

Network Working Group	J. F. Reschke
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Processing potentially invalid URI and IRI References  
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## Abstract

The parsing of Uniform Resource Identifiers (URIs, RFC 3986) and Internationalized Resource Identifiers (IRIs, RFC 3987) is defined in terms of Augmented Backus-Naur Form (ABNF). The ABNF grammars are defined in terms of valid identifiers, and thus technically do not address how to handle invalid ones.

The URI specification however includes a note how to use Regular Expressions for parsing, and this note applies to invalid identifiers as well. This document introduces terminology referring to potentially invalid identifiers, and demonstrates how the rules in the URI specification can be applied to them.

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XML versions and latest edits for this document are available from <http://greenbytes.de/tech/webdav/#draft-reschke-ref-parsing>.

## Status of this Memo

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## Table of Contents

- \*1. [Introduction](#)
- \*2. [Terminology](#)
- \*3. [Processing](#)
  - \*3.1. [Parsing a Candidate URI Reference into Components](#)
  - \*3.2. [Resolution of Candidate References](#)
- \*4. [Security Considerations](#)
- \*5. [IANA Considerations](#)
- \*6. [References](#)
  - \*6.1. [Normative References](#)
  - \*6.2. [Informative References](#)
- \*Appendix A. [Implementations](#)
- \*Appendix B. [Open issues \(to be removed by RFC Editor prior to publication\)](#)
  - \*Appendix B.1. [edit](#)
  - \*Appendix B.2. [iri](#)
  - \*Appendix B.3. [proc](#)
  - \*Appendix B.4. [pre](#)
  - \*Appendix B.5. [post](#)
- \*[Author's Address](#)

## 1. Introduction

The parsing of Uniform Resource Identifiers (URIs, [\[RFC3986\]](#)) and Internationalized Resource Identifiers (IRIs, [\[RFC3987\]](#)) is defined in terms of Augmented Backus-Naur Form (ABNF). The ABNF grammars are defined in terms of valid identifiers, and thus technically do not address how to handle invalid ones.

The URI specification however includes a note how to use Regular Expressions for parsing, and this note applies to invalid identifiers as well. This document introduces terminology referring to potentially invalid identifiers, and demonstrates how the rules in the URI specification can be applied to them.

## **2. Terminology**

In addition to the terms defined in the URI specification, namely the Syntax Components (see Section 3 of [\[RFC3986\]](#)), this document defines:

\*A string that may or may not be a valid URI-reference according to Section 4.1 of [\[RFC3986\]](#).

\*A string that may or may not be a valid URI scheme component according to Section 3.1 of [\[RFC3986\]](#).

\*A string that may or may not be a valid URI authority component according to Section 3.2 of [\[RFC3986\]](#).

\*A string that may or may not be a valid URI path component according to Section 3.3 of [\[RFC3986\]](#).

\*A string that may or may not be a valid URI query component according to Section 3.4 of [\[RFC3986\]](#).

\*A string that may or may not be a valid URI fragment component according to Section 3.5 of [\[RFC3986\]](#).

## **3. Processing**

### **3.1. Parsing a Candidate URI Reference into Components**

The regular expression given in Appendix B of [\[RFC3986\]](#) will parse any input string into a Candidate Scheme Component, a Candidate Authority Component, a Candidate Path Component, a Candidate Query Component, and a Candidate Fragment Component. Note that of these five components, all components except for the Path Component can be undefined.

If each of the defined components is valid according to the related URI component definition, the input was a valid URI reference.

### **3.2. Resolution of Candidate References**

Section 5 of [\[RFC3986\]](#) defines Reference Resolution based on the five components. This algorithm works both for components obtained from valid and invalid references. The result will be a valid URI Reference if and only if the components used by the algorithm were valid themselves.

## **4. Security Considerations**

## **5. IANA Considerations**

There are no IANA Considerations related to this specification.

## **6. References**

### **6.1. Normative References**

<b>[RFC3986]</b>	<a href="#">Berners-Lee, T., Fielding, R. and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, January 2005.</a>
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### **6.2. Informative References**

<b>[RFC3987]</b>	<a href="#">Duerst, M. and M. Suignard, "Internationalized Resource Identifiers (IRIs)", RFC 3987, January 2005.</a>
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## **Appendix A. Implementations**

<http://greenbytes.de/tech/tc/uris/> shows results for the parsing/ resolution processing described above, based on a test implementation written in XSLT 2.0.

## **Appendix B. Open issues (to be removed by RFC Editor prior to publication)**

### **Appendix B.1. edit**

Type: edit

julian.reschke@greenbytes.de (2011-07-02): Umbrella issue for editorial fixes/enhancements.

### **Appendix B.2. iri**

Type: change

julian.reschke@greenbytes.de (2011-07-02): Expand for IRIs.

### **Appendix B.3. proc**

Type: change

julian.reschke@greenbytes.de (2011-07-02): Re-state the parsing algorithm as a procedural algorithm, maybe in JS?

### **Appendix B.4. pre**

Type: change

julian.reschke@greenbytes.de (2011-07-02): Define pre-processing steps for extraction of candidate references from content (WS stripping)?

### **Appendix B.5. post**

Type: change

julian.reschke@greenbytes.de (2011-07-02): Define post-processing steps, such as query component rewriting based on document encoding.

## Author's Address

Julian F. Reschke Reschke greenbytes GmbH Hafenweg 16 Muenster, NW  
48155 Germany EMail: [julian.reschke@greenbytes.de](mailto:julian.reschke@greenbytes.de) URI: [http://  
greenbytes.de/tech/webdav/](http://greenbytes.de/tech/webdav/)