage, debit and credit of offline digital euro.

- The **offline SDK** includes functionality for communication between two secure elements, between a secure element and a backend system, and integration of offline digital euro into existing form factors.

Operate on the **end-user device**. Consumers can access their offline digital euro via the digital euro app and/or their banking app.

The offline distribution component

Image generated by Microsoft Copilot

The offline distribution component's primary functionality is to **fund and defund** end-users' applet with offline digital euro.

Manages the offline applet lifecycle, including updating the mapping between an applet and its responsible PSP, setting policies and limits for the offline digital euro.

Not **involved in person-to-person or person-to-business payments**, which take place, by design, directly between two devices.

Operates within each **intermediary's backend system**.

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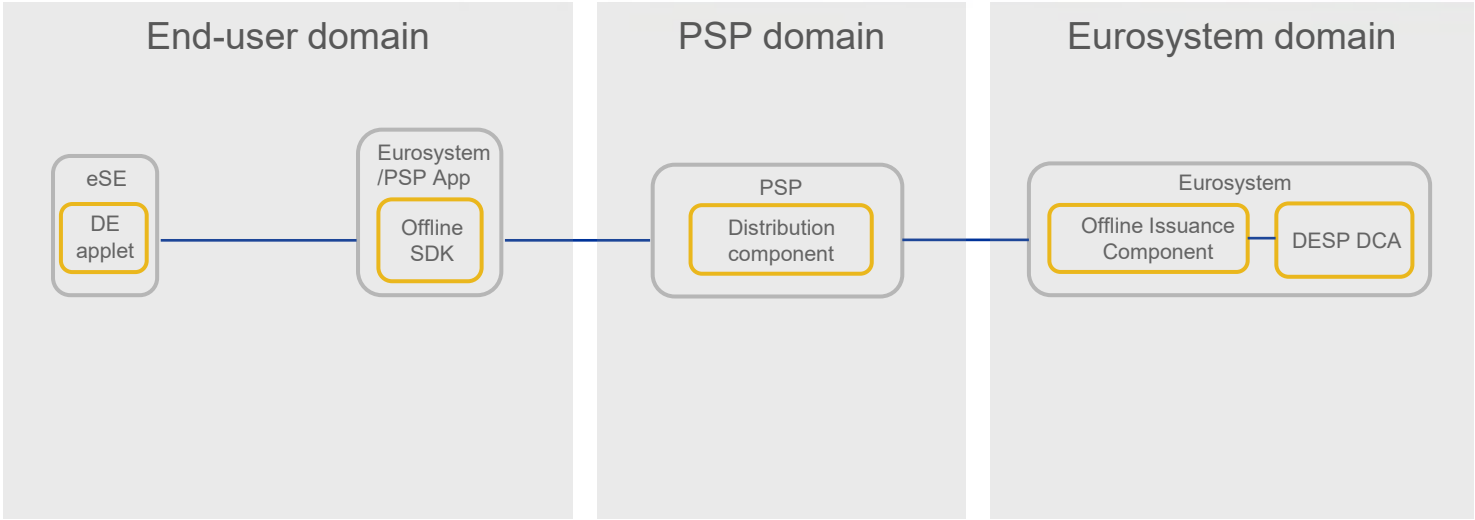
Interactions between different offline components



Simplified system view of an example with a phone and an embedded Secure Element

DCA = Dedicated Cash Account
DE = Digital Euro
DESP = Digital Euro Service Platform
eSE = embedded Secure Element
PSP = Payment Service Provider
SDK = Software Development Kit

Legend:

- Environment
- Component

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Frequently asked questions

Is it possible to use offline digital euro even when my phone is connected?

5G

Yes. You do not need to be offline to use the offline digital euro. The absence of connectivity is not a requirement. Users may choose the offline digital euro for reasons other than network availability.

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Which support does the Eurosystem provide to PSPs for a head start?

App integration support

Offline SDK

- Provides **ready-made building blocks** to plug into the PSP app.
- **Handles the complex parts**. Security, rules, and technical details are built in.
- **Ensures consistent behaviour** across all apps, meeting required standards.
- **Saves time and reduces effort**. Faster development and fewer mistakes.

Digital euro app

- **Ready-made** for connection with PSPs

Backend operations support

Technical specifications

- **Functional** specifications and **API** specifications
- Describes the system's behaviour and the implementation details.

Reference implementation

- **Source code** demonstrating how each functionality is implemented
- Serves as an interpretation of the specs.

Sample component

- Container with a **runnable** distribution component for first integrations
- Allows validation of the implementation end-to-end.

Comprehensive documentation

- Integration **guide**, and installation and operation manuals
- Supports seamless integration and explains how to run the system.

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Is the offline digital euro decentralised money?

No. Even though offline digital euro transactions occur locally, the offline digital euro is centrally issued and centrally governed by the Eurosystem.

Thank you