



DECwindows Motif Supplemental Guide for Korean Support

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This guide provides the information on the use of the Korean-specific features supported on the DECwindows Motif system.

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Contents

Preface	ii
Intended Audience	ii
Organization	ii
Related Documents	ii
Conventions	iii
1. Character Sets	1
2. Codesets	3
2.1. DEC Korean	3
2.2. Korean EUC	4
3. Locales	5
3.1. Supported Locales	5
4. Fonts	6
4.1. Korean DECwindows Fonts	6
4.2. XLFD Font Names	6
4.3. Bitmap Font Samples	8
4.4. DECwindows Font Encoding	8
4.5. Specifying Fonts in DECwindows Applications	10
5. Keyboards	11
5.1. Supported Keyboard Types	11
5.2. Keyboard Layout	11
6. Korean Input Methods	12
6.1. Activating Korean Input Methods	12
6.2. Switching Input Method	14
6.3. Motif Interface for Input Methods	15
6.4. Operations of Input Server	20
6.5. Customizing Input Server	21
6.6. Hangul Input Method	24
6.7. Hanja Input Method	25
6.8. Row-Column Input Method	27
6.9. Phrase Input Method	28
7. Other Korean Features	31
7.1. Hangul DECterm	31

Preface

This guide provides information for end-users and programmers who want to use and develop internationalized applications in Korean locales on the DECwindows Motif system.

Intended Audience

This guide is for new and experienced end-users and programmers who are interested in the Korean variant of the DECwindows Motif system.

Organization

This guide is organized as follows:

Chapter 1 describes the Korean character sets supported in DECwindows Motif.

Chapter 2 describes the Korean codesets.

Chapter 3 describes the Korean locales.

Chapter 4 provides information on Korean fonts.

Chapter 5 provides information on Korean keyboards.

Chapter 6 describes how to input Korean characters.

Chapter 7 describes other Korean features.

Related Documents

1. *DECwindows Motif Internationalization Guide*.
2. *OSF/Motif User's Guide Revision 1.1*, Open Software Foundation, Prentice Hall, Englewood Cliffs, New Jersey 07632.
3. *OSF/Motif Style Guide Revision 1.1*, Open Software Foundation, Prentice Hall, Englewood Cliffs, New Jersey 07632.
4. *X Window System*, Third Edition, Robert W. Scheifler and James Gettys, Digital Press.
5. *Programmer's Supplement for Release 6*, Adrian Nye (ed.), O'Reilly & Associates, Inc.

Conventions

The following conventions are used in this manual:

mouse	The term <i>mouse</i> is used to refer to any pointing device, such as a mouse, a trackball, a puck, or a stylus.
MB1 (Select)	MB1 indicates the left mouse button, MB2 indicates the middle mouse button, and MB3 indicates the right mouse button.
MB2 (Drag)	
MB3 (Menu)	
\$	The dollar sign represents the DCL prompt.
[Return]	A key name enclosed in brackets indicates that you press that key.
[Ctrl/x]	This symbol indicates that you hold down the first named key while pressing the key or mouse button that follows the slash.
[PF1][x]	A sequence such as [PF1][x] indicates that you must first press and release the key labeled PF1, then press and release another key or a pointing device button.

1. Character Sets

DECwindows Motif supports the Korean character set KS C 5601-1992. The KS C 5601 character set is a national standard for a primary set of graphic characters for Korean information interchange. It has defined a total of 8,224 characters. The standard name has recently been changed to KS X 1001; however, the more well-known name, KSC, is used throughout this manual. The structure of the character set can be summarized as follows:

- Special characters
define 986 graphic symbols which are placed in rows 1-12.
- Hangul characters
refer to 2,350 Korean (Hangul) characters which are placed in rows 16-40.
- Hanja characters
refer to 4,888 Chinese characters which are placed in rows 42-93.

The KS C 5601 code table is divided into 94 rows, numbered from 1 to 94. Each row has 94 columns, also numbered from 1 to 94.

Figure 1-1. KS C 5601 character set

<i>Row 1</i>	Rows 1-12 KS C 5601 Special Characters
<i>Row 13</i>	Rows 13-15 Reserved
<i>Row 16</i>	Rows 16-40 KS C 5601 Hangul Characters
<i>Row 41</i>	Row 41 Reserved
<i>Row 42</i>	Rows 42-93 KS C 5601 Hanja Characters
<i>Row 94</i>	Row 94 Reserved

2. Codesets

DECwindows Motif supports the following Korean codesets:

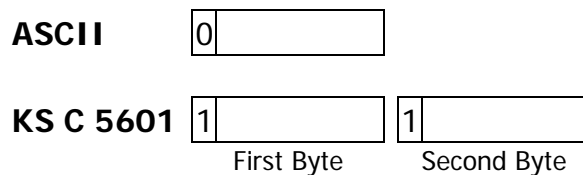
- DEC Korean
- Korean EUC (Extended UNIX Code)

2.1. DEC Korean

The ASCII and KS C 5601 character sets are combined to form the DEC Korean codeset.

DEC Korean use a two-byte data representation for symbols and ideographic characters defined in KS C 5601. To differentiate KS C 5601 codes from ASCII codes, the most significant bit (MSB) of the first byte and the second byte of a KS C 5601 character is always set on.

Figure 2-1. Representations of ASCII and two-byte characters



The first byte of a two-byte code determines its row number, while the second determines its column number.

The following formula illustrates the code of a two-byte KS C 5601 character in relation to its row and column numbers.

$$\begin{aligned} \text{1st byte} &= A0_{(\text{hex})} + \text{Row number} \\ \text{2nd byte} &= A0_{(\text{hex})} + \text{Column number} \end{aligned}$$

For example, if a character is positioned at the first column of the 36th row, its encoding value can be calculated as follows:

$$\begin{aligned} \text{1st byte} &= A0_{(\text{hex})} + 36 = C4_{(\text{hex})} \\ \text{2nd byte} &= A0_{(\text{hex})} + 01 = A1_{(\text{hex})} \end{aligned}$$

that is, C4A1.

Figure 2-2. Code space for KS C 5601

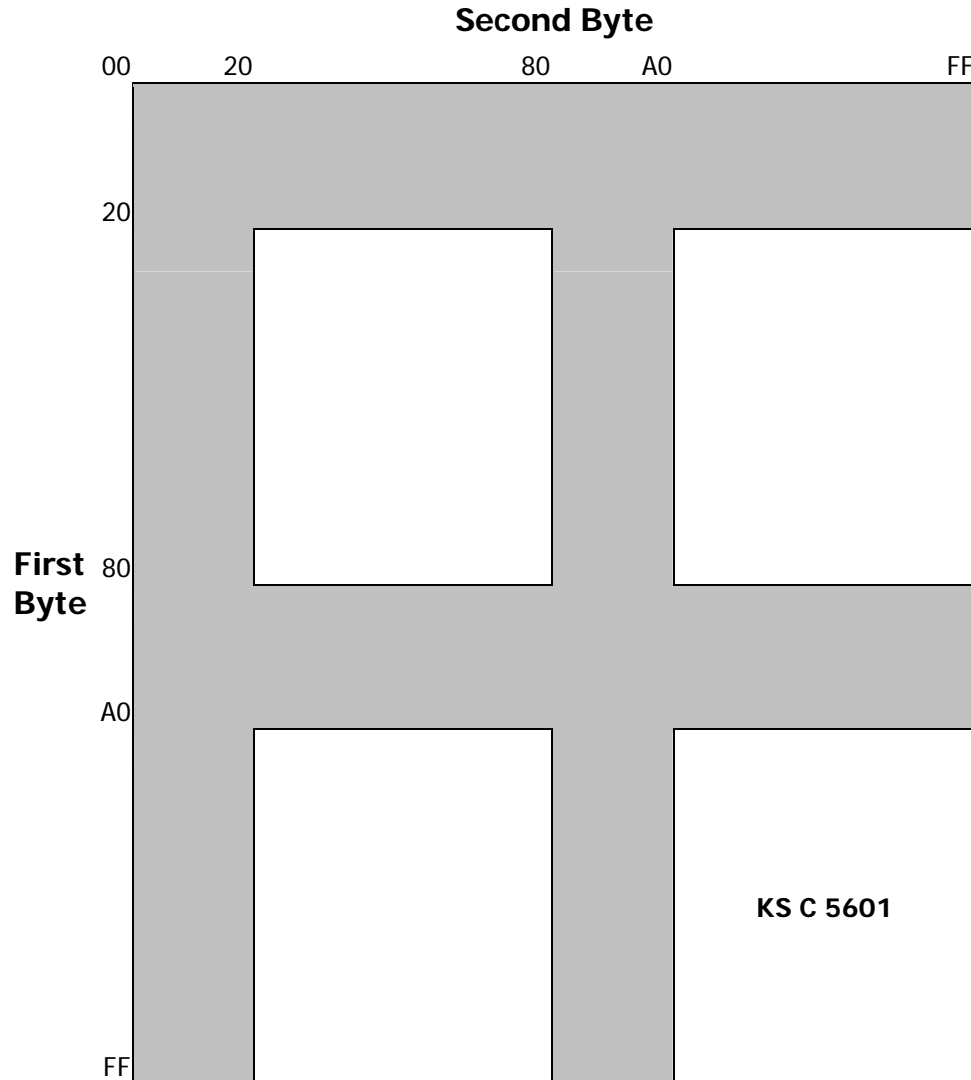


Figure 2-2 illustrates the division of a two-byte code space and the position of KS C 5601 characters.

2.2. Korean EUC

Extended UNIX Code (EUC) is the codeset system extended by AT&T Bell Laboratories for use by various countries in the world. Korean EUC is the EUC codeset for representing Korean data. The encoding of Korean EUC is currently identical to that of DEC Korean. If you want to use Korean EUC, use DEC Korean instead.

3. Locales

3.1. Supported Locales

DECwindows Motif supports the following Korean locales:

Table 3-1. Korean locales

Codeset	Locale
DEC Korean (Korean EUC)	ko_KR
	ko_KR.deckorean

You can select the locale through the Language Menu of Session Manager as follows:

Table 3-2. Korean language names

Locale	Language Name
ko_KR	Korean
ko_KR.deckorean	Korean (DEC Korean)

4. Fonts

4.1. Korean DECwindows Fonts

DECwindows Motif provides the following Korean DECwindows fonts in various sizes and typefaces for 75 dpi (dot-per-inch) display devices:

Table 4-1. Korean screen fonts

Typeface	Glyph Size	Bounding Box	Remarks
Screen	15 x 16	16 x 18	Mandatory font
	22 x 22	24 x 24	Mandatory font
Myungcho	15 x 16	16 x 16	Optional font
	22 x 22	24 x 24	Optional font
	30 x 30	32 x 32	Optional font
Gotic	15 x 16	16 x 16	Optional font
	22 x 22	24 x 24	Optional font

In addition to these Korean fonts, several miscellaneous fonts are also provided for use in Hangul DECterm and toolkit.

No 100 dpi Korean fonts are provided in the kit. To allow you to use the Korean fonts on 100 dpi display devices, a font alias file is provided to map the 75 dpi font names to the respective 100 dpi font names.

4.2. XLFD Font Names

You have to specify the DECwindows font names in X Logical Font Description (XLFD) format in your application programs or in the application resource files. You can specify wildcards (*) for any fields in the font names.

You can use the following font names for both 75 dpi or 100 dpi display devices. If you want to state explicitly the display resolution, you can specify "75" and "100" in the X- and Y-resolution fields, i.e. the second and third asterisks in the following XLFD names:

- **Screen family:**

-ADECW-Screen-Medium-R-Normal--*-180-*-*M-160-KSC5601.1987-1
 -ADECW-Screen-Medium-R-Normal--*-240-*-*M-240-KSC5601.1987-1

- **Myungcho family:**

-ADECW-Myungcho-Medium-R-Normal--*-160-*-*M-160-KSC5601.1987-1
 -ADECW-Myungcho-Medium-R-Normal--*-240-*-*M-240-KSC5601.1987-1
 -ADECW-Myungcho-Medium-R-Normal--*-320-*-*M-320-KSC5601.1987-1

- **Gotic family:**

-ADECW-Gotic-Medium-R-Normal--*-160-*-*M-160-KSC5601.1987-1
 -ADECW-Gotic-Medium-R-Normal--*-240-*-*M-240-KSC5601.1987-1

The following table shows the XLFD font names and associated character sets for miscellaneous Korean screen fonts.

Table 4-2. XLFD of Miscellaneous Korean screen fonts

XLFD Font Name	Character Set
-ADECW-Screen-Medium-R-Normal--*-180-*-*M-80-ISO8859-1	ISO Latin-1
-ADECW-Screen-Medium-R-Normal--*-180-*-*M-80-DEC-DECctrl	DEC Display Control
-ADECW-Screen-Medium-R-Normal--*-180-*-*M-80-DEC-DECsuppl	DEC Supplemental
-ADECW-Screen-Medium-R-Normal--*-180-*-*M-80-DEC-DECtech	DEC Technical
-ADECW-Screen-Medium-R-Normal--*-180-*-*M-80-KS-Roman	KS Roman
-ADECW-Screen-Medium-R-Normal--*-240-*-*M-120-ISO8859-1	ISO Latin-1
-ADECW-Screen-Medium-R-Normal--*-240-*-*M-120-DEC-DECctrl	DEC Display Control
-ADECW-Screen-Medium-R-Normal--*-240-*-*M-120-DEC-DECsuppl	DEC Supplemental
-ADECW-Screen-Medium-R-Normal--*-240-*-*M-120-DEC-DECtech	DEC Technical
-ADECW-Screen-Medium-R-Normal--*-240-*-*M-120-KS-Roman	KS Roman

4.3. Bitmap Font Samples

Figures 4-1 and 4-2 illustrate samples of the two families of Korean fonts.

Figure 4-1. Myungcho font sample

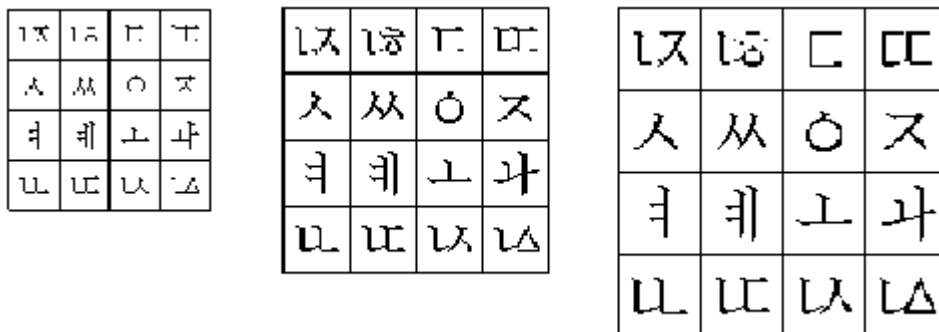
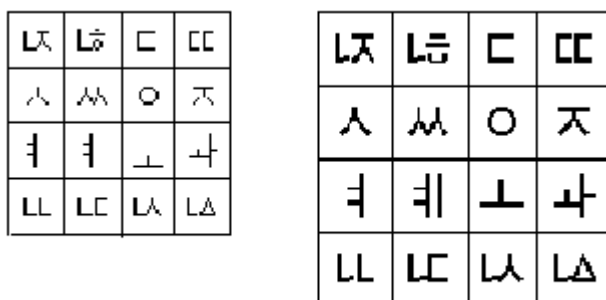


Figure 4-2. Gothic font sample



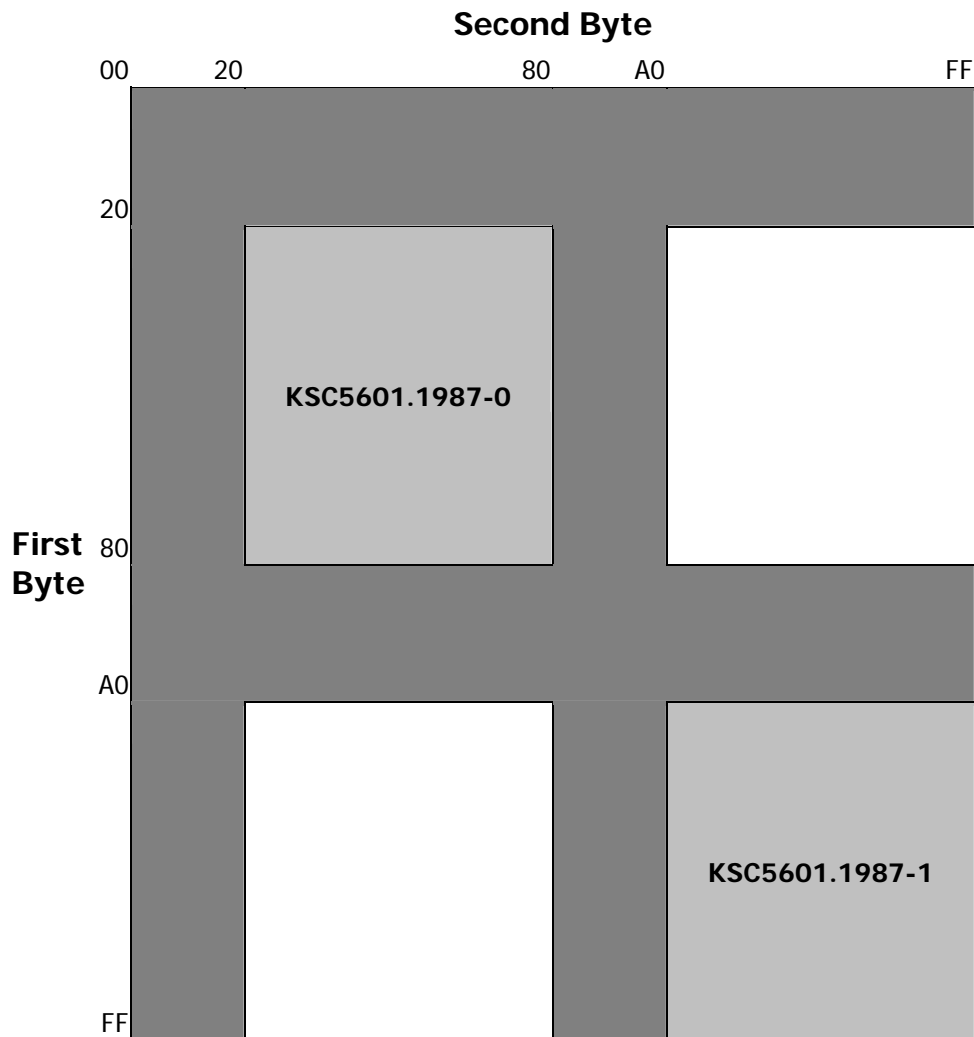
4.4. DECwindows Font Encoding

The X Window System defines two encodings for the KS C 5601 character set:

Table 4-3. Korean DECwindows font encoding

Encoding	Character Set Registry
GL	KSC5601.1987-0
GR	KSC5601.1987-1

Figure 4-3. Korean font encoding schemes



Different vendors may adopt different encoding schemes to produce their fonts. The Korean DECwindows fonts supplied by DECwindows Motif are in GR encoding.

To allow you to run applications on third-party workstations on which only GL encoded fonts are installed, the DECwindows Motif implementation of the X Window System Release 6 (X11R6) Xlib supports the conversion of GR encoding to GL encoding for text drawing and measurement.

Table 4-4. Font encoding conversion

From	To
ksc5601.1987-1	ksc5601.1987-0

For details, see *DECwindows Motif Internationalization Guide*.

4.5. Specifying Fonts in DECwindows Applications

The following is the default font list used in Motif Toolkit:

Table 4-5. Korean default font list

XLFD Font Name	Character Set
-ADECW-Screen-MEDIUM-R-Normal--*-180-*-* M-80-ISO8859-1	ISO8859-1
-ADECW-Screen-MEDIUM-R-Normal--*-180-*-* M-160-KSC5601.1987-1	KSC5601.1987-1
-ADECW-Screen-Medium-R-Normal--*-180-*-* *_*_*	Fontset

To override the default font list of a Korean DECwindows application, you should specify both the ISO Latin-1 and Korean fonts as well as the Korean fontset when creating widget instances. For details, see *DECwindows Motif Internationalization Guide*.

5. Keyboards

5.1. Supported Keyboard Types

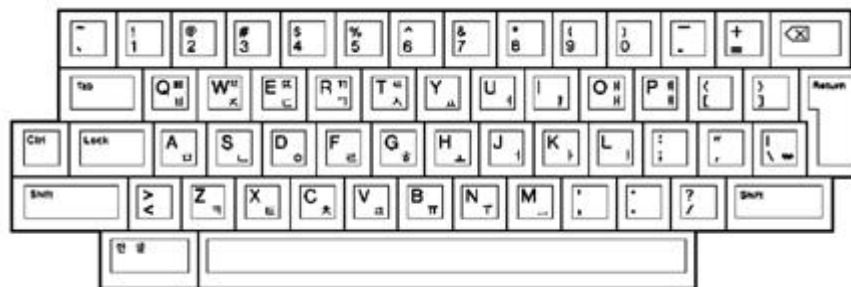
DECwindows Motif supports the following Korean keyboard types:

- LK201-K
- LK401-K

5.2. Keyboard Layout

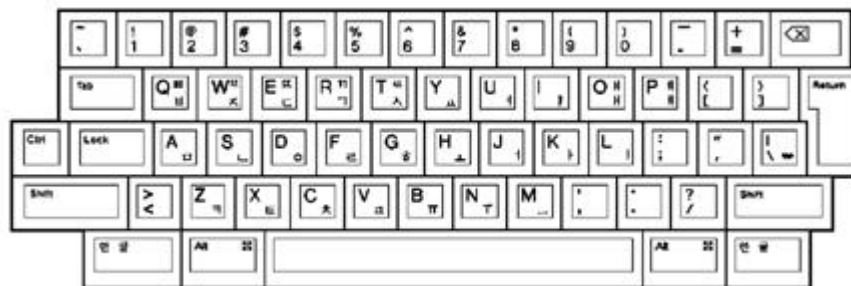
The following figures illustrate the layouts of the Korean keyboards supported by DECwindows Motif:

Figure 5-1. LK201-K keyboard layout



Required Keymap: us_lk201re

Figure 5-2. LK401-K keyboard layout



Required Keymap: us_lk401re

6. Korean Input Methods

This chapter introduces the following input methods for entering Korean characters:

- Hangul
- Hanja
- Row-Column Code
- Phrase

In addition, it also describes:

- How to activate, deactivate and customize the Korean input methods.
- How to switch between input methods.
- How to work with input methods under the DECwindows Motif interface.

6.1. Activating Korean Input Methods

You must activate a Korean input method for response to the requirements of applications that are internationalized for the Korean language. This section describes the steps you follow to activate a Korean input method.

6.1.1. Input Server

Input methods are implemented by the DECW\$IM input server. The DECW\$IM input server is an X client process that runs on a standard X server. This means that the DECW\$IM input server can run on any system that can access your X display device.

The DECW\$IM input server provides input method services to the R6 X library (Xlib) supported by DECwindows Motif. You can write internationalized applications using the standard R6 application programming interface and communicate with the input server.

The DECW\$IM input server is a multilingual input server because it gives you the means to use and manage input methods for Simplified Chinese, Traditional Chinese and Japanese, as well as Korean. This manual focuses on the Korean input methods.

6.1.2. Starting Input Server

The DECW\$IM input server requires that you perform the following prerequisite steps:

- Set the current locale to Korean.
- Stop any other input server process running on the system.
- Set the pre-editing style, or interaction style, as described in [Section 6.3.2](#).

There are several ways to start the DECW\$IM input server:

- Automatic Startup

If the Korean language is selected on the CDE login menu, the DECW\$IM input server starts automatically by default. When you log in, the following command procedure runs:

```
CDE$SYSTEM_DEFAULTS: [CONFIG.XSESSION_
D]0020IMS_START.COM
```

The value of the DTSTARTIMS symbol determines whether the command procedure will automatically start the input server.

- Using a Command

If you want to start the DECW\$IM input server by hand, enter the following command:

```
$ SPAWN/NOWAIT/INPUT=_NL: MC DECW$IM
```

If you want to start DECW\$IM from a remote system, log in to the remote system and enter the following command:

```
$ SET DISPLAY/CREATE/NODE=<display-  
name>  
$ SPAWN/NOWAIT/INPUT=_NL: MC DECW$IM
```

In the <display-name> field, enter the display name for your workstation.

After you activate an input method, applications that have been internationalized to support that input method can communicate with the input server to obtain input method services. You must start these applications after the input server starts.

Note

Applications that are started before the input server cannot connect to it. However, if the application contains an `XmText` or `XmTextField` widget with the `reconnectable` resource set to `True`, the application is able to establish a connection with the input server if the application starts before the input server or when the application is running and the input server stops and restarts. For more information, see `XmText(3X)` and `XmTextField(3X)`.

6.1.3. Input Server Window

The DECW\$IM input server window provides an options menu, including the Class/Input Method Customization menu item. If you select Class/Input Method Customization, it displays the Customize Class dialog box. The Customize Class dialog box and its sub-dialog boxes are described in [Section 6.5](#).

The title bar of the input server window is used to indicate the current state of the input server as described in [Section 6.4](#).

6.2. Switching Input Method

By default, a client application starts in the English language input mode. If the DEW\$IM input server is

active on your system, use the [Ctrl/Space] key sequence to shift from English input mode to non-English input mode. When you use [Ctrl/Space] to shift to non-English mode, keyboard character input is transmitted to DEW\$IM, which converts the input using a selected input method and transmits the converted input to the client application.

To select the Korean input method under DEW\$IM, use the appropriate key sequence from Table 6-1. First, press the invocation key for the input method class ([Ctrl/Shift/F8] for Korean), and then an input method invocation key (any of [F5] through [F8]). Keep in mind that you do not repeat the invocation key for the input method class if you are switching input methods within that class. For example, use the [Shift/F6][F5] key sequence to invoke the Hangeul input method under Korean, but to switch from Hangeul to Phrase within Korean, use only [F8].

Table 6-1. Key Sequences for Invoking Korean Input Methods

Input Method Class Input Method Default Key Sequence

Korean		[Ctrl/Shift/F8]
	Hangeul	[F5]
	Hanja	[F6]
	Row-Column	[F7]
	Phrase	[F8]

The key sequences in this section can be customized by means of the Customize Input Method dialog box.

6.3. Motif Interface for Input Methods

You can interact with the DEW\$IM input server through a Motif-style user interface. This interface allows an input method to provide feedback about the data being edited to compose a character, list choices for selection, provide options for customizing the input server, and so on.

6.3.1. Input Areas

The X Input Method specification defines the three input areas shown in the following table:

Table 6-2. Window Input Areas

Area	Description
Auxiliary area	An option menu that helps you customize the input methods and the input method window.
Status area	Displays critical information about the internal state of the input methods.
Pre-edit area	Displays the intermediate text that is being composed. Also displays a list of valid candidates for the input key sequences.

6.3.2. Interaction Styles

The use of the input areas depends on the interaction style (or pre-edit style) selected for the application. The Korean input server supports four interaction styles:

- Root Window
- Off-the-Spot
- On-the-Spot
- Over-the-Spot

You can specify the priority of the interaction styles of DECwindows Motif applications by using the `VendorShell` resource, `XmNpreeditType`. By default, the resource value is set to:

```
"overthespot,offthespot,root,onthespot"
```

This list is in priority order. The first style in the list is used in an input method. If that style is not available, the second is used, and so on.

To set a preferred interaction style, you can do one of the following:

- Use the Style Manager's Keyboard control in the CDE session. Click on the Style Manager Keyboard control, then click on the Input Methods button in the Style Manager Keyboard dialog box,

and then click on one of the pre-edit styles in the Input Methods dialog box.

- Use the Session Manager's Options menu in the DECwindows session. From the Session Manager's Options menu, select the Input Method... item, and then click on one of the pre-edit styles in the Input Method Options dialog box.

The `XmNpreeditType` resource is set to a priority list beginning with the pre-edit style that you have chosen. After that, the applications you invoke start up with the new setting.

Note

Some applications, such as DECterm, may provide their own user-interface to handle interaction styles. Those mechanisms may override the methods described here.

6.3.2.1. Root Window

You can choose the Root Window interaction style if you want to display the pre-edit data in a separate window from the application window.

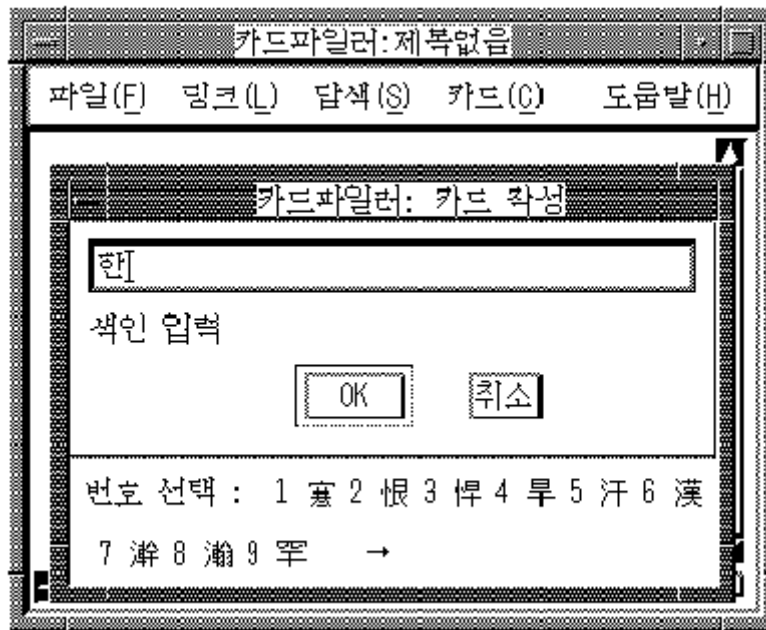
Figure 6-1. Root Window Interaction Style



6.3.2.2. Off-The-Spot

If you want to display the pre-edit data in a fixed location of the application window, you can choose the Off-the-Spot interaction style. With this interaction style, the input server creates the input area at the bottom of the application window.

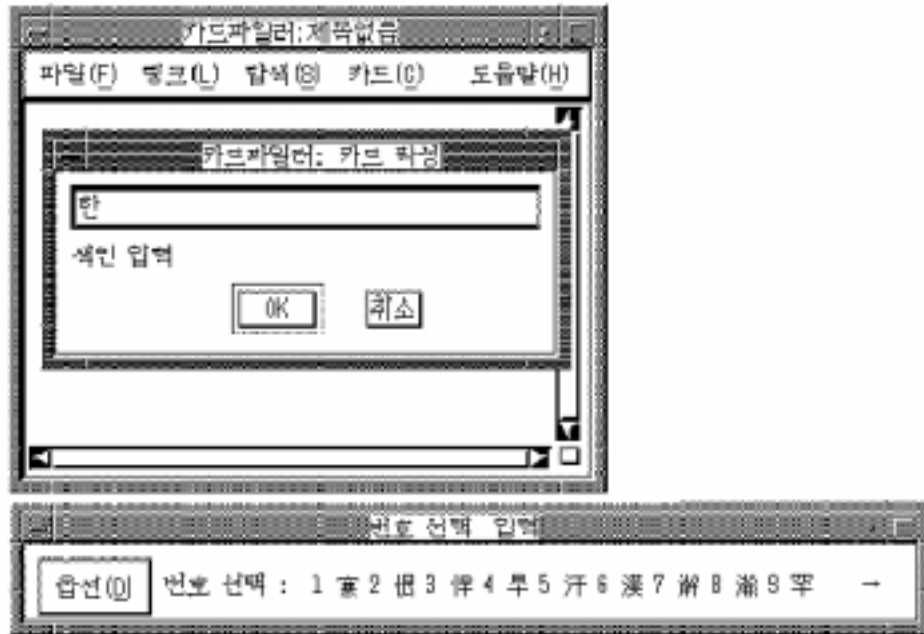
Figure 6-2. Off-the-Spot Interaction Style



6.3.2.3. On-The-Spot

If you want to focus your attention at the point of insertion during Korean data input, you can choose the On-the-Spot interaction style. In this style, the input server directs your applications to display the pre-edit data in a way which is consistent with the appearance of the existing data in the input field. For instance, an application can select the font size and typeface to display the pre-edit data and control how the data is highlighted. You can also format existing data to allow the pre-edit data to be displayed at the insertion point.

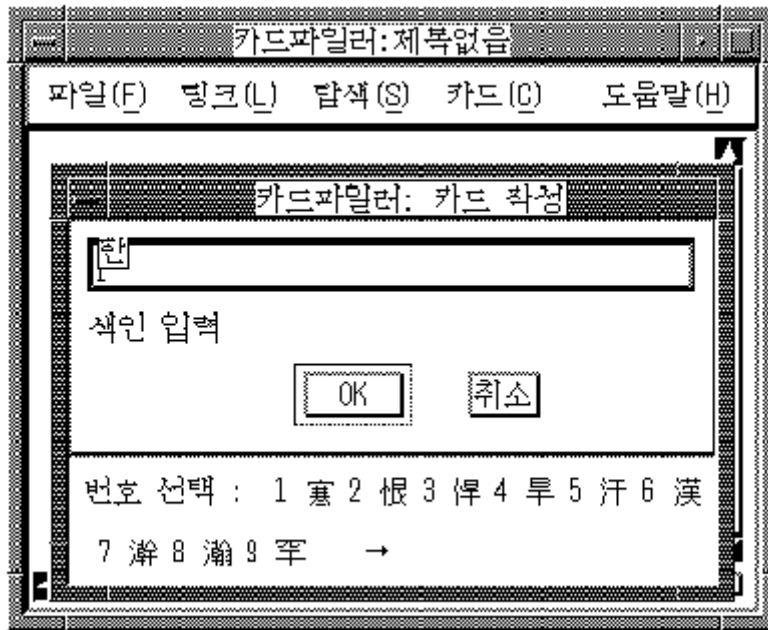
Figure 6-3. On-the-Spot Interaction Style



6.3.2.4. Over-The-Spot

The Over-the-Spot interaction style allows you to perform Korean data input at the point of insertion. In this style, an input window is created when you invoke the Korean input mode; the window is placed over the current point of insertion. The pre-edit data entered is displayed in this window. The look and feel is similar to that of the On-the-Spot style, except that applications do not control the display attributes of the pre-edit data and no formatting is performed to accommodate the pre-edit. Therefore, there is less communication overhead between the input server and the applications. The performance of data entry through the Over-the-Spot interaction style is better.

Figure 6-4. Over-the-Spot Interaction Style



6.4. Operations of Input Server

When you start the input server, no application is connected to it and the string "No Connection" is displayed in the title bar to indicate the state.

When an internationalized application is started in a Korean locale and gets focused, the string " : " is displayed in the status area to indicate that the application is connected to the input server and the input mode is English. If you invoke a Korean input method, the input state displayed in the status area is updated accordingly. If you shift the input focus to a non-internationalized application window, the title of the input server window changes to "No Connection" again.

The input server can maintain multiple input states for each input context or application window. Thus, when you shift the input focus to an application window, the input server restores the previous input state for that application window. For example, if you are using an application window under the Hangul input method, then shift the input focus to another application window under the Row-Column input method, when you bring the

previous window back in focus, the Hangul input method will be active.

6.5. Customizing Input Server

The input server has different levels and different methods of customization. The input server window provides an options menu containing the following selections:

- Class/Input Method Customization that displays a dialog box for customizing input methods
- Help that displays online help for the DECW\$IM input server
- Save Current Settings that saves values for use by the DECW\$IM input server
- Exit

If you select Class/Input Method Customization, it displays the Customize Class dialog box. The Customize Class dialog box has further sub-dialog boxes. This series of dialog boxes enables you to do the following:

- Select a class of input methods that is appropriate to the locale of the client application. For a Korean locale, select and activate the Korean class.
- Select and activate one or more input methods within a class. The DECW\$IM input server supports multiple input methods for Korean.
- Establish an input method class as the default.
- Establish an input method as the default for its class.
- Customize key sequences used to invoke input methods.
- Customize error bell volume.

Changes you make to the DECW\$IM input server settings are written to the `DECW$IM.DAT` file in your login directory.

Systemwide default settings for the DECW\$IM input server are stored in the resource file, `DECW$SYSTEM_DEFAULTS:DECW$IM.DAT`, and in the configuration file, `DECW$SYSCOMMON:[DECW$DEFAULTS.SYSTEM.XIM]DECW$IM_MODULES.CONF`. The system administrator can modify these files to make systemwide changes.

6.5.1. Customizing Input Method Class

If you select Class/Input Method Customization from the input server window's options menu, it displays the Customize Class dialog box. The Customize Class dialog box enables you to activate, deactivate, and customize the Korean input method class (as well as the other input method classes). The following table briefly describes each of the Customize Class dialog box selections. For a full description of the dialog box selections, see the input server online help.

Table 6-3. Customize Class Selections

Selection	Description
Active Class	Displays the input method classes that are currently active on the system. Select one or more of these classes to customize or delete.
Invocation Key	Displays the key sequence used to invoke the selected input method class. Use the checkboxes under the display to change the invocation key.
Bell Volume Slider	A bell rings when an error is made during character composition. Drag the slider to adjust the volume of the bell.
Options pull-down menu	Select "Get System Defaults" to reset the Customize Class dialog box.
Add...	Opens a dialog box that allows you to select and activate a currently inactive input method class.
Delete	Deactivates a selected input method class. The class and its methods are made inactive and not available to applications.
Customize...	Opens a dialog box that allows you to activate, deactivate and customize the input method modules associated with a selected input method class. The Customize Input Method dialog box selections are similar to the Customize Class dialog box selections described in this table.

Set Default	Establishes the selected input method class as the default.
OK	Saves the customizations to become effective the next time you start the input server. Closes the dialog box.
Apply	Same as OK, except that the dialog box does not close.
Cancel	Closes the dialog box without making any changes.
Help	Displays help on this dialog box.

6.5.2. Customizing Input Method Module

If you click on the Customize button in the Customize Class dialog box, the Customize Input Method dialog box is displayed. The following table briefly describes each of the Customize Input Method dialog box selections. For a full description of the dialog box selections, see the input server online help.

Table 6-4. Customize Input Method Selections

Selection	Description
Active IM	Displays the input method modules that are currently active on the system. Select one or more of these input methods to customize or delete.
Invocation Key	Displays the key sequence used to invoke the selected input method module. Use the checkboxes under the display to change the invocation key.
Options pull-down menu	Select "Get System Defaults" to reset the Customize Input Method dialog box.
Add...	Opens a dialog box that allows you to select and activate a currently inactive input method module.
Delete	Deactivates a selected input method module. The method is made inactive and not available to applications.
Customize...	Opens a dialog box to change settings depending on the selected input method.

Set Default	Establishes the selected input method module as the default.
OK	Saves the customizations to become effective the next time you start the input server. Closes the dialog box.
Apply	Same as OK, except that the dialog box does not close.
Cancel	Closes the dialog box without making any changes.
Help	Displays help on this dialog box.

6.6. Hanguk Input Method

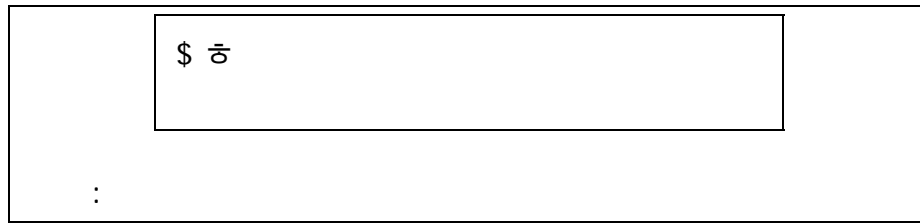
Hanguk characters are the most commonly used characters in Korea today. Each Hanguk character represents one syllable. It is made up of a number of phonetic symbols called "Jamo". Altogether, there are 22 Jamo symbols for composing Hanguk characters and they can be entered through the keys on the main keyboard, as illustrated in [Chapter 5](#).

The input sequence of Jamo symbols should follow that of the pronounced syllables. The first Jamo input should always be a consonant. To enter a Hanguk character, invoke the Hanguk input method by pressing the respective key sequence and then enter the phonemes of the desired Hanguk character.

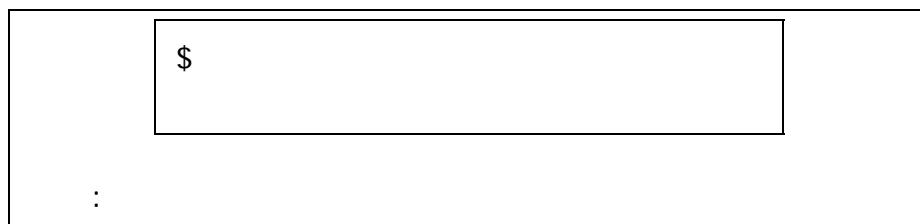
For example, the string " " can be input using the Hanguk method as follows:

Hanguk Character	Key Sequence	Composition
	[G][K][S]	ㅎ, ,
	[R][M][F]	ㄱ, ,

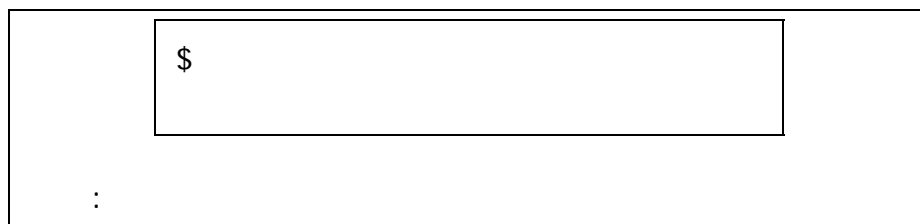
To enter these characters, invoke the Hanguk input method and then press [G] to enter the element "ㅎ" for " ".



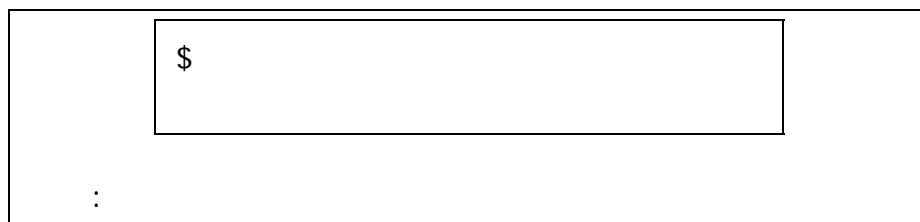
When you press [K] to enter the element "ㅏ", the element is composed with "ㅎ" to form "ㅑ".



When you press [S] to enter the element "ㄴ", the element is composed with " " to form " ".



To enter "ㅓ", press the elements [R][M][F].



6.7. Hanja Input Method

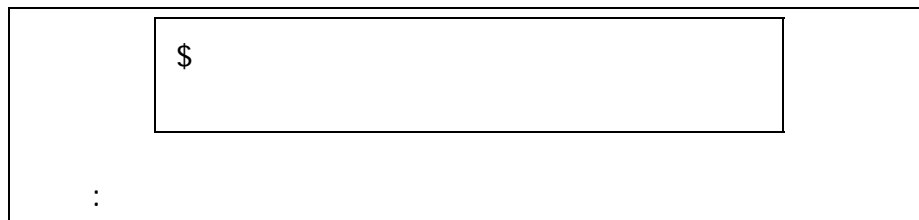
The word "Hanja" is equivalent to "Chinese Character". To enter Hanja characters, you should first enter the corresponding Hangul characters which represent their pronunciation and then convert them to Hanja characters.

To enter a Hanja character, invoke the Hangeul input method and enter the Hangeul character that represents its pronunciation. Before sending the character to the application, press the respective key sequence to invoke the Hanja input method. A list of Hanja characters corresponding to the pronunciation is displayed in the pre-edit area for selection. To select the desired character, press the numeric key associated with the character on the main keyboard.

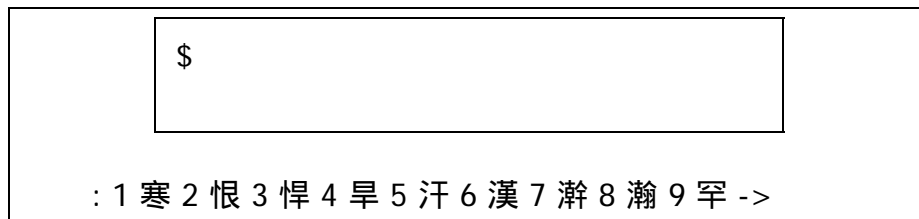
For example, the string "韓國" can be input using the Hanja input method as follows:

Hanja	Pronunciation	Key Sequence	Composition
韓		[G][K][S]	ㅎ, ,
國		[R][N][R]	ㄱ, ,

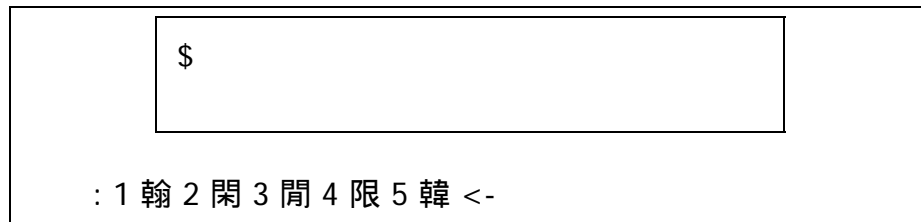
To enter the Hanja character "韓", invoke the Hangeul input method and enter the corresponding Hangeul character " " by pressing [G][K][S].



Then, invoke the Hanja mode.

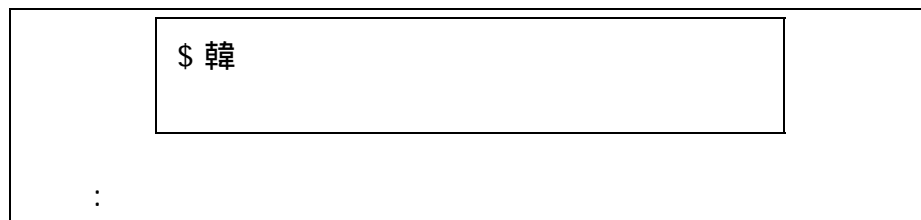


The right arrow sign (->) indicates that more candidates are available for selection. To view the candidates on the next row, press [Space] or the right arrow key.



To move backward, press [Alt/Space] or the left arrow key.

To select the character you want, press the numeric key associated with the character. In this example, while displaying the second group of candidates, press [5].



Similarly, you can press [R][N][R] to compose " " and then invoke the Hanja input method to convert " " to " 國".

After you complete the input of a character, the Hanja input mode exits and returns to the previous input mode.

6.8. Row-Column Input Method

As described in [Chapter 1](#), each character in the KS C 5601 character set is assigned a position in the character plane and can be uniquely identified by this position. You can enter Korean characters by specifying the row number and the column number of the desired character.

When the Row-Column mode is invoked, the string " " is displayed in the status area. You can enter a row-column code through the keyboard and your keystrokes are echoed in the pre-edit area. Only the numeric keys are valid for the Row-Column input method.

The data can be in the following format where XX is the row number and YY is the column number:

Types of format	Format	Example	Remark
4-Digit	XXYY	0263	KS Code
5-Digit	0XXYY	00263	KS Code
5-Digit	1XXYY	10263	DEC Extension

The Korean character is sent to the application after you enter a valid four-digit or five-digit code and press [Return] or [Enter].

For example, the row-column code of " " is 3949. To enter this character using the Row-Column input method, invoke the input method, then press [3][9][4][9] and [Return].

Alternatively, if you enter a two-digit row number and then press [Enter] or [Return], a list of characters assigned to that row is displayed. You can choose the character that you want from the list of candidates.

6.9. Phrase Input Method

The Phrase input method allows you to define a database of frequently used phrases and store that database in a user or systemwide directory.

You associate each of the phrases in the phrase database with a unique phrase code. The phrase code can be any

alphabetic label. The associated phrase can be any string of characters that is appropriate to the application's locale. You create the phrase database as a simple text file containing phrase codes and phrases and store it in a user directory or a system directory on a path that is locale dependent.

For example, if you create a phrase database file for use with applications running in the ko_KR.deckorean locale, you copy the file to one of the following directories:

- For a systemwide database file that will be used with Korean applications using the DEC Korean codeset, copy the phrase database to
`DECW$COMMON:[DECW$DEFAULTS.SYSTEM.XIM.KO_KR_DEC KOREAN]PHRASE_DATA.TXT.`
- For a personal database file that will be used with Korean applications using the DEC Korean codeset, copy the phrase database to `PHRASE_DATA.TXT` in the
`[.DECW$IM.KO_KR_DECKOREAN]` subdirectory of your login directory.

Use the following rules when populating the phrase database:

- Use a text editor to create and populate the Phrase input method database files.
- Enter the phrase code and its associated phrase on the same line. Separate the code and phrase with spaces. However, the phrase code itself cannot contain spaces. The associated phrase can contain spaces, but not in the first or last character position.
- A phrase code consists of alphanumeric characters and underscores. The associated phrase can contain any character that is legal in the target locale.

To invoke the Phrase input method, you must use the `DECW$IM` input server to activate the input method and use the default key sequence (or an invocation key sequence that you have defined). For example, if the Phrase input method is active and the client application locale supports it, press the default invocation key, `[F8]`, or a redefined invocation key to invoke the Phrase input method.

When you use the Phrase input method and enter a phrase code as input to the application, the input server searches your personal database file, if it exists, and the systemwide database file along the locale-dependent path. If the input server finds the same phrase code in both databases, it uses the definition in your personal database.

When you enter a phrase code, it appears in the pre-edit area. To correct erroneous input, use the [Delete] key and re-enter the code. Press the [Space] or [Return] key to signal the end of phrase code input.

If you enter an incorrect code, the error bell rings. The message, "Requested phrase does not exist", may also display. To correct the problem, make sure that the phrase is in the database file and that the file path and application locale are consistent.

7. Other Korean Features

7.1. Hangeul DECterm

Hangeul DECterm is a VT382-K terminal emulator. This section describes the Korean features which are specific to Hangeul DECterm. For the details about the common internationalized features provided by DECterm, see *DECwindows Motif Internationalization Guide*.

This chapter describes the Hangeul DECterm in the following areas:

- How to create a Hangeul DECterm
- Terminal emulator features
- Korean character input/output
- Other VT382-K functionalities

7.1.1. Creating Hangeul DECterm

The terminal type that DECterm will emulate is sensitive to the session language.

To create a Hangeul DECterm through Session Manager, you can set the session language to one of the Korean locales, and then select DECterm from the Applications menu of Session Manager.

The user interface language of Hangeul DECterm always follows the terminal type. The language is independent of the language selection.

7.1.2. Customizing DECterm

You may apply to your Hangeul DECterm windows any of the customization features that are currently applicable to the ISO Latin-1 DECterm window except for the customization of the NRCS character sets.

Customized features can be saved and restored in the same way as in ISO Latin-1 DECterm.

7.1.3. Font Sizes

You can choose the 24x24 or 16x18 Korean fonts by selecting Big Font or Little Font from the Window... item of the Options menu selection box.

7.1.4. Terminal ID

Choosing the General... item from the Options menu allows you to change the general features, such as the terminal type, for the Hangul DECterm from the dialog box displayed. You can also choose VT382 ID from the dialog box.

7.1.5. Interaction Style

Choosing the Input Method... item from the Options menu allows you to select the interaction style for Hangul DECterm. For example, to select the Root Window interaction style, click on the Root Window button and then apply the change. If you click on the ISO Latin-1 Input button, Hangul DECterm disables the input of Korean data until another style is selected.

7.1.6. Input Server

Choosing the Input Method... item from the Options menu allows you to switch to use another input server for Hangul DECterm. By default, the `DECW$IM` input server is used. To select another input server, click on the Other button and enter the input server name in the input field.

7.1.7. Copying Information

You can use the Edit menu to copy information within or between DECterm windows. The cut-and-paste operation is enhanced to handle mixed ASCII and Korean characters.

7.1.8. Default Character Set

Korean DECterm supports KS C 5601 and all character sets supported by the ISO Latin-1 DECterm.

ISO Latin-1 DECterm uses the ISO 8859-1 character set as the default character set. You can change the default

by choosing other options from the General... pull-down menu on the Options menu. For Hangul DECterm, the default character set is KS C 5601.

In general, Hangul DECterm cannot display mixed MCS (or ISO Latin-1 Supplemental Graphic Characters) and Hangul characters. To achieve this function, you can output the data together with the designated character set escape sequences.

7.1.9. Korean Character Input/Output

You can enter Korean characters in Hangul DECterm by invoking any of the Korean input modes as described in Chapter 6. Mixed ASCII and Korean characters can be displayed properly in Hangul DECterm without any special settings.

7.1.10. Reconnecting Input Server

The `DECW$IM` input server provides the Hangul character input capability. If this process does not exist or terminates for some reason, the following message is displayed:

```
Hangul input method does not exist
```

You can restart the input server and use the Reset Terminal option from the Commands menu to reconnect the Hangul DECterm to the input server.

7.1.11. Other VT382-K Functionalities

The following VT382-K functionality is implemented in the Hangul DECterm terminal emulator:

- Display characteristics and capabilities
- Text capabilities
 - Compatibility with 3 terminals:
 - VT300 mode
 - VT100 mode
 - VT52 mode
 - ANSI-compatible control functions
 - Support for Terminal State Interrogation (TSI)
 - All of the Korean input methods

- Support for the following character sets:
 - DEC Special Graphics Character Set (line drawing)
 - DEC Supplemental Character Set
 - DEC Technical Character Set
 - ISO Latin-1 Supplemental Character Set
 - KS Roman
 - KS C 5601 Korean Character Set
- Control Representation mode
- Support for sixel graphics
- UDK editing function
- Korean character display attributes: reverse, underline, bold, blink, double height/width

For details about the VT382-K functions, see the *VT382-K Programming Reference Manual* and the *VT382-K User's Manual*.