

Interledger Protocol Payments

Interledger Protocol (ILP) payments is a new feature coming in Tiki 24. Interledger is an open and inclusive payments network which **does not utilize a blockchain**. The Interledger Protocol is an open protocol suite for sending payments across different ledgers.

How does Interledger Protocol (ILP) work?

The Interledger Protocol is a set of rules that define how nodes should send value over the Interledger network. A single aggregate payment from source to destination is split into multiple ILP packets. Each ILP packet contains transaction information, which is private to the nodes participating in the transaction. The sender constructs and sends a Prepare packet as a request to the connecting router. The routers forward the packet until it reaches the receiver. The receiver then accepts or rejects the packet by sending a Fulfill packet or a Reject packet as the response. The routers relay the response from the receiver back to the sender. When the sender receives a Fulfill packet, it knows that the packet was successfully delivered to the receiver. The sender then continues to send the remaining Prepare packets until the value is fully transferred. You can read the [whitepaper](#) here.

Why use Interledger Protocol (ILP)?

- Simplicity for end-users to transfer value over different networks
- Speed over traditional payment rails
- Reduced cost as competition to connect networks grows and incentivizes lower prices
- Trustworthiness as tracking transactions and all-or-nothing (atomic) transactions guarantee that the value does not get lost due to fees and returns
- Packetizing value — splitting up larger transfers into many lower-value packets which increases the network's efficiency, security and interoperability

How to do Interledger Protocol (ILP) payments using Tiki?

Explained below is the step by step guide to implement Interledger Protocol (ILP) payments in Tiki assuming there is a working domain already setup, in this example with the following characteristics:

- Domain name `ilp.*`
- Path of your home `/home/ilp/`
- Username `ilp`
- Database name `ilp`
- Some strong passwords

Step 1 - Getting and installing a compatible Tiki instance:

At the date of this writing you have to use a specific 24.x version; it will be merged to master soon and available via Tiki Manager.

Step 2 - Running the ILP moneyd local test network and the ILP SPSP Invoice Server

MoneyD allows you to run an isolated local test network for development. The ILP SPSP is a basic protocol for exchanging payment information between payee and payer to facilitate payment over Interledger. In our case Tiki is the client, that talks to the SPSP server.

a. Navigate one level up your website directory

```
cd ..
```

b. Create a directory where we will get the tools and enter it

```
mkdir ilp-tools && cd ilp-tools
```

c. Export the path so you can run npm commands as your user

```
wget https://nodejs.org/dist/v14.17.5/node-v14.17.5-linux-x64.tar.gz
```

```
tar zxvf node-v14.17.5-linux-x64.tar.gz
```

```
export PATH=/home/ilp/ilp-tools/node-v14.17.5-linux-x64/bin:$PATH
```

d. Install moneyd and the PM2 daemon process manager via npm

```
npm install moneyd
```

```
npm install pm2
```

e. Finally install the ilp-spsp server

```
git clone https://github.com/interledgerjs/ilp-spsp-invoice-server.git
```

```
cd ilp-spsp-invoice-server
```

```
npm install
```

f. Restore your path and start moneyd and PM2

```
export PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:$PATH
```

```
pm2 start "moneyd local"
```

```
pm2 start index.js
```

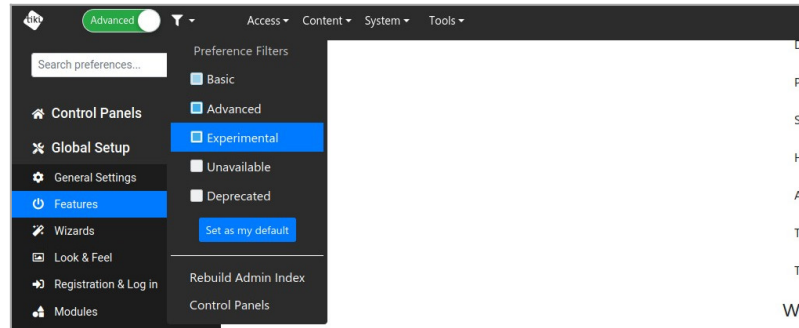
`pm2 status index.js` should print an "online" green status

id	name	namespace	version	mode	pid	uptime	↓	status	cpu	mem	user	watching
1	index	local	1.0.2	fork	29276	14h	0	online	0%	81.9mb	ilp	disabled
0	moneyd	local	N/A	fork	29068	14h	0	online	0%	69.7mb	ilp	disabled

Click to expand

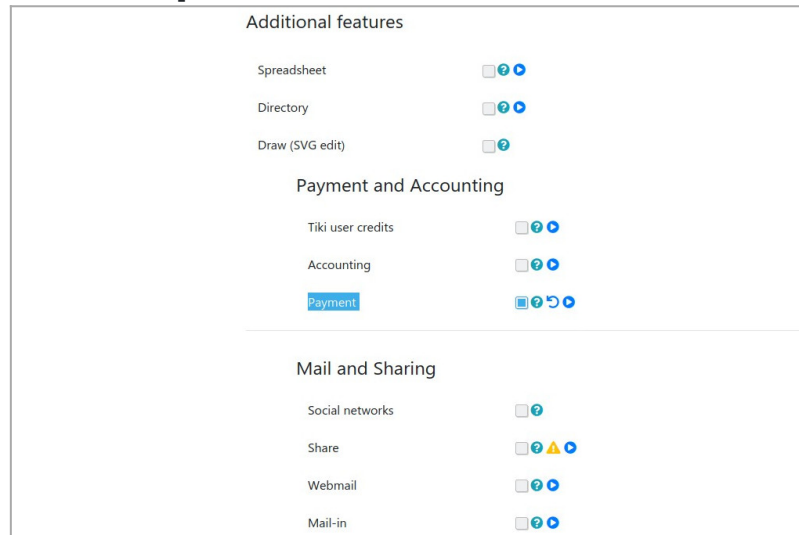
Step 3 - Setup the Tiki ILP payment feature and a basic cart

Head to your Tiki instance **Settings** > **Control panels** and **Set as my default** the "Advanced" and "Experimental" filters to have all the options available



Click to expand

Navigate to **Global setup** > **Features** and activate the **Payment** feature



Click to expand

Global setup > **Profiles** search for Shopping_Cart, click the result, fill **Currency initials** and **Currency symbol** as XRP and **Apply**. You now have a basic shop.

Select and apply profile Click on a configuration profile name below to review it and apply it on your site

Profile name	Repository	Profile type
Shopping_Cart <i>applied</i>	profiles.tiki.org	beta. Full profile (out of the box & ready to go), 12.x, 13.x, Available in the Profiles Wizard (12+), 14.x, 15.x, 16.x, 17.x, 18.x, 19.x, 20.x, 21.x, 22.x

Currency initials: XRP

PayPal Business ID: unknown

Currency symbol: XRP

[Forget and Re-apply](#)

[Preview Changes](#)

A version of this profile is already applied.

Info

This profile provides a Shopping Cart and the corresponding basic payment system. Tested to work with Tiki12.x+. The former name of this profile was "TikiKart", which has been kept internally for the naming of the objects referenced by the profile.

[Products list page](#) [Single Product Page](#)

Click to expand

Click on the link near the check button or navigate via the right menu to **Miscellaneous > Payment** and select Inter Ledger Protocol as the **Payment system**, XRP for **Currency**, check **User can only see own outstanding payments**, and **User can only see own past or cancelled payments**

Payments

[Payment](#) [Advanced Shopping Cart](#) [Plugins](#) [Shipping](#) [Apply](#) [No Tabs](#)

Choose payment system

You can use only one payment method: PayPal or Cclite or Tiki User Credits
PayPal is working at the moment. See PayPal.com
Cclite: Community currency accounting for local exchange trading systems (LETS). See [sourceforge.net](#)
Tiki User Credits: Requires this other feature to be configured

Payment system: Inter Ledger Protocol

Currency: XRP

Default acceptable payment delay: 30 days

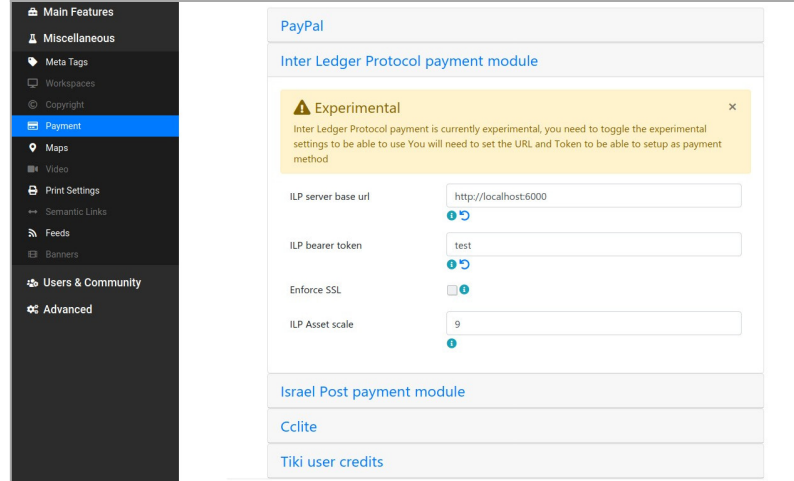
Wiki page with manual payment instructions:

User can only see own outstanding payments: ☒

User can only see own past or cancelled payments: ☒

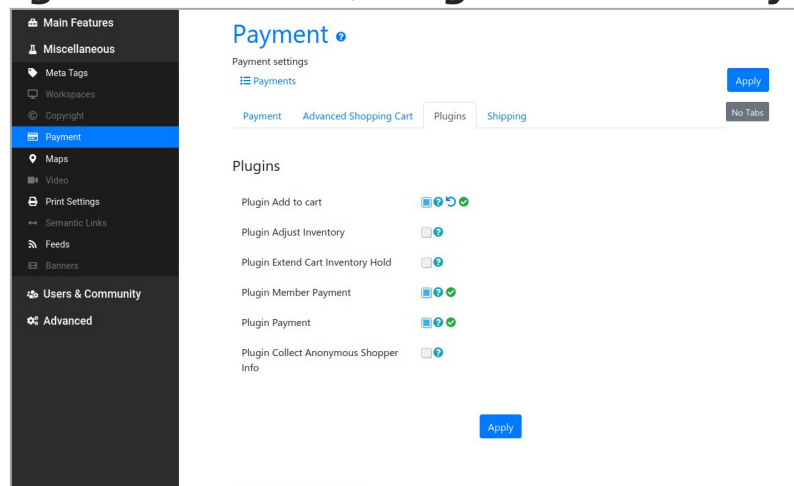
Click to expand

Bellow fill in the **ILP server base url** as http://localhost:6000 and the **ILP bearer token** as test and **Apply** the settings



Click to expand

Click the Plugins tab, fill **Plugin Add to cart**, **Plugin Member Payment** and **Plugin Payment**



Click to expand

Step 4 - Test an order

Add a product to your cart, click **Check-out** in the right panel to obtain the ILP pointer for the payment

Click to expand

The screenshot shows the 'Payment Request' page for 'Cart Check-Out (admin)'. The status is 'Outstanding'. A table lists the items for payment:

ID	Product	Quantity	Unit Price
3	Wise Book	1	5.00

Summary information:

- Initial amount: 5.00 XRP
- Amount remaining: 5.00 XRP
- Payment request initiated: 2021-08-26
- Payment request due: 2021-09-25

The page includes a section for 'Pay with Inter Ledger Protocol' with a text box for the ILP pointer and a 'Check Payment' button. Below this is a section for 'Enter a Manual Payment' with a text box and a unit price of XRP. A 'Note' section is at the bottom.

Copy the link, and back at the command line send 5XRP

```
ilp-spsp send -a 5 -p http://localhost:6000/0787e2ba-d358-4cb7-901b-8d96350e2887
```

should respond with amount sent
ie "sent 5 units!"

Reload the page or **Check Payment** and your payment will be confirmed

The screenshot shows the 'Payment Request' page after the payment has been confirmed. The status is now 'Paid'. The table of items remains the same:

ID	Product	Quantity	Unit Price
3	Wise Book	1	5.00

Summary information:

- Paid amount: 5.00 XRP

The 'Payment Details' section shows a list of transactions:

- 5.00 XRP was paid on 2021-08-26.

Payment information:
By admin

Click to expand

Related

- Web Monetization
- PluginCoil

A special thank you

This work was made possible by a grant from Grant for the Web, a fund to boost open, fair, and inclusive standards and innovation in Web Monetization.

- <https://community.webmonetization.org/tikiilp/tiki-ilp-integration-and-monetization-final-grant-report-9ge>
- <https://community.webmonetization.org/tikiilp/tiki-ilp-integration-and-monetization-grant-report-1-2b4a>