Red Hat Enterprise Linux International Language Support
Guide
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This book is about international language support for Red Hat Enterprise Linux

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Documentation-Deployment

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Chapter 1. Introduction

This guide explains the support for international languages supported in Red Hat Enterprise Linux and how to install and configure them. Internationalization entails engineering software to support input and output for different languages. Localization involves adding locale specific features in an application. Localization data is used by a software application for a specific market's language or culture to meet the specific needs of the users. The locale specifies the user's language, country and any specific preferences in the application.

The next chapter introduces language support installation during and after installation. Chapter 3 describes how to change your default language while chapter 4 discusses keyboard installation and configuration. The Smart Common Input Method is discussed in chapter 5. Chapter 6 describes how to write in Japanese, Chinese, Korean and Indic languages.

Major areas of internationalization and localization for Red Hat Enterprise Linux 5 are:

- Translation of the user interface within applications.
- Translation of application documentation and help.
- Character sets and fonts.
- Keyboard configuration.
- Date, time formats and time zones.
- Input methods which allow you to write in more than one language.

Viewing content in different language

A common sign that proper fonts for a particular language are not installed is characters appear as boxes with numbers inside. Please ensure that you have the correct language support packages installed for your language to display content correctly.
Chapter 2. Installing and supporting languages

Red Hat Enterprise Linux supports installation of multiple languages and changing of languages based on your requirements. Please only install those languages that you will use as this will save you a significant amount of disk space.

The following languages are supported in Red Hat Enterprise Linux:

- East Asian Languages - Chinese (Simplified), Chinese (Traditional), Japanese and Korean.
- European Languages - French, German, Italian, Portuguese (Brazilian), Russian and Spanish.
- Indic Languages - Assamese, Bengali, Gujarati, Hindi, Kannada, Malayalam, Marathi, Oriya, Punjabi, Sinhalese, Tamil and Telugu.

The table below summarizes the currently supported languages and packages required for some of the supported languages.

<table>
<thead>
<tr>
<th>Territory</th>
<th>Language</th>
<th>Locale</th>
<th>Fonts</th>
<th>Package Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Simplified Chinese</td>
<td>zh_CN.UTF-8</td>
<td>AR PL (ShanHeiSun and Zenkai) Uni</td>
<td>fonts-chinese, scim-pinyin, scim-tables</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>Japanese</td>
<td>ja_JP.UTF-8</td>
<td>Sazanami (Gothic and Mincho)</td>
<td>fonts-japanese, scim-anthy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>Hangul</td>
<td>ko_KR.UTF-8</td>
<td>Baekmuk (Batang, Dotum, Gulim, Headline)</td>
<td>fonts-korean, scim-hangul</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>Traditional Chinese</td>
<td>zh_TW.UTF-8</td>
<td>AR PL (ShanHeiSun and Zenkai) Uni</td>
<td>fonts-chinese, scim-chewing, scim-tables</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Territory</td>
<td>Language</td>
<td>Locale</td>
<td>Fonts</td>
<td>Package Names</td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
<td>----------</td>
<td>------------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>India</td>
<td>Assamese</td>
<td>as_IN.UTF-8</td>
<td>Lohit Bengali</td>
<td>fonts-bengali, scim-m17n, m17n-db-assamese</td>
</tr>
<tr>
<td></td>
<td>Bengali</td>
<td>bn_IN.UTF-8</td>
<td>Lohit Bengali</td>
<td>fonts-bengali, scim-m17n, m17n-db-bengali</td>
</tr>
<tr>
<td></td>
<td>Gujarati</td>
<td>gu_IN.UTF-8</td>
<td>Lohit Gujarati</td>
<td>fonts-gujarati, scim-m17n, m17n-db-gujarati</td>
</tr>
<tr>
<td></td>
<td>Hindi</td>
<td>hi_IN.UTF-8</td>
<td>Lohit Hindi</td>
<td>fonts-hindi, scim-m17n, m17n-db-hindi</td>
</tr>
<tr>
<td></td>
<td>Kannada</td>
<td>kn_IN.UTF-8</td>
<td>Lohit Kannada</td>
<td>fonts-kannada, scim-m17n, m17n-db-kannada</td>
</tr>
<tr>
<td></td>
<td>Malayalam</td>
<td>ml_IN.UTF-8</td>
<td>Lohit Malayalam</td>
<td>fonts-malayalam, scim-m17n, m17n-db-malayalam</td>
</tr>
<tr>
<td></td>
<td>Marathi</td>
<td>mr_IN.UTF-8</td>
<td>Lohit Hindi</td>
<td>fonts-hindi, scim-m17n, m17n-db-marathi</td>
</tr>
<tr>
<td></td>
<td>Oriya</td>
<td>or_IN.UTF-8</td>
<td>Lohit Oriya</td>
<td>fonts-oriya, scim-m17n, m17n-db-oriya</td>
</tr>
<tr>
<td></td>
<td>Punjabi</td>
<td>pa_IN.UTF-8</td>
<td>Lohit Punjabi</td>
<td>fonts-punjabi, scim-m17n, m17n-db-punjabi</td>
</tr>
<tr>
<td></td>
<td>Tamil</td>
<td>ta_IN.UTF-8</td>
<td>Lohit Tamil</td>
<td>fonts-tamil, scim-m17n, m17n-db-tamil</td>
</tr>
<tr>
<td></td>
<td>Telugu</td>
<td>te_IN.UTF-8</td>
<td>Lohit Telugu</td>
<td>fonts-telugu, scim-m17n, m17n-db-telugu</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Sinhala</td>
<td>si_LK.UTF-8</td>
<td>LKLUG</td>
<td>fonts-sinhala, scim-sinhala, m17n-db-sinhala</td>
</tr>
</tbody>
</table>
Table 2.1. Red Hat Enterprise Linux International Languages

Red Hat Enterprise Linux uses the UTF-8 (8bit Unicode Transformation Format) encoding for supported locales. This allows you to create, edit and view documents written in different locales using UTF-8.

> **Note**
> Please note that applications such as Open Office may use additional files for internationalization. Please consult the application’s user guide for more information.

1. Adding language support during installation

During your installation, the installation language you select becomes your default language after installation. The figure below illustrates the language selection window during installation.

![Figure 2.1. Select installation language](image)

During installation you can also install support for multiple languages from the package selection window as illustrated below.
2. Adding language support after installation

After installation, you can still add, remove and change supported languages using the Package Manager. The Package Manager can be accessed from the system menu by clicking Applications => Add/Remove Software. In the first tab you can view the application categories among which is “Languages” from which you can select the languages you wish to support. Please select only the languages you wish to use as this can save you a significant amount of disk space. The language selection feature in the Package Manager is illustrated below. Some languages have optional packages which you can select and install.
Figure 2.3. Package Manager
You can set your default language during the installation process of Red Hat Enterprise Linux 5 which also specifies your locale settings. To change the default language you do not need to restart or reinstall Red Hat Enterprise Linux. You can do this as root by running the language selection application. This can be accessed from the system menu by clicking System => Administration => Language or typing system-config-language from a terminal. This displays a list of supported languages from which you can select your preference. Clicking on the OK button sets the selected language as default. The figure below illustrates the language selection application.

![Language Selection](image)

**Figure 3.1. Language selection**

You can also change the default language used on your desktop from the GDM language menu before logging in to your desktop.
Chapter 4. Keyboard installation and configuration

During installation the keyboard you select becomes your default keyboard. You can change your default keyboard after installation or add multiple keyboards which you can change on the fly to suit your input language. The figure below illustrates the keyboard selection menu during the installation process.

Figure 4.1. Keyboard selection during installation

1. Configuring the keyboard after installation

After installation, you can set the default keyboard by clicking System => Administration => Keyboard from the system menu panel or by typing system-config-keyboard from a terminal. This displays a list of supported keyboard from which you can select the appropriate keyboard for your system. The figure below illustrates the Keyboard Selection utility.
1. Configuring the keyboard after installation

![Keyboard selection dialog box](image)

**Figure 4.2.** Keyboard selection
Chapter 5. Smart Common Input Method

Red Hat Enterprise Linux utilizes the Smart Common Input Method (SCIM) to provide a user friendly interface from which you can change your input method. If SCIM is installed, it runs by default for all users.

You can change your input method on the fly using the SCIM user interface or using the SCIM keyboard shortcuts which you can also customize to suit your preferences. The following table summarizes the SCIM packages shipped in Red Hat Enterprise Linux 5.

<table>
<thead>
<tr>
<th>Package</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>scim</td>
<td>Smart Common Input Method platform.</td>
</tr>
<tr>
<td>scim-anthy</td>
<td>Engine for anthy to support Japanese character input.</td>
</tr>
<tr>
<td>scim-bridge</td>
<td>scim-bridge client.</td>
</tr>
<tr>
<td>scim-bridge-gtk</td>
<td>Provides GTK input method for the SCIM bridge. This package prevents possible binary conflicts with third-party applications linked against older versions of libstdc++ and is highly recommended.</td>
</tr>
<tr>
<td>scim-chewing</td>
<td>Provides Traditional Chinese input.</td>
</tr>
<tr>
<td>scim-hangul</td>
<td>Provides Korean Input method engine.</td>
</tr>
<tr>
<td>scim-libs</td>
<td>SCIM libraries and GTK input method module.</td>
</tr>
<tr>
<td>scim-m17n</td>
<td>SCIM IMEngine for m17n-lib allowing input of many languages including Indic using the input table maps from m17n-db.</td>
</tr>
<tr>
<td>scim-pinyin</td>
<td>Simplified Chinese Smart Pinyin IMEngine for SCIM.</td>
</tr>
<tr>
<td>scim-qtimm</td>
<td>Provides an input method module for Qt and is also recommended.</td>
</tr>
<tr>
<td>scim-sinhala</td>
<td>Provides Sinhala Trans input method.</td>
</tr>
<tr>
<td>scim-tables</td>
<td>Contains the Generic Table IMEngine.</td>
</tr>
<tr>
<td>scim-tables-additional</td>
<td>Miscellaneous SCIM tables.</td>
</tr>
<tr>
<td>scim-tables-chinese</td>
<td>Contains SCIM tables for Chinese input.</td>
</tr>
</tbody>
</table>

Table 5.1. Input Method Packages in Red Hat Enterprise Linux
After installing or removing SCIM engine packages, it is recommended to start a new desktop session in order for the changes to be reflected in the SCIM language menu.

Your language may also require input tables which are usually named `m17n-db-<language>`. Where `<language>` represents your language such as Hindi or Telugu among others. Installing your language using the package manager usually will install the required input table and SCIM packages. If you require more input methods install the required SCIM packages according to your preferences. You can add the SCIM tables by running the Package Manager from the menu panel by clicking Applications => Add/Remove Software or typing `pirut` from a terminal.

To activate SCIM, start the application you wish to use (for example a text editor or browser) and press CTRL and SPACE simultaneously to display the SCIM panel as illustrated below. To de-activate SCIM press CTRL and SPACE simultaneously.

![SCIM Panel](image)

**Figure 5.1. SCIM Panel**

You can select an input method by clicking on the displayed input method which allows you to view and select installed input methods. The SCIM language menu allows you to select your input method from the list of input methods configured in the `IMEngine Global Setup`. You can activate the SCIM language menu by clicking on the SCIM panel. The figure below illustrates the SCIM language menu. Please note that your SCIM language menu may vary depending on the number of languages you have installed in your system. To select an input method, select the preferred language and available input methods. If the desired language is not available, please ensure it is installed or follow the steps in *Chapter 2, Installing and supporting languages.*
1. Configuring SCIM

You can configure SCIM by right clicking on the SCIM notification icon displayed on your taskbar and selecting **SCIM Setup**. You can also configure SCIM by clicking on **System => More Preferences => SCIM Input Method Setup** from your system menu.

**How to change the language menu.** Expand the IMEngine menu item on the left side of the SCIM window. Under the IMEngine list select the Global Setup option as illustrated below.

![SCIM language menu]

**Figure 5.2. SCIM language menu**
Figure 5.3. SCIM IMEngine Global Setup

This will display the installed input method engines. Deselect those languages you do not intend to input in. Also deselect any input methods you do not wish to use for the languages you wish to input in. Please refer to Table 5.1, "Input Method Packages in Red Hat Enterprise Linux" and Table 2.1, "Red Hat Enterprise Linux International Languages" both of which indicates the supported input methods and for Red Hat Enterprise Linux 5.

Configuration of input method. Some customizable input methods may be listed under IMEngine as illustrated in Figure 5.3, "SCIM IMEngine Global Setup". Selecting an input method from the list will display the setup options available. Please note that the setup options vary from one input method to another.

Configuration of Hotkeys and general configuration. You can configure the front end setup for SCIM in the Global Setup under the FrontEnd menu item as illustrated below. Here you can configure the keyboard layout and some hotkeys. The keyboard layout configuration specifies how SCIM maps some IMEngines to your keyboard layout. Select your respective keyboard's layout from the 'Keyboard Layout' section in the window. From Figure 5.4, "SCIM FrontEnd Global Setup" below, the selected keyboard layout is 'English (US)'.
Figure 5.4. SCIM FrontEnd Global Setup

The Panel list item allows you to configure the SCIM toolbar and its behaviour. You can set when and how to show the SCIM toolbar and any candidate window. The SCIM toolbar is illustrated in Figure 5.1, “SCIM Panel” while the input language menu is illustrated in Figure 5.2, “SCIM language menu”.
Chapter 6. Writing Asian and Indic Languages

Please ensure that your preferred language is installed from the list of supported languages before attempting to change your input method. Please also ensure that you have configured a suitable keyboard for your selected language. The following are examples on how to write in specific languages.

1. How to write in Japanese

1. Start the application you wish to write in and press the CTRL and SPACE keys to start or stop SCIM. If using a Japanese keyboard, you can also start and stop SCIM by pressing the Zenkaku-Hankaku key. When started a SCIM tool bar will be displayed on the right corner of your screen as illustrated below.

![Figure 6.1. SCIM Toolbar - Anthy](image)

2. If Anthy is not displayed, click on the displayed input method and select Japanese from the list of languages displayed. If Japanese is not listed, this is an indication that you have not added Japanese language support in your system. For more information on adding language support, please read Section 2, “Adding language support after installation”.

On selecting Japanese as your input language, you can start typing. You can press the SPACE key to start Kanji conversion. If you press the SPACE key a second time, a lookup window will be displayed as you type your phrases with suggestions which you can select from. To navigate through the list of candidate phrases, you may use the UP and DOWN arrow keys or the SPACE bar. Use the RETURN key to commit your selection to the document.

The input mode button allows you to select your input mode. If using a Japanese keyboard, you can convert between Hiragana and Katanaka by pressing the Hiragana-Katakana key. You can also convert input to Hiragana by pressing the F6 key. To convert to Katanaka press the F7 key. Other input modes available are Half Width Katakana, Latin and Wide Latin. You can switch to Half-Width Katakana using the F8 key and to Wide Latin using the F9 key. The figure below illustrates the input mode options.
You can also set the conversion mode for your typing to Multi Segment and Single Segment. You can also set your phrases to be converted as you type in either Multi or Single Segments. The figure below illustrates the conversion mode options.

If you wish to add a word to the dictionary, you can do so by clicking on the dictionary icon on the SCIM toolbar. The dictionary tool allows you to add, edit or remove dictionary words. The figure below illustrates the dictionary options available. On clicking the preferred option, you may be required to select your input method by pressing CTRL and SPACE keys and selecting your input method as the dictionary icon executes an application called kasumi which you can also execute from a terminal.

For more shortcuts and descriptions of the input method options, click on the help icon on the SCIM toolbar.
2. How to write in Chinese

Please note that Red Hat Enterprise Linux supports the Chewing input method for traditional Chinese and Smart-Pinyin for simplified Chinese.

2.1. Writing in Simplified Chinese with Smart Pinyin

To write in Simplified Chinese with Smart Pinyin, start the application you wish to write in and press CTRL and SPACE keys simultaneously to display the SCIM toolbar. Click on the language toolbar and select Chinese (simplified) and Smart Pinyin from the list of languages displayed. If Chinese is not displayed, this is an indication that you have not added Chinese language support in your system. For more information on adding language support, please read Section 2, “Adding language support after installation”.

On selecting Smart Pinyin, you can then start typing. A lookup window will be displayed as you type your words with suggestions which you can select from. Press the number keys to select your preferred phrase and the SPACE key to add it to your document. For more shortcuts and descriptions of the input method options, click on the SCIM help icon on the toolbar.

![Smart Pinyin SCIM Toolbar](image)

Figure 6.5. SCIM Toolbar - Smart Pinyin

2.2. Writing in Traditional Chinese with Chewing

Start the application you wish to write in and press CTRL and SPACE simultaneously to start SCIM. The SCIM tool bar will be displayed on the bottom right corner of your screen from which you can select your desired input method. To write with Chewing, select Chinese (traditional) from the list of languages displayed and select Chewing. If Chinese is not displayed, this is an indication that you have not added Chinese language support in your system. For more information on adding language support, please read Section 2, “Adding language support after installation”. You can then start typing using your desired input method. If you press space, a lookup window will be displayed with suggested phrases which you can select from.

Press the <number> key to select your preferred phrase (where <number> is the number of the word from the list displayed). Press the RETURN key on your keyboard to select the selected phrase and add it to your document.

For more shortcuts and descriptions of the input method options click on the SCIM help icon on the toolbar.

![Chewing SCIM Toolbar](image)

Figure 6.6. SCIM Toolbar - Chewing
3. How to write in Korean

1. Start the application you wish to write in and press CTRL and SPACE keys simultaneously to start or stop SCIM. When started, the SCIM tool bar will be displayed on the right corner of your screen.

2. Using your mouse, click on the displayed input method if 'Hangul' is not displayed and select Korean from the list of languages displayed. The scim toolbar will display 'Hangul' when Korean is selected as illustrated below. You can then start typing.

   Figure 6.7. SCIM Toolbar - Hangul

3. You can also switch between Latin (abc..) and Hangul input by clicking on the input mode button as illustrated below.

   Figure 6.8. Hangul Input Mode

4. The input layout button allows you to select your preferred input layout.

   Figure 6.9. Hangul Input Layout

You can use the F9 key to convert input to Hanja characters. Pressing on the SCIM Help icon in the toolbar displays a summary of the shortcuts and their usage.
4. How to write in Indic Languages

Most Indic languages have 3 types of keymaps, namely:

1. **Inscript** - This keymap is defined according to the Government standards.

2. **Phonetic** - A phonetic keymap has keys mapped according to the sound of the alphabet. For example, for Hindi, "#" is mapped to "k"

3. **Itrans** - An Itrans keymap is similar to phonetic - but has all the combined half characters (halants) mapped separately. There are no halants in Itrans.

Other keymaps are language dependant. For example, many languages have:

1. **Typewriter** - A keymap which functions like an actual typewriter

2. **Language specific** - Popular keymaps from the community - KGP for Kannada, Tamil99 for Tamil, etc.

To write in an Indic language perform the following:

1. Start the application you wish to write in and press CTRL and SPACE keys simultaneously to start SCIM. A SCIM toolbar will be displayed on the right corner of your screen from which you can select your desired language as illustrated in *Figure 6.10, “SCIM Toolbar - Indic”*. Please note that your default language may vary depending on your language settings. To stop SCIM, press the CTRL and SPACE keys simultaneously again.

![Image of SCIM Toolbar - Indic]

2. To change your language, click on the displayed language or keymap and select your language and type of keymap from the list of languages displayed as illustrated in figure *Figure 5.2, “SCIM language menu”*. You can now start typing in your selected language. Please note that your language menu may vary depending on your language settings.

3. To access help for a particular keymap, select the keymap and click on the Help icon on the SCIM toolbar. This will popup a dialog box, displaying the help associated with the current keymap.
Appendix A. Keyboard layouts

This section outlines the Indic language keyboard layouts supported by Red Hat Enterprise Linux 5.

1. Indic Languages

The following illustrations are for inscript keyboards for Indic Languages.

<table>
<thead>
<tr>
<th>Figure A.1. Assamese Inscript Layout.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Assamese Inscript Layout" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure A.2. Bengali Inscript Layout.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Bengali Inscript Layout" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure A.3. Gujarati Inscript Layout.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Gujarati Inscript Layout" /></td>
</tr>
</tbody>
</table>
1. Indic Languages

Figure A.4. Hindi Inscript Layout.

Figure A.5. Kannada Inscript Layout.

Figure A.6. Malayalam Inscript Layout.

Figure A.7. Marathi Inscript Layout.
1. Indic Languages

Figure A.8. Oriya Inscript Layout.

Figure A.9. Punjabi Inscript Layout.

Figure A.10. Telugu Inscript Layout.