      Internationalized Domain Names Registration and Administration
            Guideline for European languages using Cyrillic
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Abstract

   This document is a guideline for Registries and Registrars on
   registering internationalized domain names (IDNs) based on (in
   alphabetical order) Bosnian, Bulgarian, Byelorussian, Kildin Sami,
   Macedonian, Montenegrin, Russian, Serbian, and Ukrainian languages in
   a DNS zone. For completeness of the "European" languages, it also
   discusses the additional characters needed for Moldovan when it is
   written in Cyrillic script. It describes appropriate characters for
   registration and variant considerations for characters from Greek and
   Latin scripts with similar appearances and/or derivations.

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1. Introduction

   Cyrillic is one of a fairly small number of scripts that are used,
   with different subsets of characters, to write a large number of
   languages, some of which are not closely related to the others. When
   those languages might be used together in a zone (typical of generic
   TLDs (gTLDs) but likely in other zones both at and below the root,
   special considerations for intermixing characters may apply.
   Cyrillic also has the property that, while it is usually considered a
   separate script from the Latin (Roman) and Greek ones, it shares many
   characters with them, creating opportunities for visual confusion.

   This specification provides guidelines for the use of Cyrillic, as
   encoded in Unicode [Unicode51] with internationalized domain name
   (IDN) labels derived from most "European" languages that use the
   script (use of the term "European" is a convenience, since there is
   disagreement about the relevant boundaries for different purposes
   and, of course, much of Russia lies within geological Asia).
   Specifically it covers (in alphabetic order) Bosnian, Bulgarian,
   Byelorussian, the Kildin member of the Sami (often written "Saami")
   language family, Macedonian, Montenegrin, Russian, Serbian, and
   Ukrainian. Supplemental tables, based on information in the Unicode
   Standard and a recently-issued Montenegrin government standard
   [MontenegrinChars] are provided for use with Montenegrin. Moldovan
   is no longer in official use with Cyrillic script and no
   registrations are considered likely in Cyrillic, at least within the
   relevant ccTLD. Languages of Asia that use Cyrillic are not
   considered here and should be the subject of separate specifications.

   While Cyrillic script is the primary one used for many of the
   relevant languages and countries, Latin script is often used instead
   of, or in combination with, it. Standard keyboards used in most of
   the countries have both Cyrillic and Latin characters. Therefore
   some registries could use Latin scripts for domain names registration
   in their zones. In some cases, there would even be a requirement for
   mixing Cyrillic and Latin characters in the same label although this
   is not generally considered desirable. In addition, registries that
   support many scripts will probably encounter the need to support
   labels in Greek or Latin scripts as well as Cyrillic and a large
   number of character forms are shared among those three scripts.

   Because the DNS has no way for the end-user to distinguish among the
   languages that might have been used to inspire a particular label, it
   seems useful to treat the characters of a large number of languages
   that use Cyrillic in their writing systems together, rather than
   trying to differentiate them. The discussion and tables in this
   specification should provide a foundation for developing more
   restrictive rules for zones in which only a single language is likely

to be used, but it does not specify those language-specific rules.

1.1. Similar Characters and Variants

For some human languages, there are characters and/or strings that
have equivalent or near-equivalent meanings. If someone is allowed
to register a name with such a character or string, the registry
might want to automatically register all the names that have the same
meaning in that language. Further, some registries might want to
restrict the set of characters to be registered for language-based
reasons. In addition, IDNA [RFC3490] allows the use of thousands of
non-alphanumeric characters, and some zone administrators will want
to prohibit some or all of these characters.

So-called "variant techniques", introduced in [RFC3743] and
generalized beyond East Asian language in [RFC4290], describe ways of
registering IDN domain names to decrease the risk of
misunderstandings, cybersquatting, and other forms of confusion.

The tables below (Appendix A) identify confusable characters in Latin
and Greek scripts that might be easily confused with Cyrillic ones.

1.2. Terminology

The terminology that follows is derived from [RFC3743] and [RFC4290],
but this specification does not depend on them.

A "string" is an ordered set of one or more characters.

This document discusses characters that have equivalent or near-
equivalent characters or strings. The "base character" is the
character that has one or more equivalents; the "variant(s)" are the
character(s) and/or string(s) that are equivalent to the base
character.

A "registration bundle" is the set of all labels that comes from
expanding all base characters for a single name into their variants.

A registry is the administrative authority for a DNS zone. That is,
the registry is the body that makes and enforces policies that are
used in a particular zone in the DNS. The term "registry" applies to
all zones in the DNS, not only those that exist at the top level.

[[anchor4: Note in Draft: This specification is based on the original
version of IDNA. Updates to any revision should be obvious, but the
terminology should be adjusted in needed and special attention should
be paid to the mapping-only variants listed in the Appendix. (RFC
Editor, if the I-D reaches you with this note in place, please just

drop it.)]]

2. Languages and Characters

In the interest of clarity and balance, this document describes a
"Base Cyrillic" set of twenty-three characters for use in comparing
the character usage for Russian and Central European languages that
use Cyrillic. The balance of this section compares the character
usage of the individual languages in that group.

"Base Cyrillic" consists of the following Unicode code points (names
associated with these code points and those below appear in
Appendix A): U+0430, U+0431, U+0432, U+0433, U+0434, U+0435, U+0436,
U+0437, U+043A, U+043B, U+043C, U+043D, U+043E, U+043F, U+0440,
U+0441, U+0442, U+0443, U+0444, U+0445, U+0446, U+0447, U+0448.

In addition, modern writing systems that use Cyrillic do not have
digits separate from the "European" ones used with Latin characters.
For registries that permit digits to appear in domain name labels,
the "Base Cyrillic" code point listed above should be considered to
include U+0030, U+0031, U+0032, U+0033, U+0034, U+0035, U+0036,
U+0037, U+0038, and U+0039 (Digit Zero, and Digit One, through Digit
Nine). The Hyphen-Minus character (U+0029) may also be used.

The individual languages that are the focus of this specification are
discussed below (in English alphabetical order):

2.1. Bosnian and Serbian

Bosnian and Serbian have 30 letters in the alphabet and the
additional seven characters to the base of 23 shared Cyrillic
characters: U+0438, U+0458, U+0452, U+0459, U+045A, U+045B, U+045F.

2.2. Bulgarian

The Bulgarian alphabet has thirty characters, seven in addition to
the basic twenty-three: U+0456, U+0439, U+0449, U+044A, U+044C,
U+044E, U+044F.

2.3. Byelorussian

Byerlorussian alphabet has 32 characters, i.e., nine characters in
addition to the base of 23 characters: U+0451, U+0456, U+0439,
U+044B, U+044C, U+045E, U+044D, U+044E, U+044F.

2.4. Kildin Sami

According to the best information available (see [Riessl07] and the
references he cites), the Kildin Sami orthography has __ characters,
__ in addition to the basic set. Many of these characters have no
precomposed forms in Unicode and hence must be written with combining
characters. The characters are: U+0430 U+0304*, U+0435 U+0304*,
U+0438, U+0439, U+043E U+0304, U+044A, U+044B, U+044B U+0304, U+044C,
U+044D, U+044D U+0304, U+044E, U+044E U+0304, U+044F, U+044F U+0304,
U+0451, U+0451 U+0304, U+0458, U+048B, U+048D, U+048F, U+04BB,
U+04C6, U+04C8, U+04CA, U+04CE, U+04D3, U+04E3, U+04E7, U+04ED,
U+04EF, U+04F1, U+04F9.

*   These characters, CYRILLIC SMALL LETTER A with a COMBINING MACRON
    and CYRILLIC SMALL LETTER IE with a COMBINING MACRON,
    respectively, have the same visual appearance as LATIN SMALL
    LETTER A WITH MACRON (U+0101) and LATIN SMALL LETTER E WITH MACRON
    (U+0113). The latter character is specified by some sources
    including Riessler [Riessl07] (the former doesn't appear to be,
    but is obvious). However, U+0101 and U+0113 are Latin Script
    characters so, if either is used, any tests on homogeneity of the
    script within a label need to be made with care. If some input
    systems produce U+0113 (or U+0101) and others produce the two-
    character combining sequence, a variant approach may be
    appropriate.

    Similar issues may apply to other Kildin Sami characters
    constructed with combining sequences.

2.5. Macedonian

Macedonian has 31 characters in the alphabet. This is eight in
addition to the basic set: U+0438, U+0458, U+0452, U+0459, U+045A,
U+045C, U+045F, U+0491, U+0455.

2.6. Moldovan

Cyrillic is no longer in everyday use for Moldovan, so no IDN
registrations are anticipated.

2.7. Montenegrin

According to the most recent government specification
[MontenegrinChars], Montenegrin has 32 characters in its alphabet,
including two that have no precomposed forms in Unicode. This is
nine in addition to the basic set and two in addition to Bosnian and
Serbian: U+0437 U+0302, U+0438, U+0441 U+0302, U+0452, U+0458,
U+0459, U+045A, U+045B, U+045F.

See Bosnian, [Section 2.1](), above.

2.8. Russian

The current Russian alphabet has 33 characters, consisting of the
Base Cyrillic set plus an additional ten characters: U+0451 U+0438,
U+0439, U+0449, U+044A, U+044B, U+044C, U+044D, U+044E, U+044F.

2.9. Serbian

See Bosnian, [Section 2.1](), above.

2.10. Ukrainian

Ukrainian has 31 characters and therefore an additional 8 characters
to the base of 23: U+0454, U+0456, U+0457, U+0491, U+0449, U+044A,
U+044E, U+044F.

3. Language-based Tables

The registration strategy described in this document uses a table
that lists all characters allowed for input and any variants of those
characters. Note that the table lists all characters allowed, not
only the ones that have variants.

4. Table processing rules

The input to the process is called the "input label". The output of
the process is either failure (the input label cannot be registered
at all), or a registration bundle that contains one or more labels
that have been processed with ToASCII.

5. Table Format

The table in [Appendix A]() consists of four columns. The first and
second identify the Cyrillic character and the third and fourth
identify Latin or Greek characters that might be easily confused with
them visually. If both a Latin and Greek character are present, the
Greek one appears in the third and fourth columns on the subsequent
line (with "..." in the first column to indicate more information
about the character specified on the previous line). Variants needed
only because of case folding are shown with "+++" in the first
column, as noted in the table.

Each character in the table is given in the "U+" notation for Unicode

characters followed, in the next column, by its name as shown in the
Unicode Standard. For easy reference, the characters are listed in
the order in which they appear in the Unicode Standard.

The table does not, and any future revision MUST NOT, have more than
one entry for a particular base character.

[6](). Steps after registering an input label

A registry has at least three policy options for handling the cases
where the registration bundle has more than one label. These
options, and their key implications, are:

o Allocate all labels to the same registrant, making the zone
   information identical to that of the input label.

   This option will cause end users to be able to find names with
   variants more easily, but will result in larger zone files. In
   principle, the zone file could become so large that it could
   negatively affect the ability of the registry to perform name
   resolution.

o Block all labels so they cannot be registered in the future.

   This option does not increase the size of the zone file, but it
   may cause end users to not be able to find names with variants
   that they would expect.

o Allocate some labels and block some other labels.

   This option is likely to cause the most confusion with users
   because including some variants will cause a name to be found,
   bout using other variants will cause the name to be not found.

With any of these three options, the registry MUST keep a database
that links each label in the registration bundle to the input label.
This link needs to be maintained so that changes in the non-DNS
registration information (such as the label's owner name and address)
is reflected in every member of the registration bundle as well.

[7](). Acknowledgments

Support from Afilias for a major portion of this work is appreciated.

Cary Karp pointed us to authoritative information on Kildin Sami; his
help for our being able to treat it the same way other actively-used

European languages that use Cyrillic script is greatly appreciated.

Appendix A. European Cyrillic Character Tables

These tables are constructed on the basis of the characters that can
actually occur in the DNS, i.e., those that can be obtained by
applying the ToUnicode operation of RFC 3490 to an ACE-encoded label
as defined there. If the characters that can be mapped into those
characters are to be considered instead, then the number of variants
would increase considerably. For example, while Cyrillic Small
Letter A and Greek Small Letter Alpha are readily distinguished
visually, their capital letter equivalents are not, so, if the
extended set of Nameprep [RFC3491] mappings are considered, the two
small letters must be considered variants of each other.

These additional, possibly-required, variants are shown below with
"+++" in the first column of the table.

  Characters needed for European languages, other than Moldovan and
                     Sami, written in Cyrillic.

Cyrillic Char	Unicode Name	Variant	Unicode Name
U+0430	CYRILLIC SMALL LETTER A	U+0061	LATIN SMALL LETTER A
+++		U+03B0	GREEK SMALL LETTER ALPHA
U+0431	CYRILLIC SMALL LETTER BE		
U+0432	CYRILLIC SMALL LETTER VE	U+0062	LATIN SMALL LETTER V
+++		U+03B2	GREEK SMALL LETTER BETA
U+0433	CYRILLIC SMALL LETTER GHE	U+0072	LATIN SMALL LETTER R
+++		U+03B3	GREEK SMALL LETTER GAMMA
U+0434	CYRILLIC SMALL LETTER DE		
+++		U+03B4	GREEK SMALL LETTER DELTA
U+0435	CYRILLIC SMALL LETTER IE	U+0065	LATIN SMALL LETTER E
+++		U+03B5	GREEK SMALL LETTER EPSILON
U+0436	CYRILLIC SMALL LETTER ZHE		

U+0437	CYRILLIC SMALL LETTER ZE			
U+0438	CYRILLIC SMALL LETTER I	U+0075	LATIN SMALL LETTER U	
U+0439	CYRILLIC SMALL LETTER SHORT I			
U+043A	CYRILLIC SMALL LETTER KA	U+006B	LATIN SMALL LETTER K	
...		U+03BA	GREEK SMALL LETTER KAPPA	
U+043B	CYRILLIC SMALL LETTER EL			
+++		U+039B	GREEK SMALL LETTER LAMBDA	
U+043C	CYRILLIC SMALL LETTER EM	U+006D	LATIN SMALL LETTER M	
+++		U+03BC	GREEK SMALL LETTER MU	
U+043D	CYRILLIC SMALL LETTER EN	U+0068	LATIN SMALL LETTER H	
+++		U+03B7	GREEK SMALL LETTER ETA	
U+043E	CYRILLIC SMALL LETTER O	U+006F	LATIN SMALL LETTER O	
...		U+03BF	GREEK SMALL LETTER OMICRON	
U+043F	CYRILLIC SMALL LETTER PE	U+006E	LATIN SMALL LETTER N	
...		U+03C0	GREEK SMALL LETTER PI	
U+0440	CYRILLIC SMALL LETTER ER	U+0070	LATIN SMALL LETTER P	
...		U+03C1	GREEK SMALL LETTER RHO	
U+0441	CYRILLIC SMALL LETTER ES	U+0063	LATIN SMALL LETTER C	
U+0442	CYRILLIC SMALL LETTER TE	U+0074	LATIN SMALL LETTER T	
+++		U+03C4	GREEK SMALL LETTER TAU	
U+0443	CYRILLIC SMALL LETTER U	U+0079	LATIN SMALL LETTER Y	
+++		U+03C5	GREEK SMALL LETTER UPSILON	
U+0444	CYRILLIC SMALL LETTER EF	U+03D5	GREEK PHI SYMBOL	
+++		U+03C6	GREEK SMALL LETTER PHI	
U+0445	CYRILLIC SMALL LETTER HA	U+0078	LATIN SMALL LETTER X	

...		U+03C7	GREEK SMALL LETTER CHI	
U+0446	CYRILLIC SMALL LETTER TSE			
U+0447	CYRILLIC SMALL LETTER CHE			
U+0448	CYRILLIC SMALL LETTER SHA			
U+0449	CYRILLIC SMALL LETTER SHCHA			
U+044A	CYRILLIC SMALL LETTER HARD SIGN			
U+044B	CYRILLIC SMALL LETTER YERU			
U+044C	CYRILLIC SMALL LETTER SOFT SIGN			
U+044D	CYRILLIC SMALL LETTER E			
U+044E	CYRILLIC SMALL LETTER YU			
U+044F	CYRILLIC SMALL LETTER YA			
U+0451	CYRILLIC SMALL LETTER IO	U+00EB	LATIN SMALL LETTER E WITH DIAERESIS	
U+0452	CYRILLIC SMALL LETTER DJE			
U+0453	CYRILLIC SMALL LETTER GJE			
U+0454	CYRILLIC SMALL LETTER UKRAINIAN IE	U+03B5	GREEK SMALL LETTER EPSILON	
U+0455	CYRILLIC SMALL LETTER DZE	U+0073	LATIN SMALL LETTER S	
U+0456	CYRILLIC SMALL LETTER BYELORUSSIAN-UKRAINIAN I	U+0069	LATIN SMALL LETTER I	
+++		U+03B9	GREEK SMALL LETTER IOTA	
U+0457	CYRILLIC SMALL LETTER UKRAINIAN YI	U+03CA	GREEK SMALL LETTER IOTA WITH DIALYTIKA	
+++		U+00EF	LATIN SMALL LETTER I WITH DIAERESIS	
U+0458	CYRILLIC SMALL LETTER JE	U+006A	LATIN SMALL LETTER J	
...		U+03F3	GREEK LETTER YOT	
U+0459	CYRILLIC SMALL LETTER LJE			
U+045A	CYRILLIC SMALL LETTER NJE			

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| U+045B    | CYRILLIC SMALL LETTER    |          |                  |
|           | TSHE                     |          |                  |
| U+045C    | CYRILLIC SMALL LETTER    |          |                  |
|           | KJE                      |          |                  |
| U+045D    | CYRILLIC SMALL LETTER I  |          |                  |
|           | WITH GRAVE               |          |                  |
| U+045E    | CYRILLIC SMALL LETTER    |          |                  |
|           | SHORT U                  |          |                  |
| U+045F    | CYRILLIC SMALL LETTER    |          |                  |
|           | DZHE                     |          |                  |
| U+0491    | CYRILLIC SMALL LETTER    |          |                  |
|           | GHE WITH UPTURN          |          |                  |
| U+04C2    | CYRILLIC SMALL LETTER    |          |                  |
|           | ZHE WITH BREVE           |          |                  |
+----------+--------------------------+---------+------------------+
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Additional characters needed for Moldovan written in Cyrillic.

```
+--------------+----------------------------+---------+------------+
| Cyrillic     | Unicode Name               | Variant | Unicode    |
| Char         |                            |         | Name       |
+--------------+----------------------------+---------+------------+
| U+04C2       | CYRILLIC SMALL LETTER ZHE  |         |            |
|              | WITH BREVE                 |         |            |
| U+0437 +     | Cyrillic Small Letter ZE   |         |            |
| U+0302       | with Acute                 |         |            |
| U+0441 +     | Cyrillic Small Letter ES   |         |            |
| U+0302       | with Acute                 |         |            |
+--------------+----------------------------+---------+------------+
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Additional characters needed for Kildin Sami written in Cyrillic.

Cyrillic Char	Unicode Name	Variant	Unicode Name
U+0430 + U+0304	Cyrillic Small Letter A with Macron	U+0101	LATIN SMALL LETTER A WITH MACRON
...		U+03B0 + U+0304	Greek Small Letter Alpha with Macron
U+0435 + U+0304	Cyrillic Small Letter IE with Macron	U+0113	LATIN SMALL LETTER E WITH MACRON
U+043E + U+0304	Cyrillic Small Letter O with Macron	U+014D	LATIN SMALL LETTER O WITH MACRON
...		U+03BF + U+0304	Greek Small Letter Omicron with Macron
U+044B + U+0304	Cyrillic Small Letter YERU with Macron		
U+044D + U+0304	Cyrillic Small Letter E with Macron		
U+044E + U+0304	Cyrillic Small Letter YU with Macron		
U+044F + U+0304	Cyrillic Small Letter YA with Macron		
U+0451 + U+0304	Cyrillic Small Letter IO with Macron	U+00EB + U0304	Latin Small Letter E With Diaeresis and Macron
U+048B	CYRILLIC SMALL LETTER SHORT I WITH TAIL		
U+048D	CYRILLIC SMALL LETTER SEMISOFT SIGN		
U+048F	CYRILLIC SMALL LETTER ER WITH TICK		
U+04BB	CYRILLIC SMALL LETTER SHHA		
U+04C6	CYRILLIC SMALL LETTER EL WITH TAIL		
U+04C8	CYRILLIC SMALL LETTER EN WITH HOOK		

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| U+04CA    | CYRILLIC SMALL      |          |                       |
|           | LETTER EN WITH TAIL |          |                       |
| U+04CE    | CYRILLIC SMALL      |          |                       |
|           | LETTER EM WITH TAIL |          |                       |
| U+04D3    | CYRILLIC SMALL      | U+00E4   | LATIN SMALL LETTER A  |
|           | LETTER A WITH       |          | WITH DIAERESIS        |
|           | DIAERESIS           |          |                       |
| U+04E3    | CYRILLIC SMALL      | U+016B   | LATIN SMALL LETTER U  |
|           | LETTER I WITH       |          | WITH MACRON           |
|           | MACRON              |          |                       |
| U+04E7    | CYRILLIC SMALL      | U+00F6   | LATIN SMALL LETTER O  |
|           | LETTER O WITH       |          | WITH DIAERESIS        |
|           | DIAERESIS           |          |                       |
| U+04ED    | CYRILLIC SMALL      |          |                       |
|           | LETTER E WITH       |          |                       |
|           | DIAERESIS           |          |                       |
| U+04EF    | CYRILLIC SMALL      |          |                       |
|           | LETTER U WITH       |          |                       |
|           | MACRON              |          |                       |
| U+04F1    | CYRILLIC SMALL      |          |                       |
|           | LETTER U WITH       |          |                       |
|           | DIAERESIS           |          |                       |
| U+04F9    | CYRILLIC SMALL      |          |                       |
|           | LETTER YERU WITH    |          |                       |
|           | DIAERESIS           |          |                       |
+----------+---------------------+----------+-----------------------+
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8. References

8.1. Normative References

   [RFC3490] Faltstrom, P., Hoffman, P., and A. Costello,
              "Internationalizing Domain Names in Applications (IDNA)",
              RFC 3490, March 2003.

   [RFC3491] Hoffman, P. and M. Blanchet, "Nameprep: A Stringprep
              Profile for Internationalized Domain Names (IDN)",
              RFC 3491, March 2003.

   [Unicode51]
              The Unicode Consortium, "The Unicode Standard, Version
              5.1.0", 2008.

              Defined by: The Unicode Standard, Version 5.0, Boston, MA,
              Addison-Wesley, 2007, ISBN 0-321-48091-0, as amended by
              Unicode 5.1.0
              (http://www.unicode.org/versions/Unicode5.1.0/).

8.2. Informative References

[MontenegrinChars]
          Crna Gora Ministarstvo prosvjete i nauke (Ministry of
          Science and Education, Montenegro), "Pravopis Crnogorskoga
          Jezika I", 2009, <http://www.gov.me/files/1248442673.pdf>.

          In Montenegrin, no known English translation.

[OmniglotSaami]
          Ager, S., "Sami (Saami)", 2009,
          <http://www.omniglot.com/writing/saami.htm>.

[RFC3743] Konishi, K., Huang, K., Qian, H., and Y. Ko, "Joint
          Engineering Team (JET) Guidelines for Internationalized
          Domain Names (IDN) Registration and Administration for
          Chinese, Japanese, and Korean", RFC 3743, April 2004.

[RFC4290] Klensin, J., "Suggested Practices for Registration of
          Internationalized Domain Names (IDN)", RFC 4290,
          December 2005.

[Riessl07]
          Riessler, M., "Kola Saami character chart (draft)",
          November 2007.

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