

## Relevant RFCs to Universal Acceptance

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| <b>IDNA</b>  |   |
| Internationalized Domain Names for Applications (IDNA):<br>Definitions and Document Framework  | <a href="https://tools.ietf.org/html/rfc5890">https://tools.ietf.org/html/rfc5890</a> |
| Internationalized Domain Names in Applications (IDNA): Protocol                                | <a href="https://tools.ietf.org/html/rfc5891">https://tools.ietf.org/html/rfc5891</a> |
| The Unicode Code Points and Internationalized Domain Names for Applications (IDNA)             | <a href="https://tools.ietf.org/html/rfc5892">https://tools.ietf.org/html/rfc5892</a> |
| Right-to-Left Scripts for Internationalized Domain Names for Applications (IDNA)               | <a href="https://tools.ietf.org/html/rfc5893">https://tools.ietf.org/html/rfc5893</a> |
| Internationalized Domain Names for Applications (IDNA): Background, Explanation, and Rationale | <a href="https://tools.ietf.org/html/rfc5894">https://tools.ietf.org/html/rfc5894</a> |
| Mapping Characters for Internationalized Domain Names in Applications (IDNA) 2008              | <a href="https://tools.ietf.org/html/rfc5895">https://tools.ietf.org/html/rfc5895</a> |
| <b>EAI</b>   |   |
| Overview and Framework for Internationalized Email   | <a href="https://tools.ietf.org/html/rfc6530">https://tools.ietf.org/html/rfc6530</a> |
| SMTP Extension for Internationalized Email   | <a href="https://tools.ietf.org/html/rfc6531">https://tools.ietf.org/html/rfc6531</a> |
| Internationalized Email Headers  | <a href="https://tools.ietf.org/html/rfc6532">https://tools.ietf.org/html/rfc6532</a> |
| Internationalized Delivery Status and Disposition Notifications                                | <a href="https://tools.ietf.org/html/rfc6533">https://tools.ietf.org/html/rfc6533</a> |
| IMAP Support for UTF-8   | <a href="https://tools.ietf.org/html/rfc6855">https://tools.ietf.org/html/rfc6855</a> |
| Post Office Protocol Version 3 (POP3) Support for UTF-8  | <a href="https://tools.ietf.org/html/rfc6856">https://tools.ietf.org/html/rfc6856</a> |
| Post-Delivery Message Downgrading for Internationalized Email Messages                         | <a href="https://tools.ietf.org/html/rfc6857">https://tools.ietf.org/html/rfc6857</a> |



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| Simplified POP and IMAP Downgrading for Internationalized Email | <a href="https://tools.ietf.org/html/rfc6858">https://tools.ietf.org/html/rfc6858</a> |
| <b>IRIs</b>   |   |
| Internationalized Resource Identifiers (IRIs)                   | <a href="https://tools.ietf.org/html/rfc3987">https://tools.ietf.org/html/rfc3987</a> |

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| <p><b>Internationalized Domain Names for Applications (IDNA): Definitions and Document Framework</b></p> <p>Abstract</p> <p>This document is one of a collection that, together, describe the protocol and usage context for a revision of Internationalized Domain Names for Applications (IDNA), superseding the earlier version. It describes the document collection and provides definitions and other material that are common to the set.</p>  | <a href="https://tools.ietf.org/html/rfc5890">https://tools.ietf.org/html/rfc5890</a> |
| <p><b>Internationalized Domain Names in Applications (IDNA): Protocol</b></p> <p>Abstract</p> <p>This document is the revised protocol definition for Internationalized Domain Names (IDNs). The rationale for changes, the relationship to the older specification, and important terminology are provided in other documents. This document specifies the protocol mechanism, called Internationalized Domain Names in Applications (IDNA), for</p> | <a href="https://tools.ietf.org/html/rfc5891">https://tools.ietf.org/html/rfc5891</a> |



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| <p>registering and looking up IDNs in a way that does not require changes to the DNS itself. IDNA is only meant for processing domain names, not free text.</p>  |  |
| <p><b>The Unicode Code Points and Internationalized Domain Names for Applications (IDNA)</b></p> <p>Abstract</p> <p>This document specifies rules for deciding whether a code point, considered in isolation or in context, is a candidate for inclusion in an Internationalized Domain Name (IDN).</p> <p>It is part of the specification of Internationalizing Domain Names in Applications 2008 (IDNA2008).</p>                                 | <p><a href="https://tools.ietf.org/html/rfc5892">https://tools.ietf.org/html/rfc5892</a></p> |
| <p><b>Right-to-Left Scripts for Internationalized Domain Names for Applications (IDNA)</b></p> <p>Abstract</p> <p>The use of right-to-left scripts in Internationalized Domain Names (IDNs) has presented several challenges. This memo provides a new Bidi rule for Internationalized Domain Names for Applications (IDNA) labels, based on the encountered problems with some scripts and some shortcomings in the 2003 IDNA Bidi criterion.</p> | <p><a href="https://tools.ietf.org/html/rfc5893">https://tools.ietf.org/html/rfc5893</a></p> |
| <p><b>Internationalized Domain Names for Applications (IDNA): Background, Explanation, and Rationale</b></p> <p>Abstract</p>   | <p><a href="https://tools.ietf.org/html/rfc5894">https://tools.ietf.org/html/rfc5894</a></p> |



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Several years have passed since the original protocol for Internationalized Domain Names (IDNs) was completed and deployed.

During that time, a number of issues have arisen, including the need to update the system to deal with newer versions of Unicode. Some of these issues require tuning of the existing protocols and the tables on which they depend. This document provides an overview of a revised system and provides explanatory material for its components.

**Mapping Characters for Internationalized Domain Names in Applications (IDNA) 2008**

<https://tools.ietf.org/html/rfc5895>

Abstract

In the original version of the Internationalized Domain Names in Applications (IDNA) protocol, any Unicode code points taken from user input were mapped into a set of Unicode code points that "made sense", and then encoded and passed to the domain name system (DNS).

The IDNA2008 protocol (described in RFCs 5890, 5891, 5892, and 5893) presumes that the input to the protocol comes from a set of "permitted" code points, which it then encodes and passes to the DNS, but does not specify what to do with the result of user input. This document describes the actions that can be taken by an implementation between receiving user input and passing permitted code points to the new IDNA protocol.



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**Overview and Framework for Internationalized Email**

<https://tools.ietf.org/html/rfc6530>

Abstract

Full use of electronic mail throughout the world requires that (subject to other constraints) people be able to use close variations on their own names (written correctly in their own languages and scripts) as mailbox names in email addresses. This document introduces a series of specifications that define mechanisms and protocol extensions needed to fully support internationalized email addresses. These changes include an SMTP extension and extension of email header syntax to accommodate UTF-8 data. The document set also includes discussion of key assumptions and issues in deploying fully internationalized email. This document is a replacement for [RFC 4952](#); it reflects additional issues identified since that document was published.

**SMTP Extension for Internationalized Email**

<https://tools.ietf.org/html/rfc6531>

Abstract

This document specifies an SMTP extension for transport and delivery of email messages with internationalized email addresses or header information.

**Internationalized Email Headers**

<https://tools.ietf.org/html/rfc6532>

Abstract

Internet mail was originally



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limited to 7-bit ASCII. MIME added support for the use of 8-bit character sets in body parts, and also defined an encoded-word construct so other character sets could be used in certain header field values. However, full internationalization of electronic mail requires additional enhancements to allow the use of Unicode, including characters outside the ASCII repertoire, in mail addresses as well as direct use of Unicode in header fields like "From:", "To:", and "Subject:", without requiring the use of complex encoded-word constructs. This document specifies an enhancement to the Internet Message Format and to MIME that allows use of Unicode in mail addresses and most header field content.

This specification updates [Section 6.4 of RFC 2045](#) to eliminate the restriction prohibiting the use of non-identity content-transfer-encodings on subtypes of "message/".

### **Internationalized Delivery Status and Disposition Notifications**

<https://tools.ietf.org/html/rfc6533>

#### Abstract

Delivery status notifications (DSNs) are critical to the correct operation of an email system. However, the existing Draft Standards ([RFC 3461](#), [RFC 3464](#), [RFC 6522](#)) are presently limited to ASCII text in the machine-readable portions of the protocol. This specification adds a new address type for



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| <p>international email addresses so an original recipient address with non-ASCII characters can be correctly preserved even after downgrading. This also provides updated content return media types for delivery status notifications and message disposition notifications to support use of the new address type.</p> <p>This document extends <a href="#">RFC 3461</a>, <a href="#">RFC 3464</a>, <a href="#">RFC 3798</a>, and <a href="#">RFC 6522</a>.</p> |  |
| <p><b>IMAP Support for UTF-8</b></p> <p>Abstract</p> <p>This specification extends the Internet Message Access Protocol (IMAP) to support UTF-8 encoded international characters in user names, mail addresses, and message headers. This specification replaces <a href="#">RFC 5738</a>.</p>  | <p><a href="https://tools.ietf.org/html/rfc6855">https://tools.ietf.org/html/rfc6855</a></p> |
| <p><b>Post Office Protocol Version 3 (POP3) Support for UTF-8</b></p> <p>Abstract</p> <p>This specification extends the Post Office Protocol version 3 (POP3) to support international strings encoded in UTF-8 in usernames, passwords, mail addresses, message headers, and protocol-level text strings.</p>  | <p><a href="https://tools.ietf.org/html/rfc6856">https://tools.ietf.org/html/rfc6856</a></p> |
| <p><b>Post-Delivery Message Downgrading for Internationalized Email Messages</b></p> <p>Abstract</p> <p>The Email Address</p>   | <p><a href="https://tools.ietf.org/html/rfc6857">https://tools.ietf.org/html/rfc6857</a></p> |



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Internationalization (SMTPUTF8) extension to SMTP allows Unicode characters encoded in UTF-8 and outside the ASCII repertoire in mail header fields. Upgraded POP and IMAP servers support internationalized messages. If a POP or IMAP client does not support Email Address Internationalization, a POP or IMAP server cannot deliver internationalized messages to the client and cannot remove the message. To avoid that situation, this document describes a mechanism for converting internationalized messages into the traditional message format. As part of the conversion process, message elements that require internationalized treatment are recoded or removed, and receivers are able to recognize that they received messages containing such elements, even if they cannot process the internationalized elements.

**Simplified POP and IMAP Downgrading for Internationalized Email**

Abstract

This document specifies a method for IMAP and POP servers to serve internationalized messages to conventional clients. The specification is simple, easy to implement, and provides only rudimentary results.

<https://tools.ietf.org/html/rfc6858>

**Internationalized Resource Identifiers (IRIs)**

Abstract

<https://tools.ietf.org/html/rfc3987>



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This document defines a new protocol element, the Internationalized Resource Identifier (IRI), as a complement to the Uniform Resource Identifier (URI). An IRI is a sequence of characters from the Universal Character Set (Unicode/ISO 10646). A mapping from IRIs to URIs is defined, which means that IRIs can be used instead of URIs, where appropriate, to identify resources.

The approach of defining a new protocol element was chosen instead of extending or changing the definition of URIs. This was done in order to allow a clear distinction and to avoid incompatibilities with existing software. Guidelines are provided for the use and deployment of IRIs in various protocols, formats, and software components that currently deal with URIs.



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