

NEXT GENERATION INTERNET

Meeting on NGI TALER project

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presenting the work of many others in GNU Taler and NGI TALER

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What is GNU Taler?

Taler is:

- ▶ a Free/Libre software *payment system* infrastructure project
- ▶ ...with a surrounding software ecosystem
- ▶ ...and a funded project (NGI TALER, 11 partners) by the European Commission (EC) aiming to deploy Taler as widely as possible. NGI stands for Next Generation Internet. EC.

Taler is *not*:

- ▶ a currency or speculative asset
- ▶ a long-term store of value
- ▶ a network or specific system deployment
- ▶ decentralized
- ▶ based on proof-of-work / proof-of-stake

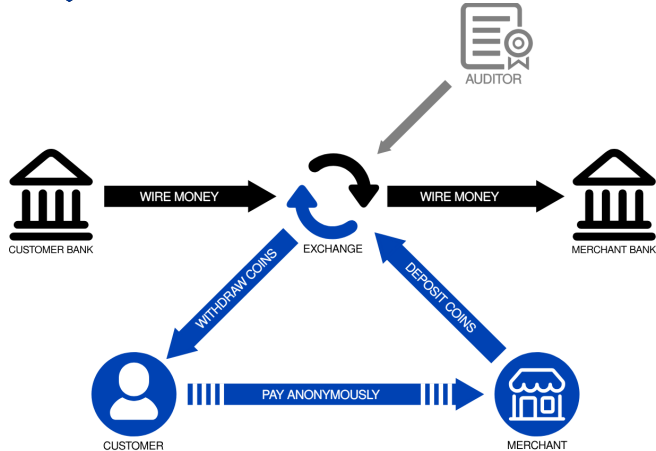
Design Principles

<https://taler.net/en/principles.html>

GNU Taler's design philosophy:

1. build exclusively with free software
2. protect the **privacy of buyers**
3. facilitate **income transparency** and **taxation** (similar to 發票)
4. prevent payment fraud, money laundering, and other illegal financial activities
5. only disclose the **minimum amount of information** necessary
6. be usable
7. be efficient
8. avoid single points of failure

GNU Taler Architecture



ANONYMOUS PAYMENT PROCESS

<https://www.taler.net>

Demonstration

<https://demo.taler.net>

We will show how to use Taler to:

1. Withdraw coins from bank to wallet

<https://bank.demo.taler.net>

2. Buy an article from an online shop

<https://shop.demo.taler.net>

Deployment Scenarios

Three deployment scenarios for the GNU Taler software

- ▶ GNU Taler as payment mechanism in an *isolated marketplace*
 - ▶ Event currency, have done a few already
 - ▶ Longer-term usage in local currencies, e.g., [NetzBon](#) in Basel (sorry, German page only)
- ▶ GNU Taler as payment mechanism of a *commercial bank*
 - ▶ German GLS bank is due to launch Taler for payments in Euros. Uses exception in German banking regulations to handle payments up to 150 EUR. Merchant must be in DE, customer can be international (but likely EU bank account).
 - ▶ Swiss deployment this summer under Sandbox regulation; needed Taler Systems S.A. to open a bank-like entity.
 - ▶ Hungarian MagNet bank to deploy starting next year for Forint.
- ▶ [Central Bank Digital Currency](#) (Published by Swiss National Bank)

Customer benefits

- ▶ **Privacy:** purchase behavior is completely private.
- ▶ **Convenience:** pay via QR or NFC (like LINE Pay/台灣Pay/悠遊卡...).
- ▶ **Portable:** Taler wallet can store multiple currencies.
Default is wallet on phone but can also use laptop.
- ▶ **Instant:**
 - ▶ Payments settle instantly
 - ▶ No fraud false positives (rejected payments)
 - ▶ No bills to pay later
- ▶ **Acceptance:** low fees for merchants increase acceptance; enable micropayments.

Things to note:

- ▶ Lost wallet means lost money, like with cash.
- ▶ Thief does not benefit from stolen wallet, unlike with cash.

Merchant benefits

- ▶ **Low fees:** High system efficiency (~28.5k tps/exchange) and no fraud \Rightarrow low operating costs (passed on to merchants)
- ▶ **Instant Deposit:** Transactions and deposits occur immediately cf. Credit card payments take several minutes for “capture”.
- ▶ **Compliant:** No information on buyers \Rightarrow GDPR ☒ PCI-DSS ☒
- ▶ **Small vendors:** Affordable even for small vendors \Rightarrow less cash on-site

Things to note:

- ▶ Transactions by merchants are transparent: no option to avoid reporting income.
- ▶ Offline sales possible, but vendor must be online to “claim” payment.

Government/Central Bank benefits

- ▶ **Privacy by design:** Not by organization compliance
⇒ CB cannot be forced to facilitate mass-surveillance
- ▶ **Income transparency:** Payees must report income to receive it
- ▶ **Same monetary policy:** Central bank issues digital coins like cash
⇒ monetary policy remains under CB control
- ▶ **Same KYC policy:** Consumer accounts remains at commercial banks
⇒ CB does not have to manage KYC, customer support
- ▶ **Control of reserves:** Withdrawal limits and denomination expiration
⇒ protect against bank runs and hoarding
- ▶ **Fees:** CB can institute fees as part of larger economic policy
- ▶ **Loss limitations:** Coin revocation provides exit strategy to handle hypothetical, catastrophic security incidents

GNU Taler vs. Digital Euro

GNU Taler:

- ▶ Cryptographic privacy for payer
- ▶ Payment with one-time **tokens**
- ▶ Cash-like self-custody
- ▶ Suitable for children, tourists, ...
- ▶ One-click payment
- ▶ Free and Open Source
- ▶ 6+ platforms today
- ▶ **4.5 M Euro** EU contribution

Digital Euro:

- ▶ Privacy by policy (?)
- ▶ Payment using bank **accounts**
- ▶ Account-based
- ▶ Requires bank account
- ▶ Authenticate to provider
- ▶ Proprietary, secret technology
- ▶ Only for Apple+Google
- ▶ **1.3 B Euro** budget

Extra features

A number of practical and efficient bonus features are already integrated into the GNU Taler protocol:

- ▶ **Built-in age restrictions:**

Coins can be given age restrictions, preventing them from being spent on adult products. Ties restriction to **ability to pay**, not IDs, maintaining buyer anonymity.

- ▶ **Tax-deductible anonymous donations:**

Donors can give to recognized charities without revealing their identity to the charity or their donation choices to the tax authority. Anonymous donations are still **verifiable by the tax authority**, allowing donors to still obtain an appropriate tax deduction.

NGI Taler Open Calls

- ▶ Small grants for purposeful additions to Taler or related projects.
- ▶ Application submissions open every 2 months (next submission date: [1 June](#))
- ▶ Low admin burden for applicants, short application form.
- ▶ Review with feedback during next 2 months.
- ▶ Grant amounts between 5k EUR and 50k EUR.
Multiple projects per grantee possible, but limit of 60k EUR / grantee.
- ▶ Open to communities, individuals, non-profits, SMEs, academics, and public sector.
- ▶ Contributions must be open source.
- ▶ Discuss your proposal idea at [TALER ICH!](#)

NGI Taler Open Calls 台灣

Possible contributions relevant to GNU Taler in Taiwan include:

- ▶ Customization/adding support for local (open source) merchant / marketplace software
ZH-TW localization started (53%), hence some work needed on that before rollout.
- ▶ Privacy-preserving 載具 to integrate into Uniform-Invoice Lottery
Taler provides the income reporting benefits of 發票 automatically, but customers may will want to get a lottery ticket from purchases.

If there is a local deployment as CBDC or payment mechanism by bank then customers will want this.

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