Interledger
Web Payments - Payment Method

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Interledger Protocol

A protocol for internetworking different payment networks
(See http://interledger.org or come to our meetup on Thursday night!)

For Payment Request, focus is on standards, not internetworking:

- Addressing
- Reconciliation
- Proof of payment
Interledger Payment Method

```json
{
  supportedMethods: ["interledger"],
  data: {}
}
```
Interledger Payment Method Data

```json
{
  address: "g.crypto.btc.1BvBMSEY...",
  amount: "10",
  condition: "aGh2n8gV29ybGQhCg...",
  data: "SGVsbG8gV29ybGQhCg..."
}
```
Interledger Payment Method Data - Address

```json
{
  address: "g.uk.worldpay...", ... },
{
  address: "g.us.stripe...", ... },
{
  address: "g.us.bofa...", ... },
{
  address: "g.cn.alipay...", ... },
{
  address: "g.crypto.xrp...", ... }
```
Interledger Payment Method Data - Address

- predefined namespaces (g, test, dev, private)
- hierarchical structure assists routing
- transaction specific suffix can aid reconciliation

Example address: g.uk.worldpay.merchant.1234567.tx.87563485
Interledger Payment Method Data - Amount

```json
{
  address: "g.crypto.btc.1BvBMSEY...",
  amount: "190345021",
}

{
  address: "g.us.bofa.usd...",
  amount: "1200",
}
```

- Scale based on address.
- Always expressed as a 64-bit unsigned integer.

$12.00$ (scale = 2)
Interledger Payment Method Data - Condition + Data

```json
{
  ...,
  condition: "aGh2n8gV29ybGQhCg...",
  data: "SGVsbG8gV29ybGQhCg..."
}
```

SHA-256 hash of the fulfillment (base64url encoded) cryptographically bound to payment data (provides integrity protection)
Binding the payment data to the outcome

Payee has a secret:  

\[
\text{SHA-256}\left(\text{Payment Data} + \text{Key}\right) = \text{Fulfillment}
\]

\[
\text{SHA-256}\left(\text{Fulfillment}\right) = \text{Condition}
\]
Interledger Payment Method Data - Response

{
  ... 
  fulfillment: "qferIhhTYDF23_V29ybGQhCg..."
  data: "SGVsbG8gV29ybGQhCg..."
}

Proof of delivery of the payment
interledger.org/sanfrancisco