

Linux Belarusian HOWTO Alexander Mikhailian,

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Linux Belarusian HOWTO

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v.0.1.4, 25 June 2000

Short guide in setting up Belarusian language support in Linux console, X Window System, web-browsers, text editors, etc. Charsets described are windows-1251, iso-8859-5 and koi8-ru. Belarusian characters can also be found in koi8-ub, koi8-c and of course, Unicode. Although this HOWTO is Linux-specific, many advices are applicable to other UNIX-like systems.

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1.Introduction

1.1 History

This document was started in September 15, 1999 by Alexander Mikhailian

1.2 Comments

Comments on this HOWTO may be directed to the author mikhailian@altern.org.

1.3 New Versions

The newest version can always be found on <http://www.bellinux.f2s.com>

1.4 Copyright

This manual may be reproduced in whole or in part without restrictions.

1.5 Acknowledgements and Thanks

Thanks to everyone that gave comments as I was writing this.

2. [System-wide setup](#)

2.1 Choosing Charset

As for now, the best choice seems to be windows-1251. It gives the user compatibility with MS Windows which is a must-have for many of us. If you do not care about compatibility, iso-8859-5 is the best supported and easiest to set up.

Note that Belarusian support package from <http://www.bellinux.f2s.com> contains all the files mentioned in the present HOWTO unless otherwise stated in the text.

2.2 Windows-1251 in the kernel

Windows-1251 support in the kernel is needed mostly to visualize MS Windows filenames in Cyrillic with the console and X Window system localized in windows-1251. As latest FAT file systems store filenames in Unicode, we have to define the output charset of the Virtual File System layer. To apply the windows-1251 patch to the kernel:

-

```
cd /path_to_your_kernel_source_tree
```

-

```
patch -p0 < your_patch.patch
```

- Recompile and reinstall the kernel. Refer to *Kernel-HOWTO* about the details.
- Add `codepage=866,ioccharset=microsoft-cp1251' to your mount options in order to get the filenames in windows-1251.

2.3 Setting locale

- Do

```
localedef -f CP1251 -i be_BY be_BY
```

or

```
localedef -f ISO8899-5 -i be_BY be_BY
```

to compile the locale in windows-1251 encoding or iso-8859-5 encoding.

- Check how it works by setting LANG=be_BY and running a locale-aware program like *date* or *cal*.

2.4 Belarusian in console

Setting Belarusian with iso-8859-5

There are two ways to set up Belarusian with iso-8859-5

- Load iso-8859-5 font
- Load *by2.kmap* keymap or *by.kmap*

Look at the scripts *by.iso* and *by2.iso* for an example. This method has one serious drawback – you will lose all pseudographic characters and, say, your Midnight Commander will look somewhat naked. The second method described below preserves all pseudographic characters:

- Load UniCyr font
- Load *by2.kmap* keymap or *by.kmap*
- Load Application-Charset Map *iso05.acm*

Look at the scripts *by.iso2* and *by2.iso2* for an example. Also beware that different Linux distributions have different console-related packages – *console-tools* or *kbd*. Abovementioned scripts are meant to work with *console-tools* which is by far more popular.

Setting Belarusian with windows-1251

There is no windows-1251 console fonts and the only way to get it work is

- Load UniCyr font
- Load *by2.kmap* keymap or *by.kmap*
- Load Application-Charset Map *cp1251.acm*

Look at the script *by2.win* for an example.

Setting Belarusian with koi8-ru

There is no koi8-ru console fonts and the only way to get it work is

- Load UniCyr font
- Load *by-stb.koi.kmap* keymap or *byru-stb.koi.kmap*
- Load Application-Charset Map *koi8-ru.acm*

Look at the scripts *by-stb.koi* and *byru-stb.koi* for an example.

2.5 Belarusian in X Window System

Dirty hack:

- Install Cyrillic fonts for X Windows. You can only use *iso-8859-5*, *koi8-ru* and *microsoft-1251*. BTW, there is a big difference between *koi8-ru* and *koi8-r*. The latest does not have CYRILLIC LETTER BYELORUSSIAN-UKRAINIAN I and CYRILLIC LETTER SHORT U.
- Make and install *xruskb* package which can be downloaded from <http://www.bellinux.f2s.com>
- Replace *.xmm* files in your *xruskb* directory by those found in the folder *modified_keymaps* of *belarusian-0.1.tar.gz* distribution.
- Add the following lines in your */.Xdefaults* file

```
xrus*modeButton1.labelString: BEL xrus*modeButton1.label: BEL
```

- Run

```
xrus jcuken-cp1251
```

or

```
xrus jcuken-iso5
```

to start keyboard switcher.

Right solution:

A patch to XFree 3.3.5 and 4.0 from Aleksey Novodvorsky that allows the use of *windows-1251* with XKB. The original location is at <ftp.logic.ru/pub/logic/linux/be-locale> but it is also available in Belarusian support package from <http://www.bellinux.f2s.com>. Lucky users of Linux-Mandrake RE get a patched XFree86 out of box.

3. [Editing texts](#)

3.1 Emacs

For most Linux distributions, emacs is able to display Belarusian characters out of box. However, the following conditions should satisfy:

- Cyrillic iso-8859-5 fonts should be properly installed.
- Emacs-mule package should be installed.

The user may want to change the default keyboard layout ("input method" in emacs slang) to jcuken. This feature is provided by *belarusian.el* along with some other goodies. Read the comments in the beginning of *belarusian.el* for details.

3.2 Spell-checking

- If you do not have ispell 3.1.20, install it from any Linux distribution CD.
- Download the package belspell.tar.gz. Unpack it and run

```
buildhash belarusian.sml belarusian.aff belarusian.hash
```

- Copy belarusian.hash to /usr/lib/ispell or wherever your ispell hash tables are.
- in order to spell-check a file, type

```
ispell -d belarusian yourfile.txt
```

Getting belarusian ispell dictionary working with emacs is a bit tricky.

- Copy *ispell.el* and *ispell.elc* into your ``$EMACSBIN/./lisp'` directory.
- Copy temporarily ``$EMACSBIN/./lisp/loaddefs.el'` to ``/usr/src/emacs-XX.X/lisp/loaddefs.el'` where XX.X stand for emacs version number.
- Do ``M-x update-file-autoloads RET'` and enter the path to the *ispell.el*.
- Copy back *loaddefs.el*
- Restart emacs

3.3 TeX

from Aleksey Novodvorsky:

You need TeX + babel + T2, e.g. teTeX >= 1.0. in order to get partial support for Belarusian,

- put *babel.sty*, *belarusianb.ldf* and *belarusianb.sty* into "/usr/share/texmf/tex/generic/babel"
- run "texhash"
- To use Belarusian in LaTeX: add the following lines in the preamble:

```
\documentclass[belarusian]{article} \usepackage[cp1251]{inputenc}
\usepackage{babel}
```

or

```
\documentclass[belarusian]{article} \usepackage[iso88595]{inputenc}
\usepackage{babel}
```

4. [Browsers](#)

4.1 Netscape

It is often a problem to correctly visualize Belarusian-specific characters with Netscape. This is due to that last versions of Netscape look for *any* koi8-r font and, if they find one, they refuse to use other fonts for displaying Cyrillic pages.

The problem is solved by removing koi8-r fonts from everywhere – X Window System font path and font server path. Then install koi8-ru, iso-8859-5 or windows-1251 and run

```
xset fp rehash
```

or restart X server. You will probably have to delete *preferences* and *preferences.js* from the Netscape home directory *.netscape* and even then you are not guaranteed to have Netscape work right. Netscape's handling of fonts has always been an obscure issue.

Links to koi8-ru, iso-8859-5 and windows-1251 cyrillic fonts for X Window System can be found at <http://www.bellinux.f2s.com>

4.2 Lynx

In order to view Belarusian sites, you have to set up you console to handle the encoding you need. See section [Console](#) for more details.

Add the following lines to your *.linxrc* file.

```
character_set=Cyrillic (windows-1251) preferred_language=be
preferred_charset=windows-1251
```

or

```
character_set=Cyrillic (ISO-8859-5) preferred_language=be
preferred_charset=iso-8859-5
```

If the page you are browsing does not have an explicit charset declaration, press "o" and set the document charset manually.

5. [Mailers](#)

5.1 Netscape Messenger

Netscape Messenger can not handle belarusian texts properly. The same applies to Mozilla.

5.2 Mutt

Mutt handles a multitude of charsets and encodings with ease. If your console has windows-1251 support, add the following lines to your *.muttrc*:

```
charset-hook "windows-1251" "cp1251" set
charset="windows-1251"
```

Mutt automatically converts all incoming messages for the screen output. It can also convert outgoing messages basing itself on a versatile pattern matching mechanism, e.g. the following line in *.muttrc* will force

mutt to convert all messages sent to be-locale@iatp.unibel.by to *koi8-r*.

```
send-hook '~t ^be-locale@iatp\.unibel\.by$' 'set
send_charset="koi8-r"'
```

6. [Further support](#)

A mailing list devoted entirely to Belarusian language support is available at be-locale@iatp.unibel.by. To subscribe, send a message to majordomo@iatp.unibel.by with the string "subscribe be-locale youremailaddress" in the body of the message

Another mailing list that treats mostly linguistic issues is available at movaznaustva@egroups.com. To subscribe to it, send a message with empty body to movaznaustva-subscribe@egroups.com.
