Firstboot Visual Style

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Abstract

This article describes the visual style of CentOS firstboot (1.4.27.3-1.el5.centos). Firstboot is the initial system configuration utility that guides you through a series of steps for easier configuration of the machine (keyboard layout, language, time zone, etc.). Firstboot takes place the first time you boot up your installed system.

Contents

1 Introduction

Firstboot Visual Style is organized inside CentOS Artwork Repository.

2 Installation

This section describes the tools you need to have installed in your CentOS workstation in order to interact with your working copy of CentOS Artwork Repository.

2.1 Subversion

Subversion is used to interact with CentOS Artwork Repository.

Subversion is a version control system, which allows you to keep old versions of files and directories (usually source code), keep a log of who, when, and why changes occurred, etc., like CVS, RCS or SCCS.[1]

[1]More documentation about Subversion and its tools, including detailed usage explanations of the svn, svnadmin, svnserve and svnlook programs, historical background, philo-

To install Subversion client tools in your workstation you can use the following command:

```
yum install subversion
```

2.2 Inkscape

Inkscape is used to design and render images inside CentOS Artwork Repository.

Inkscape is a GUI editor for Scalable Vector Graphics (SVG) format drawing files, with capabilities similar to Adobe Illustrator, CorelDraw, Visio, etc. Inkscape features include versatile shapes, bezier paths, freehand drawing, multiline text, text on path, alpha blending, arbitrary affine transforms, gradient and pattern fills, node editing, SVG-to-PNG export, grouping, layers, live clones, and more.

Note that Inkscape is not inside CentOS Distribution, so you need to configure a third party repository like RPMForge or EPEL to install Inkscape. Installation of a third party repositories inside CentOS Distribution is described in the following URL:

```
http://wiki.centos.org/AdditionalResources/Repositories
```

Once you have configured the third party repository you can install Inkscape using the following command:

```
yum install inkscape
```

2.3 ImageMagick

ImageMagick is used by scripts inside CentOS Artwork Repository.

ImageMagick is a free software suite for the creation, modification and display of bitmap images. It can read, convert and write images in a large variety of formats. Images can be cropped, colors can be changed, various effects can be applied, images can be rotated and combined, and text, lines, polygons, ellipses and Bzier curves can be added to images and stretched and rotated.

To install ImageMagick in your workstation you can run the following command:

---

sophical approaches and reasonings, etc., can be found at `http://svnbook.red-bean.com/`.

yum install ImageMagick

2.4 Netpbm

Netpbm is used by scripts inside CentOS Artwork Repository.

Netpbm is a toolkit for manipulation of graphic images, including conversion of images between a variety of different formats. There are over 300 separate tools in the package including converters for about 100 graphics formats.

To install Netpbm in your workstation you can run the following command:

yum install netpbm{-progs}

2.5 Syslinux

The package `syslinux` provides the programs `ppmtolss16` and `lss16toppm` which are used to produce Anaconda Prompt images. The `ppmtolss16` Perl program also includes the file format specification.

Syslinux is a suite of bootloaders, currently supporting DOS FAT filesystems, Linux ext2/ext3 filesystems (EXTLINUX), PXE network boots (PXELINUX), or ISO 9660 CD-ROMs (ISOLINUX). It also includes a tool, MEMDISK, which loads legacy operating systems from these media.

To install Syslinux in your workstation you can run the following command:

yum install syslinux

2.6 GNU Image Manipulation Program

GNU Image Manipulation Program (GIMP) is used to manipulate images inside CentOS Artwork Repository.

To install GIMP in your workstation you can run the following command:

yum install gimp

2.7 GNU Core Utilities

The GNU core utilities are a set of tools commonly used in shell scripts.

To install the GNU core utilities in your workstation you can run the following command:

```
yum install core-utils
```

2.8 LaTeX

LaTeX is used to create manuals inside CentOS Artwork Repository.

LaTeX is a document preparation system implemented as a macro package for Donald E. Knuth's TeX typesetting program. The LaTeX command typesets a file of text using the TeX program and the LaTeX Macro package for TeX. To be more specific, it processes an input file containing the text of a document with interspersed commands that describe how the text should be formatted.

To install LaTeX in your workstation you can run the following command:

```
yum install tetex-{latex,fonts,doc,xdiv,dvips}
```

3 Configuration

This section describes the configuration steps you need to do in your CentOS workstation in order to interact with your working copy of CentOS Artwork Repository.

3.1 Firewall

The CentOS Artwork Repository lives on the following URL:

```
https://projects.centos.org/svn/artwork/
```

To reach this location you need to have Internet access and be sure no rule in your firewall is denying this site. Note that the URL uses the SSL protocol (port 443).

3.2 Subversion Behind Squid

Sometimes it is convenient to proxy Subversion client's requests through a proxy-cache server like Squid. In cases like this, the Squid proxy server is in the middle between you and CentOS Artwork Repository. If you want to proxy Subversion client's requests through Squid proxy-cache server, you need to configure your Subversion client and your Squid proxy server to do so.

3.2.1 Subversion Client Configuration

Subversion client needs to be configured to send requests to your Squid proxy-cache server. This configuration takes place in the file:

```
~/.subversion/servers
```

3.2.2 Squid Server Configuration

Squid proxy-cache server needs to be configured to accept the extension methods `REPORT MERGE MKACTIVITY CHECKOUT MKCOL`. This configuration takes place in the file:

```
/etc/squid/squid.conf
```

specifically in the configuration text described below:

```
#  TAG: extension_methods
#       Squid only knows about standardized HTTP request methods.
#       You can add up to 20 additional "extension" methods here.
#
#Default:
# none
extension_methods REPORT MERGE MKACTIVITY CHECKOUT MKCOL
```

3.3 Working Copy

A Subversion working copy is an ordinary directory tree on your local system, containing a collection of files (i.e. Translations, Designs, Manuals, and Scripts). You can edit these files however you wish. Your working copy is

your own private work area: Subversion will never incorporate other people's changes, nor make your own changes available to others, until you explicitly tell it to do so. You can even have multiple working copies of the same project.[2]

After you've made some changes to the files in your working copy and verified that they work properly, Subversion provides you with commands to "publish" your changes to the other people working with you on your project (by writing to the repository). If other people publish their own changes, Subversion provides you with commands to merge those changes into your working directory (by reading from the repository).

To download your working copy of CentOS Artwork Repository in the location ~/Desktop/artwork, run the following command:

```
svn co https://projects.centos.org/svn/artwork ~/Desktop/
```

The previous command will download lots of files into your workstation. This process may take some time. When finish you are ready to start exploring and improving available works.

3.4 User Identification

At this point you probably have made some changes inside your working copy and wish to publish them. To publish your changes you need to have a registered account with commit privilege in CentOS Artwork Repository.

If you are new in CentOS Artwork Repository it is possible that you can't commit your changes. That is because new registered accounts haven't commit privilege set by default. In order for your registered account to have commit privilege inside CentOS Artwork Repository you need to request it. See section 3.4.2.

3.4.1 Account Registration

To register a user account inside CentOS Artwork Repository, you need to go to the following URL:

[2]Even this is basically correct, doing so when using CentOS Artowrk Repository can bring some confusion when executing scripts. Presently, only one absolute path can be defined as absolute path for scripts' execution. You can have as many working copies of CentOS Artwork Repository as you want but scripts will be executed from just one working copy absolute path —the one you defined in the variable CentOS_ARTWORK_WC. For more information about this, see section 3.5.

```
https://projects.centos.org/trac/artwork/
```

3.4.2 Account Privileges

To have commit privileges in CentOS Artwork Repository it is needed that you show your interest first, preferably with something useful like a new or improved design, translation, manual, or script. As convenction, people working on CentOS Artwork Repository share ideas in the mailing list centos-devel@centos.org. If you are interested in joining us go there and express yourself.

3.5 Shell Environment

Inside CentOS Artwork Repository we try to automate tasks as much as possible using shell scripts. In order to execute shell scripts we need to provide their path, relative or abolute.

3.5.1 Relative Paths

Using relative paths makes difficult to call functions from different levels inside the directory structure of your working copy of CentOS Artwork Repository.

3.5.2 Absolute Paths

Using absolute paths lets us use functions from different levels inside the directory structure of your working copy of CentOS Artwork Repository but creates an incovenient. It forces us to use an unchangable absolute path to store the working copy of CentOS Artwork Repository.

3.5.3 Environment Variable Definition

To avoid forcing a predifined absolute path to store our working copy of CentOS Artwork Repository, we decided to define the **CentOS_ARTWORK_WC** environment variable. The value of this environment variable contains the absolute path used to store our working copy of CentOS Artwork Repository in the workstation. This way we can download our working copy of CentOS Artwork Repository wherever we want and be sure that scripts inside it execute correctly.

3.5.4 Environment Variable Initialization

As CentOS_ARTWORK_WC environment variable defines the absolute path used to execute scripts, it isn't possible to initialize it inside scripts themselves. To initialize CentOS_ARTWORK_WC environment variable we use the personal initialization file (~/.bash_profile), executed for login shells.

For example, if you downloaded your working copy of CentOS Artwork Repository in the absolute path ~/Desktop/artwork, then you need to add the following lines to your personal initialization file:

```
CentOS_ARTWORK_WC=~/Desktop/artwork
export CentOS_ARTWORK_WC
```

For changes to take effect you need to logout and do login again.

4 Framework

Firstboot framework is inside your working copy of CentOS Artwork Repository. Firstboot framework is organized in the following sections:

4.1 Identity

trunk/Identity/Themes/$THEME/Distro/Anaconda/Firstboot/

Here is where graphic designers provide SVG files with firstboot designs and render them as PNG images.

4.1.1 Designs

trunk/Identity/Themes/$THEME/Distro/Anaconda/Firstboot/svg/

Here is where Firstboot design templates are stored. The following files are the one you need to change in order to improve Firstboot Visual Style. To edit these files you need to use a scalable vector graphic editor like Inkscape.

firstboot-left.svg: This design is common for all major releases of CentOS Distribution. It is visible in all firstboot screens. In Figure 1 this image is represented by the number 1, and has the following components:

1. The CentOS Symbol.
2. The CentOS Default Artistic Motif.

splash-small.svg: This design is specific for each major release of CentOS Distribution. There is one splash-small.png image for each major release of CentOS Distribution. This image is visible only in firstboot Welcome screen. In Figure 1 this image is represented by number 5, and has the following components:

1. The CentOS Symbol.
2. The CentOS Release Brand.
3. The CentOS Default Artistic Motif.

Firstboot designs are based on the same Artistic Motif (also known as Theme).[3] If you want to improve an existent Artistic Motif then share your ideas with its author before commit any change up to CentOS Artwork Repository. Doing so is polite and enforce our community feeling.

Otherwise, if you have designed a new Artistic Motif you become its author and surely people will ask you about it.

4.1.2 Export Id

The export id is used inside design templates to define the area that will be exported as PNG image. As convention, we use the word 'CENTOSARTWORK' as export id. In Inkscape, you can set the export id to a selected object by pressing Ctrl+Shift+O and filling the appropriate fields.

To know what is the area set as export id, in Inkscape you can press Ctrl+F to find it. If it exist, the object holding the string as id is selected. Sometimes, this can be used to verify the design bounderies.

4.1.3 Markers

Markers are used inside design templates and translation files as replacement patterns. When render images, using the script render.sh, translation files are applied to design templates to produce a translated image. In order to

[3] To know more about the Artistic Motif concept take a look to the document 'CentOS Artistic Motif' in 'trunk/Manuals/Identity/Themes/Motif/Manual.pdf'.

Marker	Description
=VERSION=	Major release number of CentOS Distribution.

Table 1: Firstboot translation markers.

translate images correctly, markers should match both in design templates and translation files.

In firstboot, markers are used in the file splash-small.svg only, specifically to set the major release number of CentOS Distribution in CentOS Release Brand. Since firstboot-left.svg design is common for all CentOS Distribution there is no need to set any marker on it.

Markers used in firstboot design templates and translation files are described in Table 1.

4.1.4 Images

trunk/Identity/Themes/$THEME/Distro/Anaconda/Firstboot/img/

Here is where firstboot final images are stored. Final images are rendered using the render.sh script (see section 4.1.6). Final images' organization is generated automatically by render.sh script in the rendering process. To organize final images, the render.sh script takes the related translation path as reference (see section 4.2). Final images are what you use to rebrand (see section 5).

4.1.5 Models

trunk/Identity/Models/Distro/Anaconda/Firstboot/

Here is where graphic designers provide SVG files with firstboot design models and render them. A design model is a representative image used to illustrate key components inside a specific design. Design models are frequently used in documentation.

Firstboot design model is shown in Figure 1 and described below:

1: List of labels and a pointer showing in which configuration screen you are.

2: Screen icon. The screen icon is visible in all firstboot screens. Each firsboot screen may have its own screen icon.

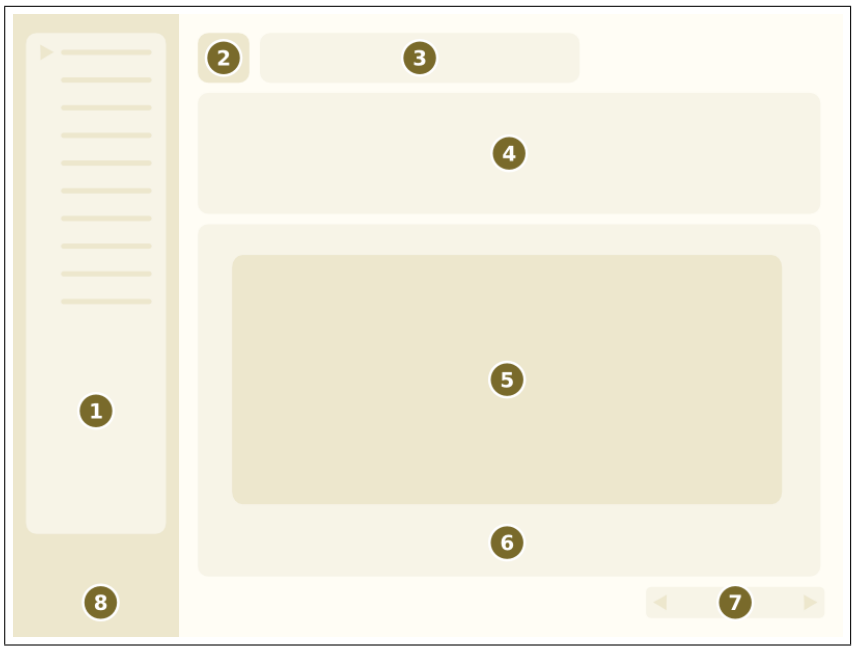

Figure 1: Firstboot design model.

3: Screen label.

4: Screen description.

5: Splash image (splash-small.png). The splash image is visible in firstboot welcome screen only.

6: Configuration stuff.

7: Navigation area. Basically two buttons to navegate configuration back and forward.

8: List of labels' background image (firtboot-left.png). This image is visible in all firstboot screens.

4.1.6 Rendering

To render images you need to execute the render.sh script. This script does the appropriate calls and applies translations (see section 4.2) to designs to produce translated images. The render.sh script has the following form:

```
./render.sh 'REGEX'
```

The REGEX argument is optional. It is used to reduce the amount of images you want to render. It is a posix-egrep regular expression pattern, applied against the translation path.

4.2 Translations

trunk/Translations/Identity/Themes/Distro/Anaconda/Firstboot

Here is where translators locale images. Image localization is defined inside .sed files, also known as translation files. Translation files can be common or specific. The given organization of translation files defines the translation path.

4.2.1 Common Translations

Common translation files contain common localization or no localization at all for their related images. They are in the root directory of the translation path. Common translation files produce common images for all major releases of CentOS Distribution. In Figure 2, the firstboot-left.sed file is an example of common translation file.

4.2.2 Specific Translations

Specific translation files contain specific localization for their related images. Specific translation files are not in the root directory of the translation path. Specific translation files are inside directories which describe the type of translation they are doing. In Figure 2, the splash-small.sed files are examples of specific translation files.

4.2.3 Translation Path

Translation path is where we organize common and specific translation files. Translation path is also used as reference to build the path of rendered images inside image directory (see section 4.1.4). Firstboot translation path is illustrated in Figure 2.

When rendering images, if no REGEX argument is provided to render.sh, all translation files in the translation path are read and applied one by one to its related design template —defined in the pre-rendering script— to produce a translated image. The name of the image is the same name of its translation file but with the extension .png.

To control how many images to render, you need to look into the translation path and provide a regular expression pattern that match the translation path, or paths, related to the image, or images, you want to render. For example if you only want to render the CentOS 5 firstboot splash-small.png image then you can do:

```
./render.sh '5/splash-small'
```

If you want to render splash-small.png for CentOS 5 and 6 and also firstboot-left.png but not splash-small.png for CentOS 4 and 3, then you can do:

```
./render.sh '(firstboot-left|(5|6)/splash-small)'
```

The regular expression pattern you provide to render.sh is applied to the translation path from its very beginning. It is not the same to say '5/splash-small' that 'splash-small', the frist expression match but the last one does not.

When using REGEX you don't need to specify the file extension. They are removed from translation path before applying the REGEX pattern, so they don't count here.

4.3 Manuals

trunk/Manuals/Identity/Themes/Distro/Anaconda/Firstboot/

Here is where we prepare the documentation you are reading right now. If you want to help improving Firstboot Visual Style Manual this is the place you need to go.

```
trunk/Translations/Identity/Themes/Distro/Anaconda/Firstboot
|-- 3
|   `-- splash-small.sed
|-- 4
|   `-- splash-small.sed
|-- 5
|   `-- splash-small.sed
|-- 6
|   `-- splash-small.sed
`-- firstboot-left.sed

4 directories, 5 files
```

Figure 2: Firstboot translation path.

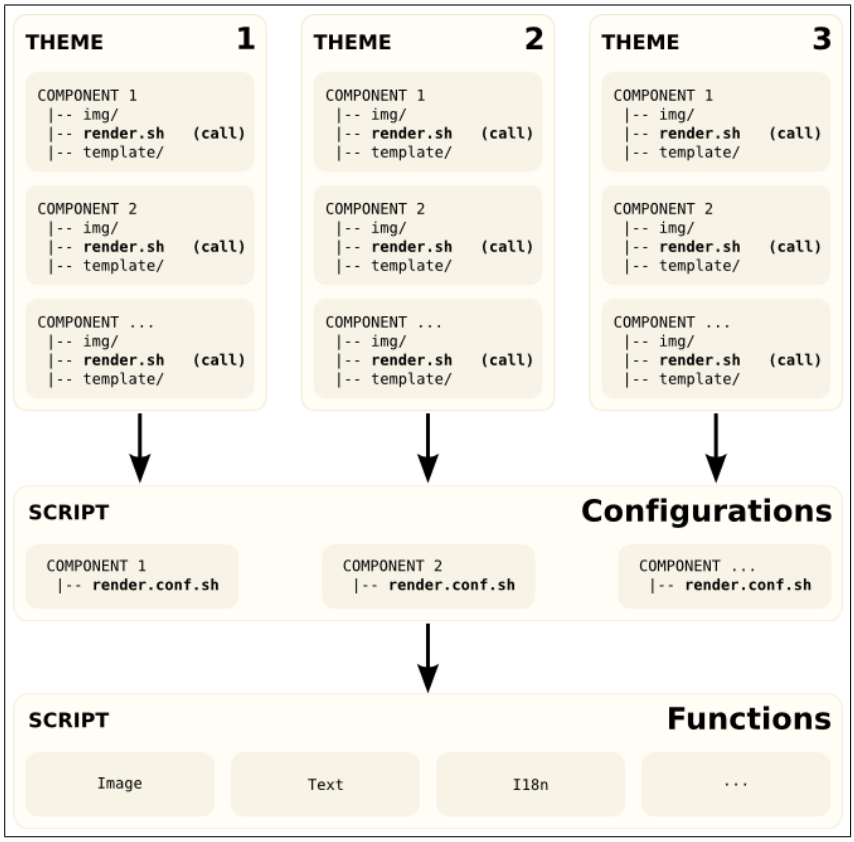

Figure 3: Rendering design model.

4.4 Scripts

4.4.1 Rendering

The rendering process is invoked by the render.sh script. Each section, where rendering is automated, has a render.sh script inside it. You use the section's render.sh script to start a rendering process specific to that section. The work of each section's render.sh script is calling a common pre-rendering script which defines the way rendering is performed.

4.4.2 Pre-rendering

trunk/Scripts/Identity/Themes/Distro/Anaconda/Firstboot/

Here is where firstboot pre-rendering script is stored. The pre-rendering script is the first script called when the render.sh script is executed by you. In the pre-rendering script you define what translation files apply what design template. You can also configure some post-rendering actions.

4.4.3 Post-rendering

Post-rendering actions are configured in the pre-rendering scripts and defined inside rendering functions to extend their functionality. Post-rendering actions are applied to files, one by one, once they have been rendered. The following are common post-rendering actions you may found:

renderFormats: The renderFormat post-rendering action is common to all image rendering. After rendering the PNG image, the renderFormats post-rendering action is applied to produce images in specific formats (i.e. tif, ppm, pdf, xpm, etc.), using the previous PNG image as base.

renderSyslinux: The renderSyslinux post-rendering action is specific to Anaconda Prompt rendering. After rendering the PNG image of your design, the renderSyslinux post-rendering action is applied to produce the LSS16 image format, using the previous PNG image as based.

renderGRUB: The renderGRUB post-rendering action is specific to GRUB image rendering. After rendering the PNG image of your design, the renderGRUB post-rendering action is applied to produce the 14 colors xpm.gz file, using the previous PNG image as based.

5 Rebranding

To comply with upstream redistribution policy, the CentOS Project removes all upstream brands and artworks from CentOS Distribution. The CentOS Project has its own brand and its own artwork. The CentOS Brand and CentOS Artwork are what the CentOS Project uses in CentOS Distribution.

The action of removing upstream brands and artworks and add CentOS brands and artworks is what we call rebranding.

CentOS Brands and artworks are organized inside CentOS Artwork Repository. The CentOS Artwork Repository is maintain by CentOS Artwork SIG which is formed by CentOS Community People.

When rebranding, use original names as much as possible. Do not rename original file names if you don't need to. To rebrand the orignal file information, update just the file content using the 'cp' command or something similar.

5.1 Images

This section describes relation between SRPM packages and image files you need to modify in order to rebrand firstboot artwork correctly.

5.1.1 redhat-logos

The `redhat-logos` package contains files created by the CentOS Project to replace the Red Hat "Shadow Man" logo and RPM logo. The Red Hat "Shadow Man" logo, RPM, and the RPM logo are trademarks or registered trademarks of Red Hat, Inc.

The following files in `redhat-logos` need to be rebranded:

```
/usr/share/firstboot/pixmaps/
|-- shadowman-round-48.png
```

Once you rebrand the image files inside the SRPM package, you need to rebuild it with the new brand information. Relevant files to firstboot rebranding are described below:

5.1.2 redhat-artwork

The `redhat-artworks` package contains the themes and icons that make up the CentOS default look and feel. Relevant files to firstboot rebranding are described below:

The following files in `redhat-artwork` need to be rebranded:

```
/usr/share/firstboot/pixmaps/
|-- firstboot-left.png
|-- splash-small.png
```

Once you rebrand the image files inside the `redhat-artwork` SRPM package, you need to rebuild it with the new brand information.

5.2 Messages Locale

Firstboot messages locale contains the upstream brand, so it needs to be rebranded too. The .po files you need to rebrand are inside the following SRPM packages.

5.2.1 firstboot

The `firstboot` package contains the firstboot utility that runs after installation. It guides the user through a series of steps that allows for easier configuration of the machine.

Once you rebrand the content of .po files inside `firstboot` SRPM package, you need to rebuild it with the new brand information. The rebranded .mo files are created in the installation process.

5.2.2 firstboot-tui

The `firstboot-tui` package contains a text interface for the `firstboot` package.

Once you rebrand the content of `.po` files inside the `firstboot-tui` SRPM package, you need to rebuild it with the new brand information. The rebranded `.mo` files are created in the installation process.

5.3 License Agreement

This section describes relation between SRPM packages and files you need to modify in order to rebrand the CentOS License Agreement correctly. The CentOS License Agreement is shown after the welcome screen of firstboot.

5.3.1 centos-release

The `centos-release` package contains the CentOS release files.

The following files in `centos-release` need to be rebranded:

```
/usr/share/eula/
‘-- eula.en_US
```

The file `eula.en_US` contains the English translation of CentOS License Agreement. English language is the reference for specific language translations of CentOS License Agreement. Specific language translations of CentOS License Agreement are accepted in the path `/usr/share/eula`.

File names of eula specific language translations should have the format `eula.lang` or `eula.lang_COUNTRY`. Where `lang` is a two-lowercase-letters code representing the translation language and `COUNTRY` a two-uppercase-letters code representing the country of that translation language. Languages' and countries' codes are specified as described in the standards ISO639 and ISO3166 respectively.

When using Anaconda in a language different from English firstboot checks if there is any eula translation file for the currenct language. If so, the specific language eula file is loaded and shown to the user. Otherwise the `eula.en_US` file is used.

The CentOS eula files, described in the previous list, have their own framework inside CentOS Artwork Repository. They are rendered similar to images using templates and translation files, as well as rendering scripts. For more information about rendering CentOS eula texts, see the "CentOS Release" manual.

```
/usr/share/doc/centos-release-5/
|-- EULA
|-- GPL
```

The files `EULA` and `eula.en_US` should have the same information. The `GPL` file contains the GPL license with a brief description of how it applies to CentOS Distribution.

Once you rebrand the text files inside the `centos-release` SRPM package, you need to rebuild it with the new brand information.

6 GNU Free Documentation License

Version 1.2, November 2002

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