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. Scheme Syntax

This document uses the Augmented Backus-Naur Form (ABNF) of [RFC5234]. Certain values are included by reference from [RFC3986]:

```plaintext
payto-URI = "payto" "://" method account [ "?" params ]
params = param * ( "&" param )
param = (generic-param / method-specific-param) "=" *pchar
generic-param = "amount" / "recipient-name" / "sender-name" / 
  "message" / "instruction"
method-specific-param = *pchar
method = <authority, see [RFC3986], Section 3.2>
account = <path-abempty, see [RFC3986], Section 3.3>
pchar = <pchar, see [RFC3986], Appendix A.>
amount = [ currency ":" ] unit [ "." fraction ]
currency = 1*ALPHA
unit = 1*(DIGIT / ",")
fraction = 1*(DIGIT / ",")
```

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3. Scheme Semantics

The authority component of a payment URI identifies the payment method. The registry for payment methods is defined in Section 5 of this document. 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.

4. Examples

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

   INVALID (authority missing): payto:sepa/12345

5. Payment Methods

   sepa: Single European Payment Area. The path is an IBAN, as defined by [ISO20022].

   upi: Unified Payment Interface. The path is an account alias, as defined by [UPILinking].

   bitcoin: Bitcoin protocol. The path is a bitcoinaddress, as defined by [BIP0021].

   ach: Automated Clearing House. The path is a bank account number, as defined by [NACHA]

6. Generic Options

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.
recipient-name: Name of the recipient of the payment.

sender-name: Name of the sender of 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 instructions depend on the payment method.

7. Interoperability

This URI scheme subsumes other URI schemes for payments, such as "bitcoin" (provisionally registered) and "upi" (unregistered but in use, see [UPILinking]), providing one unified scheme for payment information.

8. Encoding

The payto URI scheme encoding conforms to the encoding rules established for URIs in [RFC3986]. 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 is typically not lossless.

9. Security Considerations

The payto URL contains instructions on how to send money. Applications that support the payto URI scheme MUST ask for confirmation from the user in order to confirm a payment. Applications MUST handle payto URLs in conformance with the principle of safe interaction (http://www.w3.org/TR/webarch/#safe-interaction).

10. References

10.1. Normative References

[ISO20022]

10.2.  Informational References


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