The 'payto' URI scheme for payments
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Abstract

This document defines the 'payto' Uniform Resource Identifier (URI) scheme for specifying payments.

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1. Introduction

This document defines the 'payto' Uniform Resource Identifier (URI) [RFC3986] scheme for specifying payments. In its simplest form, a 'payto' URL identifies a payment method and optionally an account identifier. Additional parameters for a payment, such as an amount or a payment reference, can be provided.

2. Syntax of a 'payto' URL

This document uses the Augmented Backus-Naur Form (ABNF) of [RFC5234].

```plaintext
payto-URI = "payto" "://" authority path-abempty [ "?" opts ]
opts = opt *( "&amp;" opt )
opt = (generic-opt / authority-specific-opt) "=" *( pchar )
generic-opt = "amount" / "creditor-name" / "debitor-name" / "message" / "instruction"
authority = <authority, see [RFC3986], Section 3.2>
path-abempty = <path-abempty, see [RFC3986], Section 3.3>
pchar = <pchar, see [RFC3986], Appendix A.>
```

3. Semantics

The authority component of a payment URI identifies the payment
method. The payment methods are defined in the Payto Payment Method Registry, see Section 9. The path component of the URI identifies the target account for a payment as interpreted by the respective payment method. The query component of the URI can provide additional parameters for a payment. Every payment method SHOULD accept the options defined in generic-opt. The default operation of applications that invoke a URI with the payto scheme SHOULD be to launch an application (if available) associated with the payment method that can initiate a payment. Details of the payment MUST be taken from the path and options given in the URI. The user SHOULD be allowed to modify these details before confirming a payment.

4. Examples

    payto://sepa/CH9300762011623852957?amount=EUR:200.0&message=hello

    INVALID (authority missing): payto:sepa/12345

5. Generic Options

Applications MUST accept URIs with options in any order. The "amount" option MUST only occur at most once. Other options MAY be allowed multiple times, with further restrictions depending on the payment method. The following options SHOULD be understood by every payment method.

amount: The amount to transfer, including currency information if applicable. The format MUST be:

        amount = [ currency "::" ] unit [ "." fraction ]
        currency = 1*ALPHA
        unit = 1*(DIGIT / ",")
        fraction = 1*(DIGIT / ",")

The fraction MUST be smaller than 10^8. The unit value MUST be smaller than 2^53. The use of commas is optional for readability and they MUST be ignored.

creditor-name: Name of the entity that is credited (receives the
debitor-name: Name of the entity that is debited (makes the payment).

message: A short message to identify the purpose of the payment, which MAY be subject to lossy conversions (for example, due to character set encoding limitations).

instruction: A short message giving instructions to the recipient, which MUST NOT be subject to lossy conversions. Character set limitations allowed for such instructions depend on the payment method.

6. Encoding

Various payment systems use restricted character sets. An application that processes 'payto' URIs MUST convert characters that are not allowed by the respective payment systems into allowable character using either an encoding or a replacement table. This conversion process MAY be lossy, except for the instruction field.

7. Security Considerations

Applications handling the payto URI scheme MUST NOT initiate any transactions without prior review and confirmation from the user.

8. IANA Considerations

8.1. URI Scheme Registration

The "payto" URI scheme is to be registered in the "Permanent URI Schemes" registry.

  Scheme name: payto

  Status: permanent

  URI scheme syntax: See Section 2.

  URI scheme semantics: See Section 3.

Applications/protocols that use this scheme name: payto URIs are
mainly used by financial software

Contact: grothoff@gnu.org

Change controller: grothoff@gnu.org

References: See References section of this document.

9. Payto Payment Method Registry

This document defines a registry for payment methods. The name of the registry is "Payto Payment Method Registry".

The registry shall record for each entry:

- Name: The name of the payment method (case insensitive ASCII string)
- Description: A description of the payment method, including the semantics of the path in the URI if applicable.
- Contact: The contact information of a person to contact for further information
- References: Optionally, references describing the payment method (such as an RFC) and method-specific options

The registration policy for this registry is "First Come First Served", as described in [RFC5226].

The registry is initially populated with the following entries:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Contact</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>ach</td>
<td>Automated Clearing House. The path is a bank account number.</td>
<td>N/A</td>
<td>[NACHA]</td>
</tr>
<tr>
<td>sepa</td>
<td>Single European Payment Area. The path is an IBAN.</td>
<td>N/A</td>
<td>[ISO20022]</td>
</tr>
<tr>
<td>upi</td>
<td>Unified Payment Interface.</td>
<td>N/A</td>
<td>[UPILinking]</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------</td>
<td>----------</td>
<td>--------------</td>
</tr>
<tr>
<td>bitcoin</td>
<td>Bitcoin protocol. The path is a &quot;bitcoinaddress&quot; as per</td>
<td>N/A</td>
<td>[BIP0021]</td>
</tr>
<tr>
<td></td>
<td>The path is an account alias.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. References

10.1. Normative References


[Dold & Grothoff] Expires October 9, 2018

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10.2. Informational References


[UPILinking]
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