Configuring Support for Non-English Characters and Non-standard Fonts

Snowbound Software Corporation
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Contents

Tables

Configuring Support for Non-English Characters and Non-standard Fonts

This document explains how to identify and resolve font configuration issues for AFP, PDF and Word documents on Windows and Linux systems.

You may encounter documents that contain non-English or non-ASCII characters that do not view or convert all of those characters properly. This may show up as:

- Characters without diacritics (accents)
- Overlapping characters because they are spaced differently from the original
- Widely spaced characters
- Characters being displayed as rectangular boxes

These behaviors are usually due to font configuration issues. Snowbound Software’s RasterMaster Imaging SDK and VirtualViewer will use the fonts available on the system if the fonts are not embedded in the document. If the font is not available on the system, RasterMaster Imaging SDK and VirtualViewer will make a best effort to find the closest available font. When a substitute font is used, then the issues above may appear.

In the past, many documents would use embedded fonts to ensure that the document could be printed and viewed on systems other than those on which it was created. In recent times, some document creators have been moving away from embedding fonts which puts the burden on the end-user to ensure the fonts are available on his system. If the font specified in the document is not available on the system on which the document is processed, then a fallback font is used. If there is no fallback font that supports the character set, then you will see rectangles instead of characters.

Step 1: Identifying the Fonts

The first step is to find out what fonts you need to properly display the document. Look at the file and identify the places where the characters are not being displayed properly. Then, use the appropriate technique to get the name, type and size of the font.

Identifying AFP Fonts

If your document was created by IBM’s OnDemand, you can ask the document creator to provide you with the font definition files, as described here:

http://publib.boulder.ibm./Hcom/infocenter/cmod/v8r3m0/index.jsp?topic=/com.ibm.ondemand.mp.doc/ars1i071691.htm

Other AFP document creation tools may offer similar font definition features.

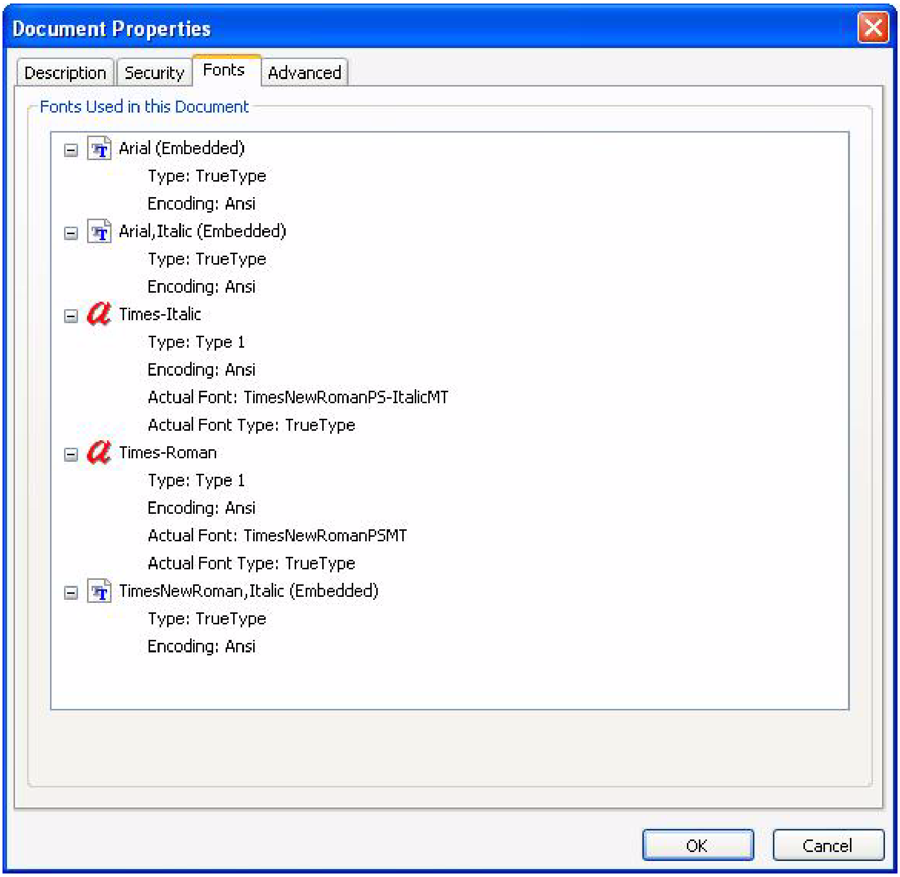
If you do not know the document's creator, you may be able to open the document using an EBCDIC editor and pick out the font names.

Identifying PDF Fonts

If you are having trouble seeing characters displayed in your PDF document, you can follow the steps below to identify the font being used in the PDF document:

1. Open up the PDF document in Adobe Acrobat.
2. From the main menu, select **File** > **Document Properties...**
   The Document Properties dialog box displays.
3. Select the **Fonts** tab.
4. Examine the list of fonts. Any font that does not have (embedded) next to it will need to be installed on the system.

Here is an example of the Document Properties dialog box for a PDF document that has embedded fonts:

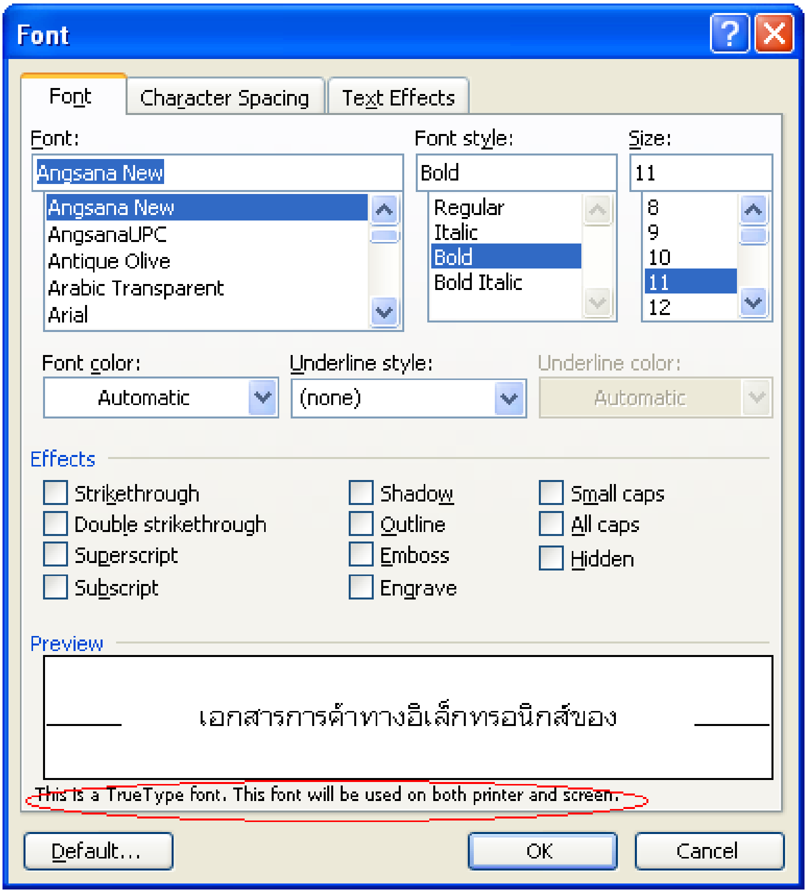


```
⊟ Arial (Embedded)
      Type: TrueType
      Encoding: Ansi
⊟ Arial,Italic (Embedded)
      Type: TrueType
      Encoding: Ansi
⊟ Times-Italic
      Type: Type 1
      Encoding: Ansi
      Actual Font: TimesNewRomanPS-ItalicMT
      Actual Font Type: TrueType
⊟ Times-Roman
      Type: Type 1
      Encoding: Ansi
      Actual Font: TimesNewRomanPSMT
      Actual Font Type: TrueType
⊟ TimesNewRoman,Italic (Embedded)
      Type: TrueType
      Encoding: Ansi
```

Identifying MS Word Fonts

If you are having trouble seeing characters displayed in your MS Word document, you can follow the steps below to identify the font being used in the MS Word document:

1. Open your MS Word document and select the text that is not being processed properly.
2. From the main menu in MS Word, select **Format > Font...**
   The Font dialog box displays.
3. In the Font dialog box, see the font, style and size currently being used.
4. Look carefully at the note at the bottom of the Font Properties dialog. If the font is installed, the bottom of the dialog box will display a message such as: “This is a TrueType font. This font will be used on both printer and screen.” Please see the following example of the Font Properties dialog box:



Font

Font: Angsana New

Font style: Bold

Size: 11

Font color: Automatic

Underline style: (none)

Underline color: Automatic

Effects

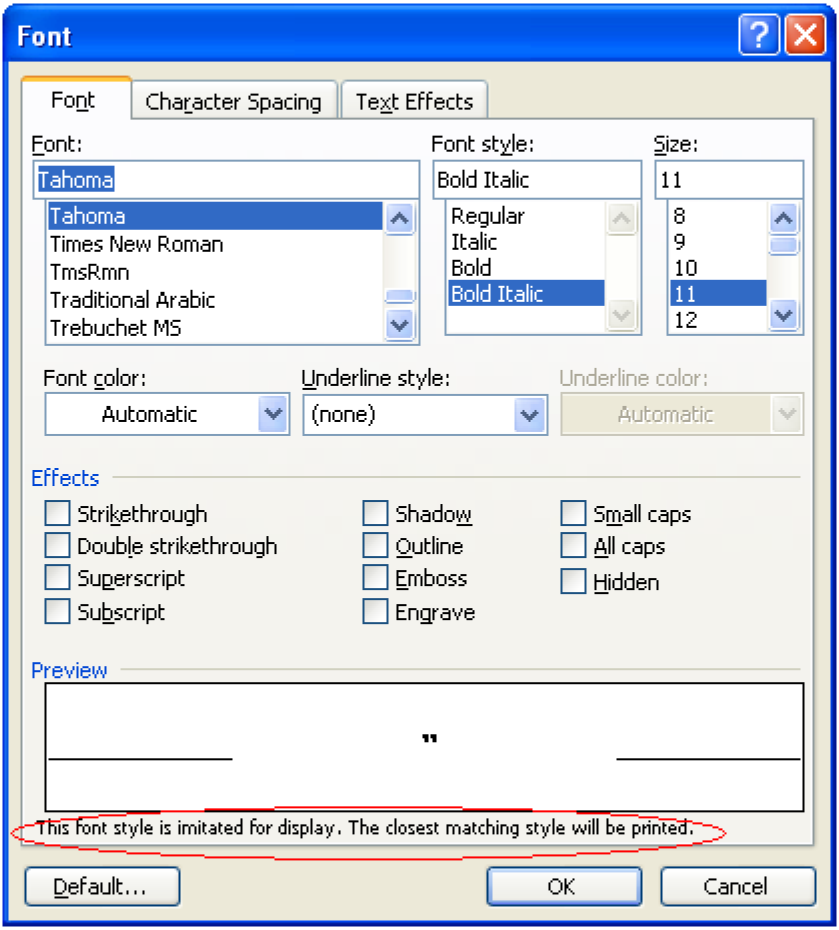
□ Strikethrough
□ Double strikethrough
□ Superscript
□ Subscript
□ Shadow
□ Outline
□ Emboss
□ Engrave
□ Small caps
□ All caps
□ Hidden

Preview

เอกสารการค้าทางอิเล็กทรอนิกส์ของ

This is a TrueType font. This font will be used on both printer and screen.

5. If the font is not installed, you will see that the font is being imitated as shown in the following example:



Font: Tahoma

Font style: Bold Italic

Size: 11

Font color: Automatic

Underline style: (none)

Underline color: Automatic

This font style is imitated for display. The closest matching style will be printed.

Embedding Fonts on Windows

The simplest way to make sure that you can view fonts in your Word document is to have the document creator embed the TrueType fonts into the document. Then, you will not have to install the font on every system where you want to view the document. This will only work for some TrueType fonts.

The document creator should follow these steps to embed the fonts in the document:

1. From the Word menu, selecting **Tools** > **Options** > **Save**.
2. Under the Save options, select the **Embed TrueType Fonts** checkbox.
   This will make the document size larger. However, the rendering will be more accurate on other Windows systems even if the font is not installed.

Step 2: Finding and Installing the Fonts on Your System

The best case scenario is that the fonts you need are already installed on your system. This section describes how to determine what fonts are installed on your Windows or Linux system.

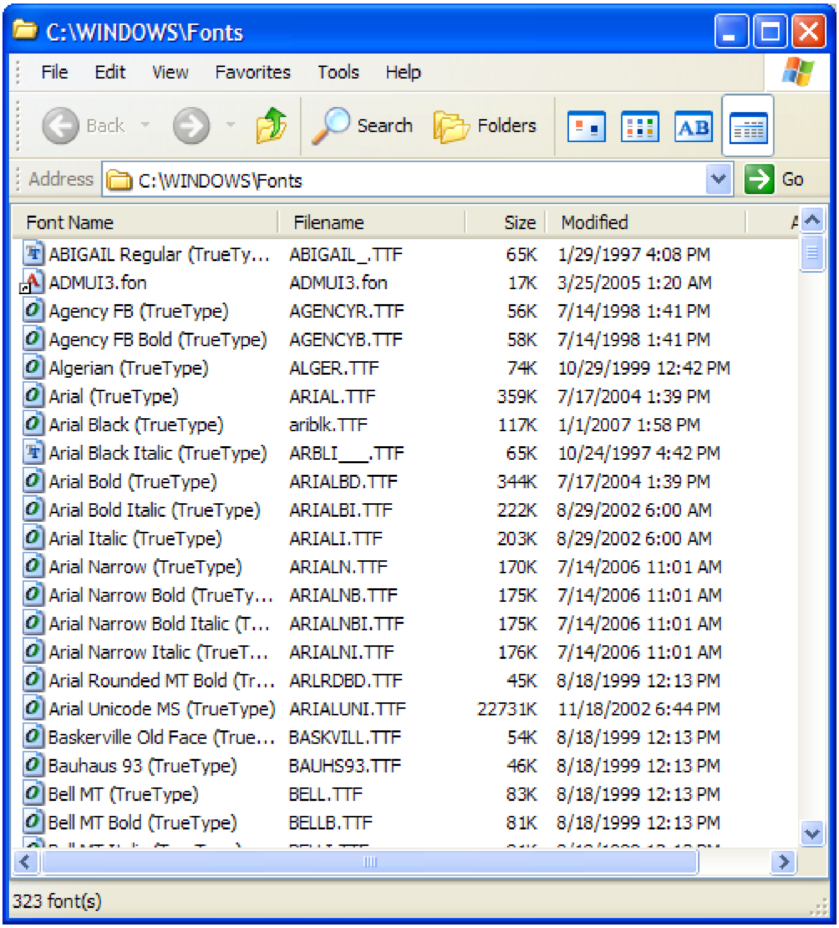
Windows

Listing the Available Fonts on Your Windows System

Windows provides a fonts program that will allow you to display the fonts available on your system.

Follow the steps below to run the fonts program:

1. From the Windows Start menu select **Run…**
2. Type **fonts** at the prompt. You should see all of the fonts available to RasterMaster Imaging SDK, VirtualViewer and other applications on your system as shown in the following example:



Address: C:\WINDOWS\Fonts

Font Name	Filename	Size	Modified
ABIGAIL Regular (TrueTy…	ABIGAIL_.TTF	65K	1/29/1997 4:08 PM
ADMUI3.fon	ADMUI3.fon	17K	3/25/2005 1:20 AM
Agency FB (TrueType)	AGENCYR.TTF	56K	7/14/1998 1:41 PM
Agency FB Bold (TrueType)	AGENCYB.TTF	58K	7/14/1998 1:41 PM
Algerian (TrueType)	ALGER.TTF	74K	10/29/1999 12:42 PM
Arial (TrueType)	ARIAL.TTF	359K	7/17/2004 1:39 PM
Arial Black (TrueType)	ariblk.TTF	117K	1/1/2007 1:58 PM
Arial Black Italic (TrueType)	ARBLI___.TTF	65K	10/24/1997 4:42 PM
Arial Bold (TrueType)	ARIALBD.TTF	344K	7/17/2004 1:39 PM
Arial Bold Italic (TrueType)	ARIALBI.TTF	222K	8/29/2002 6:00 AM
Arial Italic (TrueType)	ARIALI.TTF	203K	8/29/2002 6:00 AM
Arial Narrow (TrueType)	ARIALN.TTF	170K	7/14/2006 11:01 AM
Arial Narrow Bold (TrueTy…	ARIALNB.TTF	175K	7/14/2006 11:01 AM
Arial Narrow Bold Italic (T…	ARIALNBI.TTF	175K	7/14/2006 11:01 AM
Arial Narrow Italic (TrueT…	ARIALNI.TTF	176K	7/14/2006 11:01 AM
Arial Rounded MT Bold (Tr…	ARLRDBD.TTF	45K	8/18/1999 12:13 PM
Arial Unicode MS (TrueType)	ARIALUNI.TTF	22731K	11/18/2002 6:44 PM
Baskerville Old Face (True…	BASKVILL.TTF	54K	8/18/1999 12:13 PM
Bauhaus 93 (TrueType)	BAUHS93.TTF	46K	8/18/1999 12:13 PM
Bell MT (TrueType)	BELL.TTF	83K	8/18/1999 12:13 PM
Bell MT Bold (TrueType)	BELLB.TTF	81K	8/18/1999 12:13 PM

323 font(s)

If you do not see the font you need listed, then you need to obtain it and install it on your system to see the text in that font accurately. You can check with the document creator to see where they obtained the font or you can search on the font name on the Internet to find the vendor or a package that contains that font.

This Microsoft knowledgebase article describes how to install fonts:

http://support.microsoft.com/kb/314960

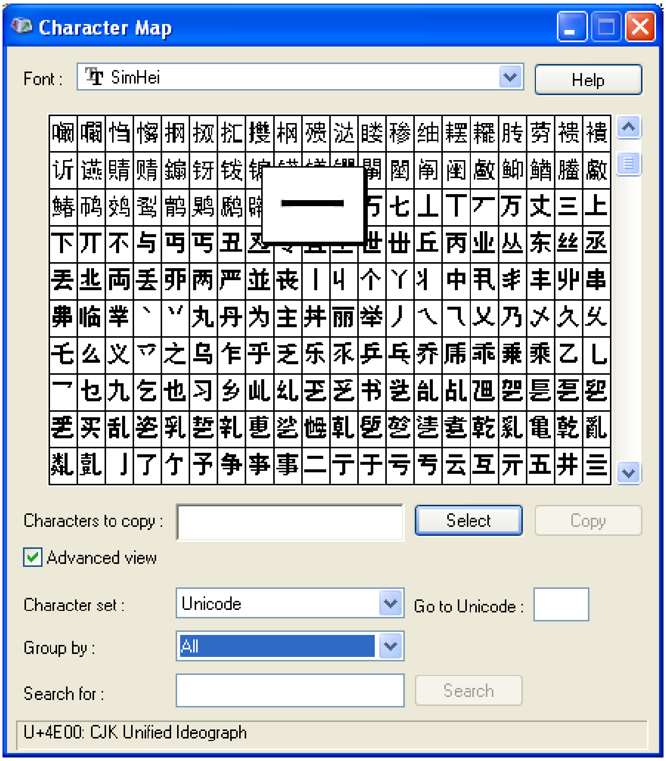
Ensuring the Font Supports Your Characters

You should ensure that the font you have selected will be able to display the characters in your document. Not all fonts support all character codes. You can use the Character Mapping tool in Windows to look at the representation of each character supported by that font.

To run this tool, follow the steps below:

1. From Windows, select **Start Menu** > **All Programs** > **Accessories** > **System Tools** > **Character Map.**
2. Select the font(s) you are considering and validate that the font contains representations for the characters your documents contain.

Please see the following example of the Character Map:



Font : SimHei

Characters to copy :

☑ Advanced view

Character set : Unicode

Go to Unicode :

Group by : All

Search for :

U+4E00: CJK Unified Ideograph

Unix/Linux

Here is a good article about fonts on Linux that explains why fonts on Linux are not straightforward and gives a good deal of practical information that you may find valuable:

http://avi.alkalay.net/linux./docs/font-howto/Font.html

Listing the Available Fonts on Your Unix/Linux System

You can use the fc-list command to list all or some of the available fonts on your system. A description of this command can be found here:

http://www.oreillynet.com/linux./cmd/cmd.csp?path=f/fc-list

If you do not see the font you need listed, then you will need to obtain and install that font. Please note that you may need separate fonts to properly display text with attributes like bold or Italic. Please see the section below "Finding the Fonts You Need if They Are Not Currently on Your System".

Finding the Fonts You Need if They Are Not Currently on Your System

You can check with the document creator to see where they obtained the font or you can search on the font name on the Internet to find the vendor or a package that contains that font. Some of these fonts can be found on the web free of charge. For example:

- Simplified Chinese fonts
  http://www.wazu.jp/gallery/Fonts_ChineseSimplified.html
- Traditional Chinese fonts
  http://www.wazu.jp/gallery/Fonts_ChineseTraditional.html
- Japanese fonts
  http://www.wazu.jp/gallery/Fonts_Japanese.html
- Korean fonts
  http://www.wazu.jp/gallery/Fonts_Korean.html

Intalling the Fonts You Need if They Are Not Currently on Your System

Installing the Fonts on Windows

If you need and acquire additional fonts, you can install them on your system using the fonts program mentioned in the"Listing the Available Fonts on Your Windows System" section, or you can refer to this article from Microsoft:

http://office.microsoft.com/en-us/help/HA010947421033.aspx

Installing the Fonts on Linux

After you have obtained the font files you may install them on your system using `FontConfig`.

http://www.fontconfig.org/wiki/

The link below describes how to install a TrueType font archive on a Unix system. The details may vary for different distributions

http://vietunicode.sourceforge.net/howto/fontlinux.html

Installing the Fonts on Java for both Windows and Linux

Once the font is installed on your system, you need to take some extra steps so that Java applications can see the font. You do this by adding the font to the Java Runtime Library's font configuration properties.

Your Java Runtime Environment (JRE) should come with a `fontconfig.properties.src` file. Please see the following example of the location:

```
<java home path>\lib\fontconfig.properties.src
```

Follow the steps below to edit the configuration file:

1. Make a back up of your default font configuration file. If you have a font configuration file, it is named `fontconfig.properties`.
2. Copy `fontconfig.properties.src` to `fontconfig.properties` to install the new default default configuration file.

You may want to read up on Java font configuration files before proceeding further. This document provides details on how to set up fonts for a variety of situations including tips for improving performance when you are supporting fonts with large character sets:

http://java.sun.com/j2se/1.5.0/docs/guide/intl/fontconfig.html

The following steps describe a quick solution to configure your fonts in Java:

1. Edit the `fontconfig.properties` file.
2. For Asian character support, modify the following line:

   ```
   sequence.allfonts=alphabetic/default,dingbats,symbol
   ```

   to

   ```
   sequence.allfonts=alphabetic/default,dingbats,symbol,
   japanese,chinese-ms936,chinese-ms950,Korean
   ```

You may want to select a different set of Unicode character subsets for your fonts and use those, if the font supports it.

For Windows, the predefined subset names are:

Table 1-1: Windows Predefined Subset Names

alphabetic	arabic	chinese-ms936
chinese-gb18030	chinese-ms950	chinese-hkscs
cyrillic-iso8859-5	cyrillic-cp1251	cyrillic-koi8-r
devanagari	dingbats	greek
hebrew	japanese	korean
latin	symbol	thai

For Solaris and Linux, the predefined subset names are:

Table 1-2: Solaris and Linux Predefined Subset Names

arabic	chinese-gb2312	chinese-gbk
chinese-gb18030-0	chinese-gb18030-1	chinese-cns11643-1
chinese-cns11643-2	chinese-cns11643-3	chinese-big5
chinese-hkscs	cyrillic	devanagari
dingbats	greek	hebrew
japanese-x0201	japanese-x0208	japanese-x0212
korean	korean-johan	latin-1
latin-2	latin-4	latin-5
latin-7	latin-9	symbol
thai		

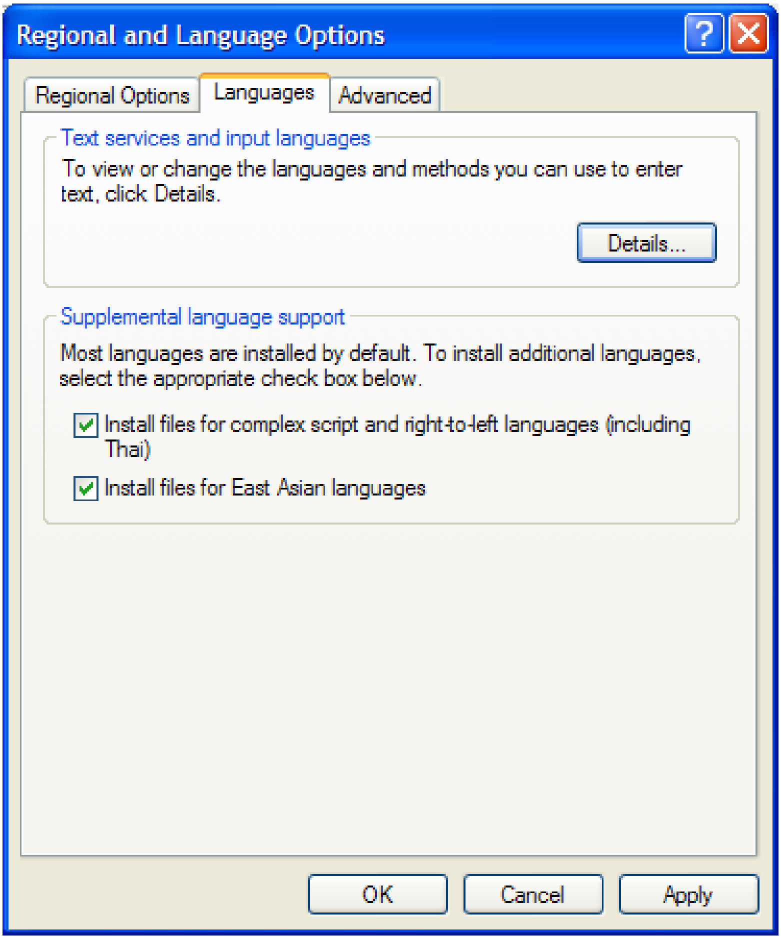
You may need to experiment with creating several logical font definitions, and possibly even several font configuration files if you have a complex set of documents to process. In that case, you should spend some time studying the font configuration guide from Sun and doing some research on the Internet to create a configuration that will work for your situation.

Installing Non-English and Complex Characters on Your System

For Window Users

Windows provides language packs for supporting Far Eastern and complex characters. If the documents you process contain Far Eastern characters, it is very helpful to have these language packs installed. To see if these are installed on your system, follow these steps:

1. From Windows, select **Start Menu** > **Settings** > **Control Panel** > **Regional & Language Options.**
2. In the Regional and Language Options dialog box, select the **Languages** tab.
3. Check the **Install files for East Asian Languages** and the **Install files for complex script and right-to-left languages (including Thai)** checkboxes (if applicable).
4. Select the **Apply** button. Please see the following example of the Regional and Language Options dialog box:



Regional and Language Options

Text services and input languages

To view or change the languages and methods you can use to enter text, click Details.

Supplemental language support

Most languages are installed by default. To install additional languages, select the appropriate check box below.

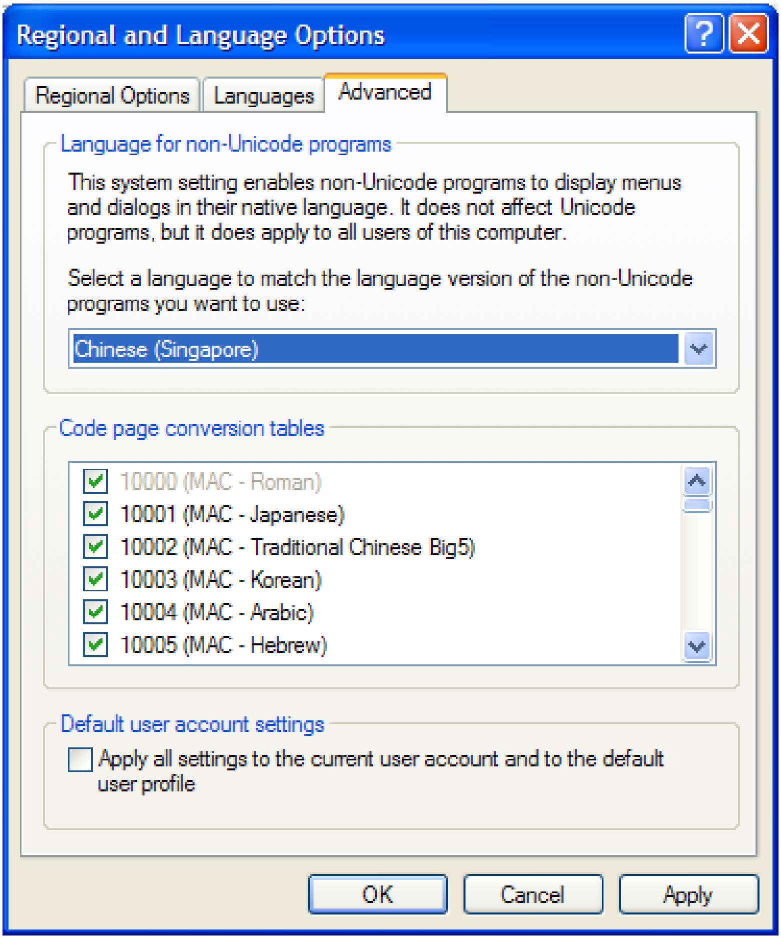
☑ Install files for complex script and right-to-left languages (including Thai)

☑ Install files for East Asian languages

NOTE

To complete the installation, you will need a copy of your Windows installation CD.

In the Advanced tab, you can add support for additional character mappings which may enable support for the characters in the document if they are in a different language from the Windows system as shown in the following screen:



Language for non-Unicode programs

This system setting enables non-Unicode programs to display menus and dialogs in their native language. It does not affect Unicode programs, but it does apply to all users of this computer.

Select a language to match the language version of the non-Unicode programs you want to use:

Chinese (Singapore)

Code page conversion tables

☑ 10000 (MAC - Roman)
☑ 10001 (MAC - Japanese)
☑ 10002 (MAC - Traditional Chinese Big5)
☑ 10003 (MAC - Korean)
☑ 10004 (MAC - Arabic)
☑ 10005 (MAC - Hebrew)

Default user account settings

☐ Apply all settings to the current user account and to the default user profile

If you need and acquire additional fonts, you can install them on your system using the fonts program mentioned in the“Listing the Available Fonts on Your Windows System” section.

Step 3: Making the Fonts Available to Snowbound Software

For some formats and platforms you may need to take additional steps to allow Snowbound Software to find the fonts that you have installed. This section describes how take the steps to find the font that you have installed.

Processing PDFs on Java platforms

After installing the necessary fonts and regional options on your system, you will need to add the corresponding Character Map (CMAP) resources for those fonts to the Java classpath. The latest versions of RasterMaster Imaging SDK and VirtualViewer include these resources in the `CMAP-All.jar` file as part of the build. This file can be placed anywhere on your system as long as it is referenced at runtime. This can be done using the `-cp` or `-classpath` runtime parameters. For example:

```
> java -cp C:\path\to\CMAP-All.jar
```

The `CMAP-All.jar` can also be referenced via the CLASSPATH environment variable as in the following example:

```
> set CLASSPATH=%CLASSPATH%;C:\path\to\CMAP-All.jar
```

> NOTE
>
> These CMAP files are only used by Snowbound Software’s PDF reading support on the Java platform. They will not work with Snowbound Software’s RasterMaster Imaging SDK for the DLL, ActiveX and .NET platforms.

Processing Word Documents

You do not need to take any additional steps to find the fonts that you have installed in Word documents.

Processing AFP Documents by Mapping AFP Document Fonts to System Fonts

Font maps enable you to standardize how AFP documents display by overriding the internal font objects with custom fonts and styles. Created as simple ASCII files, AFP font maps can be edited by users to define their own font definitions including font type, point size, color and style.

You should add a font mapping entry to the `snbd_map.fnt` for each font used by the AFP documents that you process. It may take several attempts to find suitable settings for substitute fonts if you do not have access to the original font definitions.

Snowbound Software’s RasterMaster Imaging SDK automatically loads the `snbd_map.fnt` file if it is found in one of the following directories: the `\Windows` directory, the directory into which images are being read, or the directory where your application exists as long as you are not changing directories with a dialog box.

The following methods allow you to set font mapping:

1. The `IMGLOW_set_fontmap_path()` method sets the path of the font mapping file. See "IMGLOW_set_fontmap_path(String)" for more information.
2. The `IMGLOW_set_fontmap()` method programmatically sets the font mapping. See "IMGLOW_set_fontmap_path(String)" for more information.

Format of Font Mapping Data

Any AFP font name can be mapped to the following:

- face name
- point size
- bold attributes
- italic attributes

The `snbd_map.fnt` file is a simple ASCII text file. Each entry is ended with a carriage return line feed. The following are two sample entries:

C0BC25I3,Courier,10,0,0

C0CGT12S,Arial,14,0,1

Table 1-3 lists a description of the C0BC25I3,Courier,10,0,0 sample entry above.

Table 1-3: Description of a sample entry in the snbd_map.fnt file

Variable	Description
C0BC25I3	Font resource name in the AFP file.
Courier	New face name to map to.
10	New size in points or 1/72 of an inch.
0	Bold attribute, 0 - off , 1 - on.
0	Italic attribute 0 - off, 1 - on.

IMGLOW_set_fontmap_path(String)

This method defines the path where Snowbound Software will look for the font mapping file, `snbd_map.fnt`.

Syntax

```
int IMGLOW_set_fontmap_path(String path);
```

Remark

Table 1-4 lists the IMGLOW_set_fontmap_path method variable descriptions.

Table 1-4: IMGLOW_set_fontmap_path(String) Method Variables

Variable	Description
path	A string pointer to the path to look for the `snbd_map.fnt` file. The `snbd_map.fnt` file will be appended to the path name. `IMGLOW_set_fontmap_path("c:\\temp");`

Returns

Returns the status of the path of the font mapping file. A value of 0 indicates success. Returns an OUT_OF_MEMORY error if there is not enough memory to complete the operation. Any value less than zero is a Snowbound error code. See Appendix I of the *RasterMaster for the Java Platform Programmer's Reference Guide* for a list of error codes.

IMGLOW_set_fontmap(byte[], int)

This method programmatically sets font mapping.

Syntax

```
int IMGLOW_set_fontmap(byte font_map[], int len);
```

Remarks

Table 1-5 lists the IMGLOW_set_fontmap method variable descriptions.

Table 1-5: IMGLOW_set_fontmap Method Variables

Variable	Description
font_map	Pointer to font mapping data. This is the whole buffer of data found in the font map file, `snbd_map.fnt`. This variable overrides existing font mapping in the `snbd_map.fnt` file. The following are some examples of the data in this variable: C0H400xx90,PrecisionID Postnet L DEMO,12,0,0 C0BPOSBX,CCodePostnet,10,0,0
len	The integer length of font mapping data

Returns

Returns the status of the font mapping data. A value of 0 indicates success. Returns an OUT_OF_MEMORY error if there is not enough memory to complete the operation. Any value less than zero is a Snowbound error code. See Appendix I of the *RasterMaster for the Java Platform Programmer's Reference Guide* for a list of error codes.

Index