



TALER

Taxable Anonymous Libre Electronic Reserves

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D4.1

Subgrant project results – mid-term version

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Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission services)	
RE	Restricted to a group specified by the consortium (including the Commission services)	
CO	Confidential, only for members of the consortium (including the Commission services)	
SEN	Sensitive	

Subgrant project results – mid-term version

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31 May 2025

Revision v10

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HISTORY OF CHANGES		
VERSION	PUBLICATION DATE	CHANGE
0.1	27 Sep 2024	Start of deliverable with first grantees
0.2	12 Jan 2025	Updated with more grantees
0.3	22 May 2025	Complete set of grantees for first half, detailed descriptions, added introduction
0.4	28 May 2025	Review by TUE
1.0	31 May 2025	Adjusted format to match TALER stylefile, added more details

Abstract

TALER is an innovation action dedicated to bring [GNU Taler](#) to market across Europe. GNU Taler (where GNU refers to the [GNU Project](#) and Taler stands for *Taxable Anonymous Libre Electronic Resources*) is an innovative secure electronic payment system based on open standards, free software, and advanced cryptography. Next to the R&D work done by the consortium partners themselves, TALER is also a *grant making* program: part of the budget (15% to be precise) is reserved to fund independent researchers and developers to work on efforts that strengthen the technology behind TALER, or will in some form or another help to speed up the development and broad adoption of GNU Taler. The TALER grant program is executed by [NLnet Foundation](#), a Netherlands based philanthropy with a long track record in funding free and open source technologies — including early work on GNU Taler.

As part of TALER's grant making programme, meanwhile seven call rounds were launched, of which six have been evaluated already. Within these six call rounds, a total of 14 projects with teams from 10 different countries have been selected, from a total amount of 103 submitted. With an acceptance rate of 14 % and a consistent high quality, the program has proven to be very competitive. There was a total of 676 000 € available, so with a total amount of 314 289 €, roughly half of the budget, is meanwhile allocated.

Keywords: Open Calls, grantees, subprojects

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Chapter 1

Introduction

To reignite the [vision of the internet](#) as a trustworthy digital commons that serves mankind, in 2016 the European Commission conceived the **Next Generation Internet** initiative. While the initial ambition was still fairly modest, the initiative quickly picked up momentum and found its course. By investing in free and open source technologies, NGI served a global research and development community that was in dire need for such support.

Meanwhile well over 1500 projects have been funded through NGI, making it one of the best-reputed and most productive funding programs in the world. Besides human-sized grants — which constitute the bulk of these projects — there are also larger programs. One of these pilot programs that spawned from within NGI is **TALER**, a programs dedicated to bring [GNU Taler](#) to market across Europe. Digital payments are rapidly popping up everywhere, but the way such payments are handled are far from privacy-friendly. GNU Taler (where GNU refers to the [GNU Project](#) and Taler stands for *Taxable Anonymous Libre Electronic Resources*) is an innovative secure electronic payment system based on open standards, free software, and advanced cryptography.

GNU Taler provides privacy guarantees to the buyer while offering the possibility to audit merchants, making sale incomes transparent and fraud difficult. To online merchants and retailers, GNU Taler offers instant transaction clearance without risks of fake payment methods. Computations needed to clear the payments are efficient and scalable so that banks can pass on lower transaction costs to consumers and merchants. Consumers can withdraw money from their existing bank account into their GNU Taler wallet, detaching their spending habits from scrutiny, in the way cash does. As such it fits well with the [vision](#) of the Next Generation Internet initiative.

Within a pilot, the bulk of the work is done by a dedicated consortium according to a roadmap that was established at the start of the program. Next to the work done by the consortium partners themselves however, TALER is also a *grant making* program: part of the budget (15% to be precise) is reserved to fund independent researchers and developers to work on efforts that strengthen the technology behind TALER, or will in some form or another help to speed up the development and broad adoption of GNU Taler. This grant program is executed by [NLnet Foundation](#), a Netherlands based philanthropy with a long track record in funding free and open source technologies – including early work on GNU Taler.

Now, as the three year the TALER program is nearing the midway mark, we can look

where we stand in terms of grantmaking. Projects from 14 different teams from 10 different countries have been selected, from a total number of 113 submitted. With an acceptance rate of 12.3 % and a consistent high quality, the program has proven to be very competitive so far. There was a total of 676 000 € available, so with a total amount of € 314 289 allocated so far we are close to distributing half of the budget. ¹

A great diversity of technologies is being tackled: from a [lookup service](#) working towards easy discovery of people’s accounts with mobile phone numbers and email addresses, an [interface for people who can not read or write](#), [infrastructure for Taler payments with gold and silver](#), various integrations with ERP systems like [Odoo](#), [Tryton](#) and [Dolibarr](#), into applications like the decentralized market [Flohmarkt](#) and software developer frameworks such as [Nuxt/Vue.js](#) and [various PHP frameworks](#) to an [Open Banking Gateway](#) and [Contributron](#) a privacy-aware donation portal. The unifying factor: all of these projects work on digital commons that aim to improve our digital sovereignty where it comes to making digital payments, empowering end users, increasing systemic resilience and providing transparency, choice and self-determination.

¹Note that thanks to an additional contribution from the Swiss Secretariat for Research and Innovation, an additional 103 824 € has been added to the budget. This will be used when the budget provided by the European Commission will be depleted.

Overview and statistics

2.1 Topics

[illegible]

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Switzerland (3 projects, or 21%), Germany (6 projects, or 43%), Ireland (1 project, or 7%), The Netherlands (1 project, or 7%), Portugal (1 project, or 7%), and Sweden (1 project, or 7%).

2.2 Selected projects

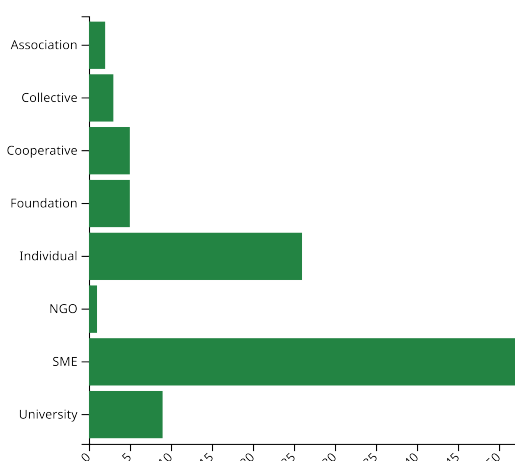
These are the projects that were selected:

- [GNU Taler Wallet ID Lookup Service](#) will provide the optional discovery of wallet addresses linked to digital identities
- [Road Signs for Digital Payments](#) will work on an interface for people who can not read or write
- [TALER Bullion](#) will add an infrastructure for Taler payments with non-flat currencies such as gold and silver
- [MTE – the MirageOS Taler Exchange](#) will implement Taler Exchange functionality in OCaml-based unikernel
- [Taler-Odoo Payment System](#) will integrate Taler in the *Odoo* business management software suite
- [GNU Taler Tryton/GNUHealth Integration](#) will develop a *Tryton* module which would allow users to integrate payments with GNU Taler into their web shops and businesses, going hand in hand with *GNU Health*, which is built on *Tryton* and provides a suite of libre alternatives for hospital management software, health information systems and electronic health records
- [Interledger Interoperability Inquiry](#) will investigate the technical feasibility of using Taler as a payment method on the *Interledger payment network* to support web monetization
- [Taler Open Banking Gateway](#) will provide the technology to top-up a Taler wallet in a regulatory-compliant, instant and user-friendly way
- [Flohmarkt](#) will integrate Taler payments into *Flohmarkt*, a decentral federated small advertisement platform, and allows individuals to informally sell goods to each other in a privacy-preserving manner
- [Payment Module for Nuxt/Vue.js](#) will create a dedicated GNU Taler module for *Nuxt* including Vue.js components for donation and order payment, documentation and examples such as a file-based webshop
- [Taler-Dolibarr Integration](#) will provide a comprehensive module to integrate the privacy-preserving payment system GNU Taler with Dolibarr, an open-source Enterprise Resource Planning used by many small businesses around the world
- [Contributron](#), a privacy-aware donation portal with Taler-based payments, delivers a self-hostable personal website to collect donations and track crowd-funding efforts on various external platforms, including one-time and recurring donations

- **xBSD**, porting and packaging of Taler components for xBSD systems, will make sure that the entire Taler software stack is natively available on a number of operating systems beyond the already available (and obviously popular) Linux operating system — NetBSD, OpenBSD, FreeBSD and Apple’s MacOS X
- **TalerPHP** will develop an open-source PHP library to interact with GNU Taler’s REST APIs, enabling PHP-based applications to more easily support privacy-preserving payments

2.3 Distribution of applicants and grantees by entity type

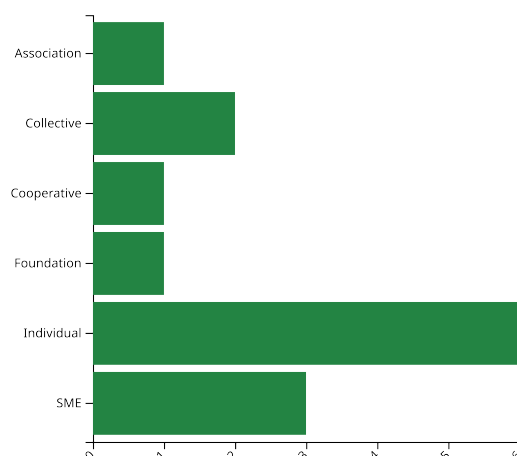
TALER’s Open Calls are individuals, as well as any type of organization. In order to better understand the demographics of the applicants to TALER’s Open Calls, here is a breakdown in terms of the types of applicants that applied to the TALER Open Calls.



Type of entity	#	Percentage
Association	2	2%
Collective	3	3%
Cooperative	5	5%
Foundation	5	5%
Individual	26	25%
NGO	1	1%
SME	52	50%
University	9	9%
Total	103	100%

And here is the breakdown in terms of the types of applicants that made it through the selection process and are being funded within the TALER Open Calls.

Type of entity	#	Percentage
Association	1	7%
Collective	2	14%
Cooperative	1	7%
Foundation	1	7%
Individual	6	43%
SME	3	21%
Total	14	100%



2.4 Distribution across call rounds

There has been a good distribution across the different calls so far, despite this being a small program. Every call has seen at least 10 submissions, and with an overall allocation rate of 17% the program has so far been competitive.

Given the [official release of GNU Taler 1.0](#) – released on 10 May 2025 — and the availability in Switzerland as a real-world payment method, we expect an additional ramp up of applicants. (At the time of writing there were already 22 applications).

Call ID	Date	Submissions	Grantees	Amount	Percentage
2024-04T	April 2024	33	5	€ 16 7954	15%
2024-06T	June 2024	12	2	€ 9 000	17%
2024-10T	October 2024	24	3	€ 60 025	13%
2024-12T	December 2024	14	3	€ 48 310	21%
2025-02T	February 2025	10	1	€ 35 000	10%
2025-04T	April 2025	10	0	0	0 %
2025-06T	June 2025	?	?	?	?
Total		103	14	€ 314 289	14%

2.5 Country statistics

The total amount **requested** by all applicants was € 4 205 182, and the average amount requested was € 37 214. The total amount accepted was € 314 289, and the average amount granted per project € 22 449.

There were 14 projects selected involving parties from 10 different countries. Because this budget is divided by 21 different entities, this means the average actual grant size amounts to € 14 966.

Country	Total third parties	(percentage)
Bulgaria	1 project	11.1% of allocated
Canada	5 projects	13.3% of allocated
Switzerland	3 projects	13.8% of allocated
Germany	6 projects	24% of allocated
Denmark	1 project	4% of allocated
France	1 project	4% of allocated
Ireland	1 project	15.9% of allocated
The Netherlands	1 project	10.7% of allocated
Portugal	1 project	1.6% of allocated
Sweden	1 project	1.6% of allocated

This latter table for the country of origin of grantees does not just take into account the original country of the *lead applicant* of the proposals, but also any *additional* individuals or parties that were identified as part of the final Memorandum of Understanding. The relative share is calculated and an effective total estimate per country is given. If no division of

budgets was available, the average was taken from the sum of third parties inside each project.

More information regarding the grantees' projects can be found at the [NLnet website](#).

Chapter 3

Funded projects

The following sections present all project funded through the TALER Open Calls so far.

Each of them contributes to a **more trustworthy, resilient and sustainably open** internet in its own unique way. By helping redecentralize the internet, they are bringing a better internet a step (or even a few steps) closer. We salute all those people working towards an internet for all, also in the wider free and open source community.

We express our sincere gratitude to the members of the external review committee that kept a close watch on the eligibility of the projects.

3.1 Contributron – Privacy aware donation portal with Taler payments

Description

This projects aims to modernize and extend a self-hostable personal website to collect donations and track crowd-funding efforts on various external platforms. The existing software already allows for one-time and recurring donations with Stripe as the payment processor. This will be extended to offer GNU Taler as a second payment method, with Contributron acting as an easy to use frontend for the GNU Taler merchant backend.

Keywords: Crowdfunding, Electronic Payment, Payment

More info: <https://nlnet.nl/project/Contributron>

3.2 MTE - the MirageOS Taler Exchange – Implement Taler Exchange functionality in OCaml-based unikernel

Description

This project will develop a drop-in implementation for a GNU Taler exchange with the unikernel framework MirageOS. The GNU Taler Exchange is a service that needs to be robust and high secure (plus allow very high security deployments). MirageOS uses OCaml, a functional programming language with a static type system which catches lots of errors at compile time, and provides memory-safety. With MirageOS, one only embeds the code that

is really required to run the service in the virtual machine image - resulting in a relatively much smaller attack surface.

The resulting solution will use very little resources (memory usage / CPU cycles), which is beneficial both from a green computing perspective, and from a performance perspective. The plan is to use existing tests of GNU Taler exchange, in addition to our own fuzz testing, to ensure that MTE acts the same as GNU Taler exchange.

Keywords: Unikernel

More info: <https://nlnet.nl/project/MTE>

3.3 TALER Bullion –Infrastructure for GNU Taler Payments with non-fiat Currencies

Description

Depending on how you design a money system, its properties can be quite different. Regular currencies are typically steered towards (slight) inflation by the public bodies that steward them, by means of a gradual influx of money. This benefits “active money” (investors) which yields economic growth. Of course this also makes prices for consumers continually rise, and savings de-value over time in terms of purchasing power. The rate at which this devaluation takes place is a policy instrument, and of course one that should be used wisely. When these systems were first designed, money was backed up by physical assets such as gold and silver which offered more predictable long term purchasing power. Some users still prefer for their savings to be backed up by something of concrete value they own.

GNU Taler is a well-designed system for (online) payments, and it is eminently suitable to trade (the ownership safely of) stored gold, silver and similar systems based on real value. Besides its obvious use case as a payment system for regular currencies, the system can also be used to revitalize gold and silver for storage and payment systems; they still exist today but are decoupled. The purpose of this project is to solve problems with trust relations, such as passing (the ownership of) gold or silver between vault operators, or between gold storage and payment systems so it can become practically useful money on an international scale, in service of people outside the financial industry.

Keywords: Electronic Payment, Fiat Currencies

More info: <https://nlnet.nl/project/TALER-Bullion>

3.4 Interledger interoperability inquiry – Investigate synergy between Interledger and GNU Taler

Description

The Interledger Protocol and Open Payments API specification are the payment protocols used for an online tipping specification being proposed in the W3C Web Platform Incubator Community Group called Web Monetization. The Web Monetization specification allows for automatic streaming micropayments and low-friction on-demand tipping to online creators who specify an Open Payments wallet address in their HTML or respective metadata of the online experience (e.g. JSON-LD in Activity Streams/ActivityPub, XML attribute in podcast RSS).

This project proposal will investigate the technical feasibility of using Taler as a payment method on the Interledger payment network to support Web Monetization. The outcome will be an overview of potential approaches for integrating Taler using the Interledger Protocol or as a payment method in Interledger’s Open Payments API reference implementation (Rafiki).

Keywords: Blockchain

More info: <https://nlnet.nl/project/TALER-Interledger-study>

3.5 GNU Taler Wallet ID Lookup Service – Optional discovery of TALER wallet addresses linked to digital identities

Description

GNU Taler is a payment system that makes privacy-friendly online transactions fast and easy. This project will facilitate the support of peer-to-peer payments (P2P) for the GNU Taler payment system between users by implementing a privacy-friendly directory service and lightweight inbox service (TALer DIRectory). The services will allow users to securely associate their online identities (such as email addresses, phone numbers, X/Twitter/Mastodon handles or other suitable verifiable addresses and accounts) with their wallet public keys and the URL of an inbox service and use it for P2P payments. Storage and retrieval may also be offloaded to distributed directory services such as DNS or GNS (RFC 9498) instead of a database and web service while maintaining the respective privacy guarantees.

Keywords: Directory, Electronic Payment, P2P, Privacy

More info: <https://nlnet.nl/project/TALER-LookupService> and repo at <https://git.taler.net/taldir.git>

3.6 Road Signs for Digital Payments – Safe, usable financial interfaces for poorly-schooled adults

Description

GNU Taler is a digital payment protocol for privacy-preserving cash-like transactions. It improves usability by avoiding the need for the payer to authenticate to third parties. OIM is a free, open source emerging approach of design for creating safe, usable financial interfaces for poorly-schooled adults.

Worldwide UNESCO estimates over 750 million adults to be unable to read or write in any language, and hundreds of millions of more have extremely limited ability. Due to unequal schooling opportunities, most are women. In Europe millions of migrants, refugees and marginalized people cannot confidently use digital payments.

Digital OIM features carefully user-tested cash scrollbars and counting tables, iconographic navigation, mnemonic cues, user-reversible transaction processes, a 0-9 (not 1-0) numeric keypad and more. Poorly-schooled app users learn how to decode place value notation, arithmetic graphs and other schooled, formal sector protocols from repetitive use.

Keywords: Accessibility, Digital Inclusion, Education, Payment, Personal Finance

More info: <https://nlnet.nl/project/TALER-OIM>

3.7 Taler-Odoo Payment System – Integration module for TALER in Odoo

Description

The Taler-Odoo Payment System will integrate the GNU Taler payment system within Odoo, a business management software suite that includes customer relationship management, e-commerce, billing, accounting, manufacturing, warehouse, project management, and inventory management. With Odoo, merchants can create invoices for products they sell, websites to display them and much more.

This project will produce an Odoo module written in JavaScript and Python, which allows users to pay with Taler. Similar to any other payment integration within the Odoo Framework, the module integrates into the functionality of other existing Odoo modules (ticket sale, online shopping, invoices, etc). It will allow merchants to offer a customer to choose a payment system that fully respects their privacy.

Keywords: ERP, Electronic Payment, Wallet

More info: <https://nlnet.nl/project/TALER-Odoo-module>

Forum discussion: <https://ich.taler.net/c/integrations/odoo/29>

3.8 Open Banking Gateway Taler Wallet Top-Up/Merchant Verification – Add GNU Taler support to Open Banking Gateway

Description

Transferring Euro to the Taler wallet should be quick, easy and flawless. Taler Open Banking Gateway (TOBG) will provide the technology to top-up a Taler wallet in a regulatory compliant, instant and user-friendly way. TOBG will use the Payment Initiation Services mechanism introduced and regulated under the revised European Payment Services Directive (PSD2). A German bank will support and run the platform, providing technical and regulatory alignment.

The project will help to improve adoption and usage of the Taler system significantly. It will also extend the existing Open Banking Gateway software with additional functionality, improved user experience and additional adaptors for European banks. The outcome will be a full functional solution with a focused scope of supported banks users can top-up from. Both the operators and the free and open source community will be able to further extend the reach, functionality, supported channels and use cases. One of these use cases is to use Payment Initiation Services in merchant apps for account verification.

Keywords: Banking, Gateway, SEPA

More info: <https://nlnet.nl/project/TALER-OpenBankingGateway>

See also:

Project page: <https://adorsys.github.io/open-banking-gateway>

Repository: <https://github.com/adorsys/open-banking-gateway>

Documentation: <https://adorsys.github.io/open-banking-gateway/doc/develop>

3.9 GNU Taler Tryton/GNUHealth integration – GNU Taler module for Tryton ERP/GNU Health”

Description

This project will develop a Tryton module which would allow users to integrate payments with GNU Taler into their financial workflow, whether from a webshop, a factory or a hospital. Tryton is a popular libre business management system used for e-commerce and enterprise resource planning. There are many modules for financial accounting, sales, inventory and stock, CRM, shipping, subscription management, etc. Existing payment provider integrations within Tryton are limited to specific proprietary payment providers, having a Taler based option would allow organizations to handle Taler based payments (incoming as well as outgoing).

GNU Health (which is built on Tryton) provides a suite of libre alternatives for Hospital Management software, health information systems and electronic health records. Integration of privacy preserving payments with TALER in GNU Health will deliver a much needed contribution to medical privacy, providing the first digital alternative (next to cash payment) which allows patients to pay for their personal medical treatment and medication directly and with full discretion - keeping the doctor-patient privilege intact.

Keywords: Digital Payment, ERP, Integration, Merchant Backend

More info: <https://nlnet.nl/project/TALER-Tryton>

3.10 TALER integration in flohmarkt – Secure payments for P2P classified adds federating with ActivityPub

Description

Flohmarkt is a decentral federated small advertisement platform, sorted by category (hence the name “classified ads”). The name flohmarkt comes from the German word for “flea market”. Flohmarkt allows to federate local platforms by using the web-based federation protocol ActivityPub, make up one big place for small advertisements about exchange of goods and services. This project will integrate Taler payments into Flohmarkt - allow individuals to informally sell goods to each other in a privacy preserving manner.

Keywords: ActivityPub

More info: <https://nlnet.nl/project/TALER-flohmarkt> and <https://codeberg.org/flohmarkt/flohmarkt>

3.11 Payment Module for Nuxt/Vue.js – Module to add GNU Taler support in Nuxt/Vue.js

Description

Nuxt is a widely used JavaScript library for building web interfaces based on the lightweight Vue.js framework. This project will create a dedicated GNU Taler module for Nuxt, allowing developers the same convenience when supporting a privacy-friendly option they would have using Nuxt modules for proprietary services like Stripe and PayPal. It includes Vue.js components for donation and order payment, documentation and examples such as a file-based webshop.

Keywords: Donation, Electronic Payment, Integration, Web Framework

More info: <https://nlnet.nl/project/TALER-integration-Nuxt>

3.12 Taler-Dolibarr Integration – Taler payment handling for Dolibarr ERP software

Description

This project will provide a comprehensive module to integrate the privacy-preserving payment system GNU Taler with Dolibarr, an open-source Enterprise Resource Planning used by many small businesses around the world. Integration involves core workflows such as secure online payment processing, refunds, inventory and order management, and payment reconciliation—offering a single solution to costly proprietary solutions such as Stripe or PayPal. A LibEuFin-oriented module will also provide seamless bank account integration, with merchants able to automatically reconcile bank transactions in Dolibarr’s easy-to-use interface. Merging Taler’s privacy-centric design and low-fee paradigm into a popular ERP platform supports small business financial independence and encourages broader adoption of ethical digital payment systems.

Keywords: Banking , ERP, Payment

More info: <https://nlnet.nl/project/Taler-Dolibarr> and <https://www.dolibarr.org/>

3.13 xBSD porting and packaging –Porting and packaging of Taler components for xBSD systems

Description

GNU Taler is a privacy-preserving microtransaction and electronic payment system. This project will make sure that the entire Taler software stack is natively available on a number of operating systems beyond the already available (and obviously popular) Linux operating system. This will allow sellers (“merchants”‘ to use their operating system of choice when integrating and deploying Taler. More specifically, the main target is the BSD family of UNIX-like operating systems - such as NetBSD, OpenBSD, FreeBSD and Apple’s MacOS X. The work includes porting and packaging as well as developing appropriate documentation on how exactly to create a properly working set-up. This allows merchants wanting to use Taler to get started quickly without having to engage in time-consuming and error-prone steps like building the software from source.

Keywords: BSD, Packaging, Porting

More info: <https://nlnet.nl/project/Taler-on-BSD>

3.14 TalerPHP – PHP SDK for GNU Taler REST API Integration

Description

The TalerPHP project will develop an open-source PHP library to interact with GNU Taler’s REST APIs, enabling PHP-based applications to more easily support privacy-preserving payments. The project will deliver a framework-agnostic core SDK, followed by dedicated

packages for Laravel, Symfony, and Yii - lowering the technical barrier for adoption. Given PHP's dominant presence on the web, this SDK will provide essential building blocks for secure payment integration across a wide range of industries including e-commerce, healthcare, and not-for-profit donations.

Keywords: PHP, SDK

More info: <https://nlnet.nl/project/TalerPHP>

Chapter 4

Details on grant process

This chapter gives insight into how the selected projects were chosen and how they are being supported.

4.1 Financial support to third parties in TALER

In this section we describe the following aspects of this financial support by detailing our approach to managing the TALER Open Calls, a dedicated fund supporting a series of open calls related to TALER:

- Objectives and results obtained of third party financial support
- Specifications of third party financial support
- List of activities and costs eligible for funding
- Definition of persons or categories of persons which may receive financial support
- Criteria for awarding financial support
- Criteria for calculating the exact amount of the financial support

4.1.1 Objectives and results obtained of third party financial support

The core objective of the grant component of the TALER program is to fund and support independent researchers and developers and organizations that contribute open source technology for a more open, trustworthy internet pertinent to the NGI technologies further developed within TALER.

The way we do this is a tailor-made version of the open call operated by NLnet foundation. NLnet is the oldest internet technology grantmaker in Europe, and has decades of track record in funding strategic efforts.

As a recognized public benefit organization NLnet operates transparently, is publicly accountable and the goals of the topic in the Work Programme align with its statutory mission. Any grants that are being handed out to individuals, companies, NGO's or other types of legal entities are donations that typically fall under beneficial tax conditions as 'philanthropic gifts'. The results of the TALER grant program consist of new or improved

digital commons that have a clear link to its research topics and contribute to the public benefit. These characteristics are requirements for projects to be selected and funded, and stem from the overall vision that underpins the Next Generation Internet initiative.

4.1.2 Specifications of third party financial support

We will competitively award 779 078 EUR (of which 676 254 EUR is a contribution from the European Commission and 103 824 EUR is a contribution from the Swiss Secretariat for Research and Innovation) worth of grants to third parties. This is 15% of the TALER budget. Fueling great R&D is the core objective of this Innovation Action. We have detailed the list of activities that qualify for financial support, the entire procedure, the results to be obtained, who is eligible, the competitive criteria for awarding financial support, and the criteria for calculating the exact amount of the financial support (competitive, best value delivered) below.

4.1.3 List of activities and costs eligible for funding

The following types of activities qualify for financial support, provided they are cost effective and have a clear link to the topics directly relevant to TALER and the objectives set out in the work program/call:

- scientific research
- design and development of open source software and open hardware
- validation or constructive inquiry into existing or novel technical solutions
- software engineering aimed at adapting to new usage areas or improving software quality
- formal security proofs, security audits, setup and design of software testing and continuous integration
- documentation for researchers, developers and end users, including educational materials
- standardization activities, including membership fees of standards bodies
- understanding user requirements and improving usability/inclusive design
- necessary measures in support of (broad)er deployability, e.g. packaging
- participation in technical, developer and community events like hackathons, IETF, W3C, RIPE meetings, FOSDEM, etc. (admission fee, travel and subsistence costs)
- other activities that are relevant to adhering to robust software development and deployment practices
- project management
- out-of-pocket costs for infrastructure essential to achieving the above

4.1.4 Definition of persons or categories of persons which may receive financial support

There are no categorical exclusions of persons who may not receive support from TALER.

Given equal proposals, inhabitants of the EU and its associated countries are given priority, however if the project is of exceptional quality and the proposer holds unique technical expertise proposals from outside of those geographic areas can be eligible as well.

Young people that have not yet reached the age of legal consent in their country of origin (typically 18 years old) on the date of the deadline may apply without any constraints; consent from a legal guardian such as a parent does not have to be provided prior to initial submission, but will be required to enter any further negotiations.

Special efforts are made to reach out to talent from under-represented parts of the community.

4.1.5 Criteria for awarding financial support

Projects are judged on their technical merits, strategic relevance to the Next Generation Internet and overall value for money. The key objective is to deliver potential break-through contributions to the open internet linked to the NGI technologies which are the topic of TALER. All scientific outcomes must be published as open access, and any software and hardware must be published under a recognized free and open source license in its entirety. The proposed IPR regime is in line with the approach in other NGI programs such as NGI Zero and is 100% compatible with the vision of the Next Generation Internet initiative. It ensures lasting impact and reusability of results. Payment is upon delivery, which is fair. However, should during the executing of a project the beneficiaries face any major hardships without having a financial safety net – including being struck by natural disaster, serious personal medical crisis or other disruptive life events that prevent them from timely completion of the project and subsequent entitlement to a donation – they may upon providing proof of the circumstances be granted a proportional amount as hardship contribution.

4.1.6 First stage assessment

Based on the submitted proposals, projects receive a first check for eligibility in terms of alignment of goals and criteria with the sub-granting call. In this stage hard eligibility (“knock-out”) criteria specific to the sub-granting call are checked. Project proposals are written in English and:

- should be in line with the NGI vision and the sub-granting call applied for
- should have research and development as their primary objective
- should satisfy any other hard eligibility criteria specific to the subgranting call, such as geographic limitations

All projects that fail on any of these knock-out criteria, will not be further reviewed and will be marked ineligible. The rest of the projects will be given a score based on the proposal text as submitted.

Projects receive an initial rating on three criteria:

Weight	Criterion
30	Technical excellence/feasibility
40	Relevance/Impact/Strategic potential
30	Cost effectiveness/Value for money

The total weighted score of projects has to be above 5 (out of 7) to pass to the next stage.

The projects which are not taken into the second round are informed that their project is not selected, so that they may try to find funding elsewhere as soon as possible - or continue without additional funding (as happens a lot).

The second stage is used to select strategic projects which not only satisfy the minimal criteria, but also have potentially a lasting impact on society. Projects are to be selected based on their potential contribution to the Next Generation Internet and its key drivers for change. In the second stage, the reviewers are able to ask additional clarifying questions and make (minor) suggestions to improve the quality and impact of the project.

4.1.7 Second stage assessment

This typically involves questions such as:

- what is the difference in approach to existing projects U, V and W
- how will you approach complicating factor X
- can you back up or validate claim Y
- have you considered collaborating with complementary effort Z or using standard A
- the rate you have applied for task B is very high compared to the perceived value of that task. Can you explain, or would you like to reconsider?
- can you clarify how you intend to make the outcome of the project (self)sustainable
- how does upstream project D feel about your application

In addition, the review team will do independent verification of facts, methods and claims. If necessary they verify relevant information through their expert network. This is done without revealing personally identifiable information, unless there is explicit consent from the submitter that their project may be shared. The second stage typically lasts two-three weeks. If a project is unable to prepare all the answers to the questions and/or a modified proposal within the allocated time frame, the project may be moved to the next round. Note that the proposed project budget may change during this phase due to added or deleted project milestones.

After the second stage is completed, new ratings are calculated based on the revised plan. If the revised plan scores lower than the original proposal, the original proposal is rated. Projects are subsequently ranked by the team according to the overall expected value and impact to the NGI initiative. A cut off point is determined, based on the overall quality of the round and the remaining budget. The projects that fall below the cut are (similar to the first round) informed that their project is not selected, so that they may try to find funding elsewhere as soon as possible - or continue without additional funding.

4.1.8 Third stage: Independent review committee

An independent review committee checks the final selection of projects. The review committee consists of independent experts from the internet and FOSS community, academia and the public sector. The committee receives no remuneration for its work, and its members have no other economic interests with NGI and/or links to NLnet Foundation as the grant-making organization. Each project is reviewed for eligibility independently by at least two members of the review committee.

The outcome of the selection process is randomly divided among the members of the Review Committee. The committee validates that all the projects that are nominated are indeed eligible for funding, budgets are frugal, and that there are no other concerns. This creates a transparency trail with regards to eligibility and cost effectiveness of the proposed solutions, while retaining confidentiality of the preceding procedure. If a project fails to meet the criteria of the independent review committee, the concerns are sent to the proposer and the project is pushed back to the next available call. If there is no future call, the project is declined.

The external review board does not have to review amendments to an already granted project in case of:

- changes in the composition of the project team
- adjustments of a project plan without budget changes
- additional tasks within the same scope and using equivalent rates, as long as the total grant amount stays below 60 kEUR

4.2 Criteria for calculating the exact amount of the financial support

The call text stipulates that subgrants between 10k and 50k euro are the expected target range.

Our long term of experience with precisely this type of funding instrument has learned us that there is already benefit below this scale – and in fact being able to offer more modest amounts actually invites a different (but very interesting) group of contributors that would consider those higher amounts above their capacity. We therefore allow even smaller project to apply, setting the bandwidth for proposals between 5 000 and 50 000 euro. Obviously, this comes with additional overhead at our end – but we believe that to be worth it.

The amount to be granted to each third party should be the amount necessary to achieve the key objectives of the action. During the three stage review process, the overall ‘value for money’ and strategic potential of the proposal are part of the review, and thus of the ranking.

We have a rapid succession of project funding opportunities, so we can iterate and grow talent instead of having a ‘leap of faith’ with a select few projects. Excellent teams that have successfully completed their project, can apply for additional funding again – provided that higher amount is necessary and delivers enough additional value. They are judged along the same criteria as the rest of the people in the grant round they are entering.

Proposals must adhere to the following boundary conditions:

- a single proposal MAY request a grant allocation up to 50 kEuro.
- a significant part of the work within a project MUST have been successfully completed before an amendment to the project or a new proposal from the same applicant can be awarded: this means that the project deliverables have been made publicly available under recognized open/free licenses, that any software artifacts delivered were WCAG compliant, and that the outcomes of any third party audit have been satisfactorily dealt with.
- If a grantee seeks an amendment or new grant, the outcomes of the previously delivered work are taken into account during the evaluation.

The exact amount of financial support is determined by NLnet based on the projected cost and estimated value of the proposition. Any proposed amount is to be adjusted for costs that are deemed ineligible (see above) as well as for the cost of any additional activities recommended by NLnet. The final amount is established in the memorandum of understanding between NLnet and the grantee. If the grantee does not agree with the size of the grant offered, they may decline and withdraw the proposal prior to signing the MoU at any time.

NLnet as the grant handling organization is a recognized public benefit organization, and the goals of NGI are within its statutory mission. Any grants that will be handed out, to individuals, companies, NGO's or other types of legal entities are donations that fall under the most beneficial tax conditions as 'charitable gifts'.

4.2.1 Maximum amount to be granted to each third party

The maximum amount to be granted per third party over the lifetime of TALER is 60 kEuro. A third party can be a formal organization (of any type) or an individual.

4.2.2 Confidentiality and privacy

We take confidentiality of information conveyed to us, and the privacy of our applicants and grantees very serious. We have minimized the amount of information requested during the application, and until the point where the actual grant process starts applicants can remain anonymous at their own discretion. In our privacy policy we inform potential applicants that they can use an alias and a temporary email address, and upon sharing a valid public OpenPGP key we will use OpenPGP to encrypt any further communication. As long as a project is not accepted, the applicants real identity is not relevant to us. If the proposal never goes beyond that phase they can remain anonymous.

In order to review and process project proposals we need to grant access to the professional staff of NLnet foundation responsible for reviewing and running the open calls associated with TALER (WP4). Since confidentiality is a critical aspect of the trust relationship we have with projects, at no point in time will proposals be shared with third parties without explicit permission, not even partners within TALER. Sometimes opportunities will arise outside of the context of this fund, or there is a potential to support the project in some other way. At the time of submitting the proposal applicants either grant NLnet Foundation the right to keep any information submitted on record – should future funding opportunities arise – or not. When the latter option is selected, NLnet will remove the information associated with the proposal if it is not successful. If they chose to allow NLnet to keep the information at

hand, NLnet may at some point in the future bring them into contact with others at any given point in the future – but again only after explicit written consent from applicants.

When a project makes it through the first two stages of the selection process (see above), we need to share some information with the independent Review Committee – which consists of a small group of trusted experts. We do not pass on names of individuals (nor their contact details) onto the committee, but the committee members do receive and evaluate the granted proposal in a confidential manner.

When a proposal makes it through the third round and goes into the grantmaking process, we legally need to retain the applicants information for compliance purposes for at least seven years. We share contact details with our (not-for-profit) partner organizations in order so they may assist the projects with mentoring and technical advice.

NLnet is also the coordinator of NGI Zero Review, through which projects may receive complementary services e.g. accessibility audits, localization support, packaging, security reviews etc. Supporting organizations within TALER do need to actually contact people in order to support or mentor them, NLnet will ask grantees to allow them to make contact information available to these partners – but we do not necessarily reveal their real identity. Applicants may provide us with an alias which will be what we expose to partners instead. If people request a copy of their application, this is sent to the email address they themselves provide to use. We assume people have a good understanding of who has access to the associated mailbox and/or can observe their mail server traffic.

The European Commission and its appointed project review committees receive management information about projects receiving grants from these calls, but not the proposals themselves – and only the initials of the names (or aliases) of individuals are shared.

We ask people to inform us of any additional security and privacy constraints they have in our privacy policy, and we will try to accommodate such constraints to the best of our abilities – or tell them we are not able to do so. That at least gives people the choice to continue their interaction with us or not.

4.3 Conflict of interest resolution

The reviews within the TALER grant program are done by full time professional staff of a recognized and professionally audited public benefit organization with a significant track record (NLnet foundation), hired to perform impartial and objective project reviews without economic interest, political or national affinity. Every project is reviewed by multiple full time staff members, and independently from that all projects proposed for funding are again reviewed by multiple well-regarded experts from academia, the internet world and the public sector.

Institutional conflicts of interest

As the organization responsible for performing the reviews within the TALER grant program, NLnet foundation offers strong guarantees it does not in any way have any financial or other benefit from awarding certain proposals over others. Note that NLnet foundation is entirely independent, and has been so ever since it was founded in 1989. NLnet currently has no

organizational ties with other legal entities – with the noted exception of its wholly owned fiscal fundraising entity Commons Caretakers, which for obvious reasons is excluded from requesting grants from the TALER grant program. As part of managing its own financial endowment, NLnet has some small historical investments in SME companies and small investment funds. Companies financially invested in by NLnet are also explicitly excluded from receiving any grants through TALER.

Although they are not in any way involved with the review, the other legal entities that are part of the TALER consortium and their staff are also fully excluded from requesting and receiving grants through the TALER grant program. This avoids conflicts of interest within the consortium, which was already minimal due to the fact that NLnet is also the coordinator.

Personal conflicts of interest

Reviews are performed by full time professional staff, hired to perform impartial and objective project reviews without economic interest, political or national affinity. For obvious reasons, NLnet staff are not allowed to have any financial or other personal benefit from grant proposals they are responsible for reviewing in any way either – other than the longer term public benefit. This allows them to fulfill their tasks in an impartial manner. The same holds for those people with which the reviewers have close family ties (spouse, domestic or non-domestic partner, child, sibling, parent etc.), and for any legal entities in which NLnet (or its staff) may hold stocks, shares or other economic rights.

Independent review committee

The standing review committee consisting of independent experts from the technical and academic internet community and the public sector validates the outcome of the selection procedure of each round on criteria of eligibility and budgetary efficiency. To ensure their independence, the members of the review committee are not attached to any of the consortium partners within TALER as employee, member of the board of directors or member of the board of supervisors. Members of the independent review committee, their employers, their coworkers and their relatives are themselves excluded from submitting projects to the TALER grant program.

Membership of reviewers in associations and not-for-profits

Note that the above explicitly does allow for past and present non-remunerate involvement of NLnet staff in not-for-profit legal entities serving the public interest, including those that were part of previously funded efforts within its funding programs in which the partners were involved. This also includes paid and unpaid (board) membership of professional or ideological organizations such as ACM, IEEE, Internet Society, FSF, ICANN, OSI and Unix user groups, legal umbrellas such as The Commons Conservancy as well as open standards bodies like OASIS and W3C.

Submissions from those organizations (and other people involved with them) are not considered to constitute a conflict of interest. The ‘reviewer paradox’ is similar to the more classical ‘observer paradox’: in order to be able to properly review the relevance of proposed R&D at the cutting edge of technology, reviewers have to have a level of knowledge that only exists within the R&D ecosystem itself.

We believe it would not be proportional to exclude members of associations and volunteers within not-for-profits to exclude them from receiving support through the TALER grant program, and we believe the ample additional quality assurances and third party checks made within the TALER grant program allow for this sane approach.

Non-commercial constituencies

As mentioned before, all legal entities that are part of the TALER consortium and their paid staff are excluded from requesting and receiving grants through the TALER grant program. This actively blocks any applications from the entire paid staff from the organizations within the consortium as well as the leadership involved with TALER: there is a ‘Chinese wall’ between the projects which are funded and the partners supporting the projects.

We believe it would not be proportional and in fact be undesirable to categorically exclude the membership and volunteer constituencies of the not-for-profit organizations within the NGI Zero ecosystem from grants. Besides NLnet foundation, neither of the partners is involved in any way with the actual review of projects and the resulting selection. The fact that people choose to contribute in an unpaid capacity to idealistic organizations that play an active and constructive role in e.g. the internet and open source ecosystems should not affect their ability to receive funding for a possible contribution. The same holds for (former and current) students and (former and non-remunerate) doctoral candidates of the academic partners in TALER. In fact, the ability to reach motivated and qualified people aligned with the core mission of NGI is one of the reasons these organizations were involved in the first place.

Given the clear and consistent separation between the rest of the consortium and the selection process, and the strong quality guarantees from the whole procedure, NLNet and the rest of the TALER consortium elected to place no restrictions on proposals from the non-commercial constituencies surrounding the consortium partners in TALER – with of course the noted exception of the grantmaking organization (NLnet foundation). Consortium members have been instructed to stay clear from project proposals from their constituencies, and are aware that failing to keep adequate distance to proposals from their constituencies will disqualify the proposals involved.