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**The 'payto' URI scheme for payments  
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**Abstract**

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

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## [1.](#) Introduction

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

The interpretation of the target identifier is defined by the payment target type, and typically represents either a bank account or an (unsettled) transaction.

## [2.](#) Syntax of a 'payto' URL

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

```
payto-URI = "payto" "://" authority path-abempty [ "?" opts ]
opts = opt *( "&" opt )
opt = (generic-opt / authority-specific-opt) "=" *( pchar )
generic-opt = "amount" / "creditor-name" / "debtor-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 target type. The payment target types are defined in the Payto Payment Target Type Registry, see [Section 9](#). The path component of the URI identifies the target for a payment as interpreted by the respective payment target type. 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 target type that can initiate a payment. If multiple handlers are registered for the same payment target type, the user SHOULD be able to choose which application to launch. This allows users with multiple bank accounts (each accessed the respective bank's banking application) to choose which account to pay with. 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 payment).

debtor-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 financial transactions without prior review and confirmation from the user, and MUST take measures to prevent clickjacking [[HMW12](#)].

## **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

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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 Target Type Registry".

The registry shall record for each entry:

- o Name: The name of the payment target type (case insensitive ASCII string)
- o Description: A description of the payment target type, including the semantics of the path in the URI if applicable.
- o Contact: The contact information of a person to contact for further information
- o 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:

Name	Description	Contact	References
ach	Automated Clearing House. The path is a bank account number.	N/A	<a href="#">[NACHA]</a>
sepa	Single European Payment Area. The path is an IBAN.	N/A	<a href="#">[ISO20022]</a>
upi	Unified Payment Interface. The path is an account alias.	N/A	<a href="#">[UPILinking]</a>
bitcoin	Bitcoin protocol. The path is a "bitcoinaddress" as per <a href="#">[BIP0021]</a> .	N/A	<a href="#">[BIP0021]</a>
ilp	Interledger protocol. The path is an ILP address as per <a href="#">[ILP-ADDR]</a> .	N/A	<a href="#">[ILP-ADDR]</a>





## **10. References**

### **10.1. Normative References**

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- [RFC5226] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs", [RFC 5226](#), DOI 10.17487/RFC5226, May 2008, <<https://www.rfc-editor.org/info/rfc5226>>.
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### **10.2. Informational References**

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