Generating A Bitmap Font

Creating Fonts

TextFX supports the use of Bitmap fonts, which consist of a ***Texture atlas*** containing all of the required letters from the font, and a ***text data file*** describing the location and size of each letter on that texture atlas.

Using a Bitmap font has a few potential advantages; firstly that you can pre-select just the letters you'll be needing from that font, and therefore save on texture memory. Secondly, since you have access to the font sprite atlas, you can apply post-processing effects to the font, such as a glowing edge.

There are two free, third-party tools you can use to generate the Bitmap font files:

BMFont (Windows only) - **http://www.angelcode.com/products/bmfont/**

Hiero (All platforms - Java Executable) - **http://slick.cokeandcode.com/demos/hiero.jnlp**

Below are instructions for generating a font **using BMFont** and **using Hiero**.

Using the Bitmap Font with TextFX

Once you've generated a Bitmap font data file and texture atlas and placed them in your Unity project Assets folder, you'll need to ***setup a Material*** for this Bitmap Font.

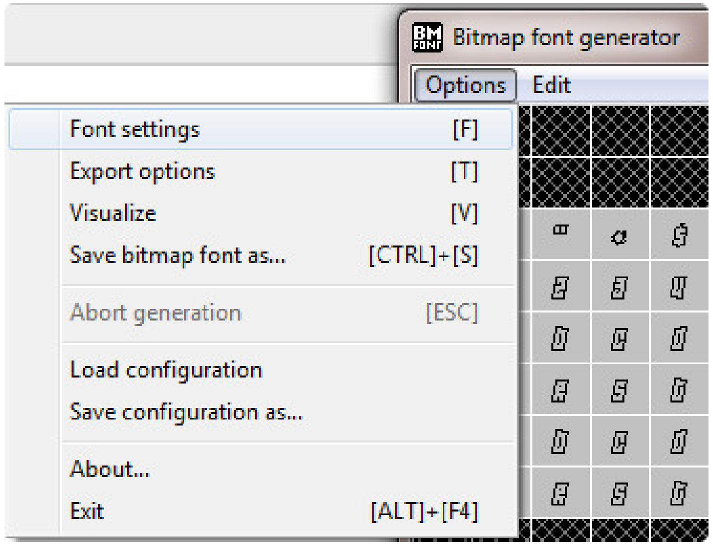
1. Make a new Material instance in your project hierarchy
2. Drag the your Font Texture onto the new materials main texture field in the Inspector to assign it.
3. ***Set the shader*** for the material to be ***GUI->Text Shader***

   Note : If you're using Unity 3.5 or less, you'll need to set the shader as TextFX->Text Shader instead, which adds VertexColor support to the default Unity Text Shader.

Remember to change the file extension of your data file from a *.fnt filetype to a ****.txt***

Creating a Bitmap Font using BMFont

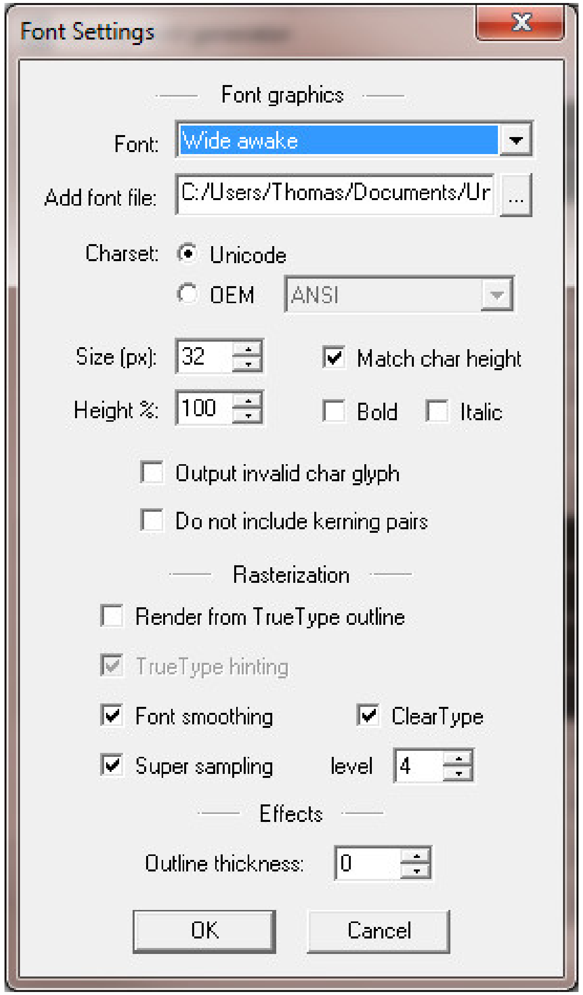
1. Run BMFont and open ***Options->Font Settings***.



2. Select your desired font from the list of installed fonts on your PC, or add a font file that you have on your harddrive.

   Set the pixel size of the font and check ***Match char height***

   Check ***Font Smoothing*** and ***Super Sampling*** if you want the letters to be smooth and anti-aliased.



Font Settings

Font graphics

Font: Wide awake

Add font file: C:/Users/Thomas/Documents/Ur

Charset: ● Unicode ○ OEM ANSI

Size (px): 32 ☑ Match char height

Height %: 100 □ Bold □ Italic

□ Output invalid char glyph

□ Do not include kerning pairs

Rasterization

□ Render from TrueType outline

☑ TrueType hinting

☑ Font smoothing ☑ ClearType

☑ Super sampling level 4

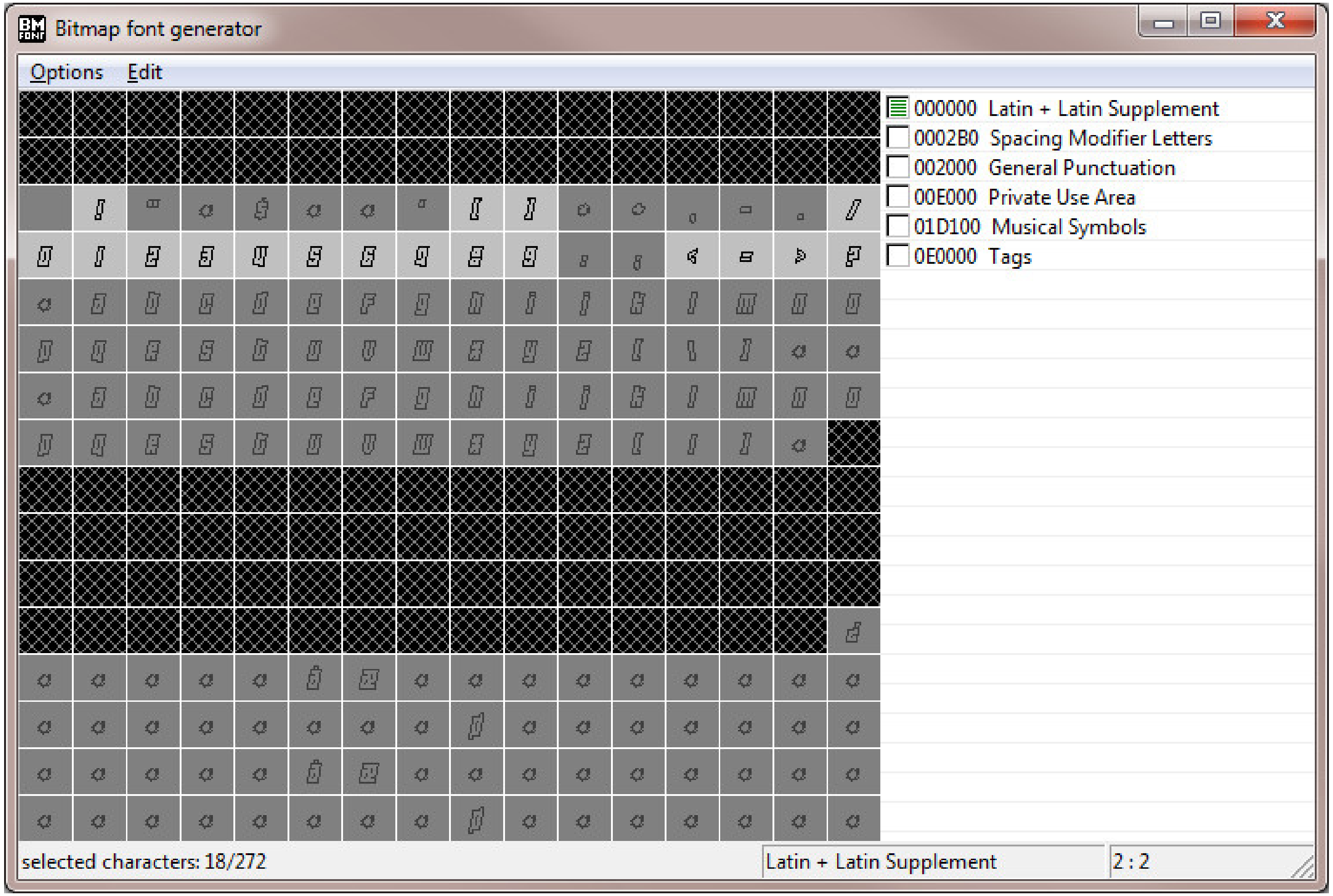
Effects

Outline thickness: 0

3. Then back in the main tool window you'll see all the letters contained within your chosen font.

   Highlight all the letters you wish to be contained in the font, either individually by toggling on/off each letter, or by toggling subsections of letters from the list on the right.

   Note: If you're selecting your own custom subset of characters, remember that you'll need to select a "space" character in order to use spaces in TextFX!



4. Next, open ***Options->Export Options***

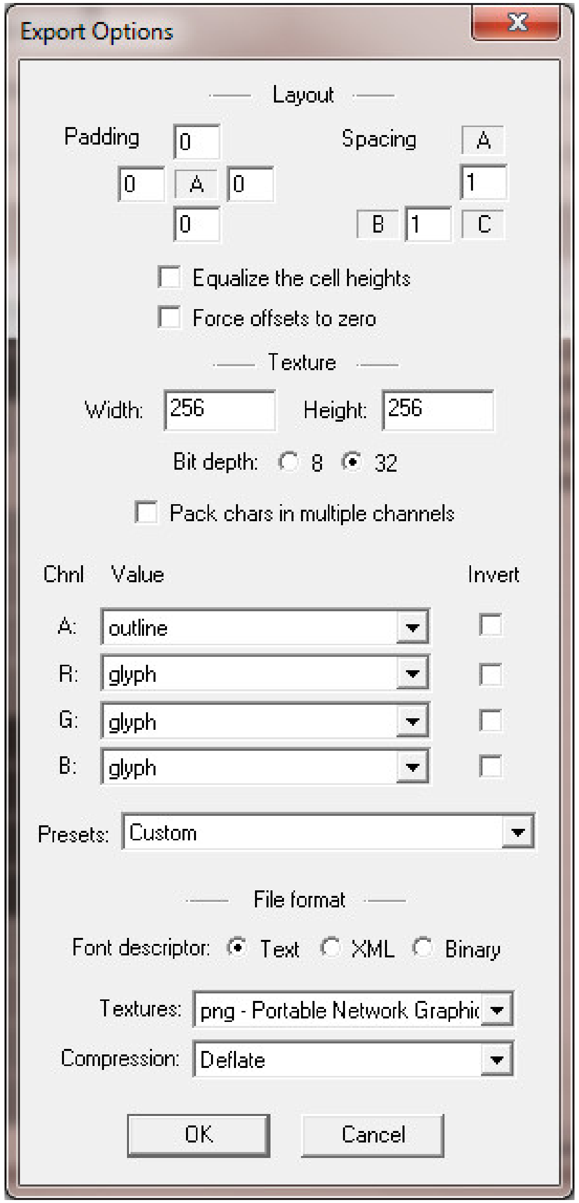
   Depending on your chosen font, and whether you're adding any after effects to the texture atlas, you may want to add some letter padding to prevent unintentional artifacts on the letters in Unity. Bit of a trial and error process.

   Set a Width and Height for the texture atlas. It needs to be big enough to fit all the letters onto one Texture. To check that it all fits on the chosen size, go back to the main window and press 'V' or go to ***Options->Visualize.***

   Note: Best to stick to power-2 dimensions for the atlas to keep Unity happy. ie. 2,4,8,16,32,64,128,256,512 etc.

   Check 32 ***Bit depth*** to allow alpha channel.

   Check ***Text*** File Format, and ***PNG*** for the Texture format.



Export Options

Layout

Padding: 0, 0, A, 0, 0

Spacing: A 1, B 1, C

□ Equalize the cell heights

□ Force offsets to zero

Texture

Width: 256 Height: 256

Bit depth: ○ 8 ● 32

□ Pack chars in multiple channels

Chnl	Value	Invert
A:	outline	□
R:	glyph	□
G:	glyph	□
B:	glyph	□

Presets: Custom

File format

Font descriptor: ● Text ○ XML ○ Binary

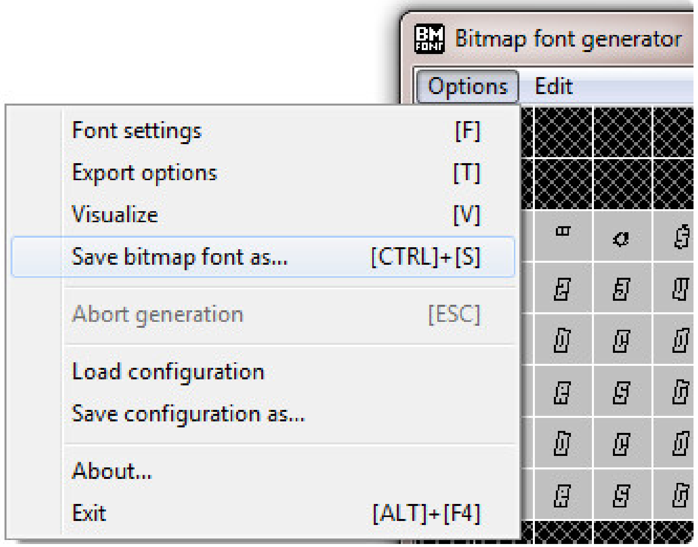
Textures: png - Portable Network Graphic

Compression: Deflate

5. Select ***Options->Save bitmap font as...***

   Save the Bitmap font to your Unity project folder.

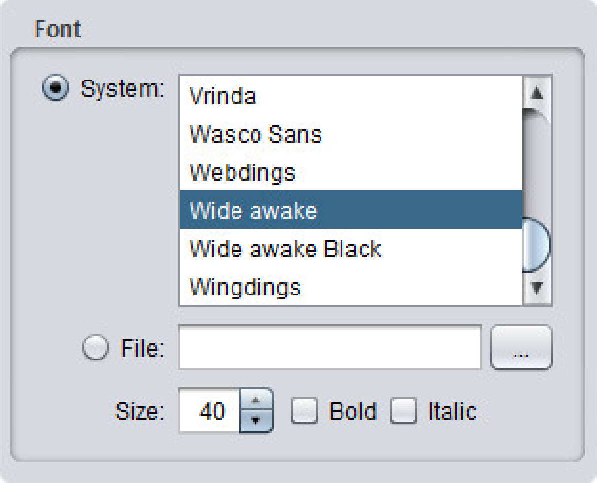
   Change the file type of the ****.fnt*** data file to be a ****.txt*** file, so that Unity can interpret it as a TextAsset.



Creating a Bitmap Font using Hiero

1. Run the Hiero Java executable application, and select from the list of fonts installed on your machine, or select a Font file on your hard drive using the browse tool.

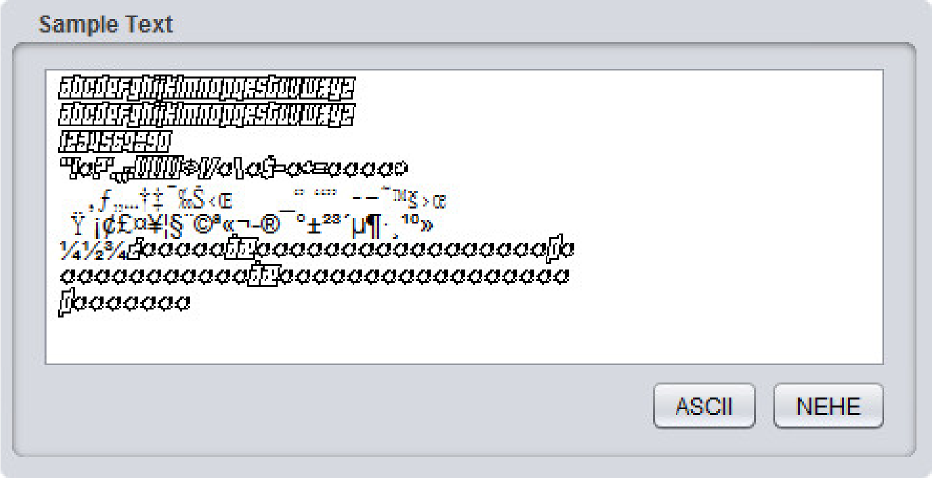
   Select the pixel size of the Font and whether it should be **Bold** or *Italic*.

2. Setup which characters to include within your font; either by manually typing in each character that want to be

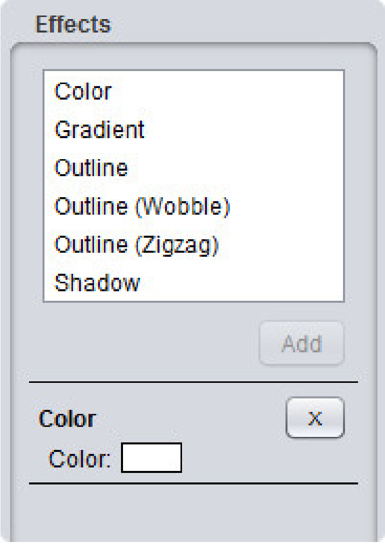
included in this text area, or toggling the preset defaults, ***ASCII (all ascii characters)*** or ***NEHE*** (most commonly used characters as defined in the NEHE online tutorials)

Note: If you're selecting your own custom subset of characters, remember that you'll need to enter a "space" character in order to use spaces in TextFX!

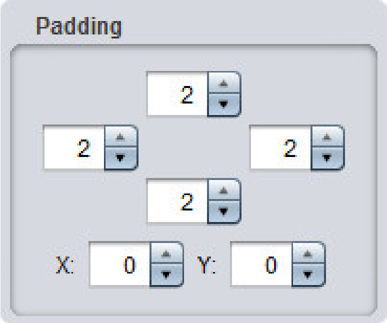


3. You can apply some basic effects to the your font...

   Note: To take full advantage of the VertexColor text colouring features available in TextFX, you'll want to keep your font base colour as white.



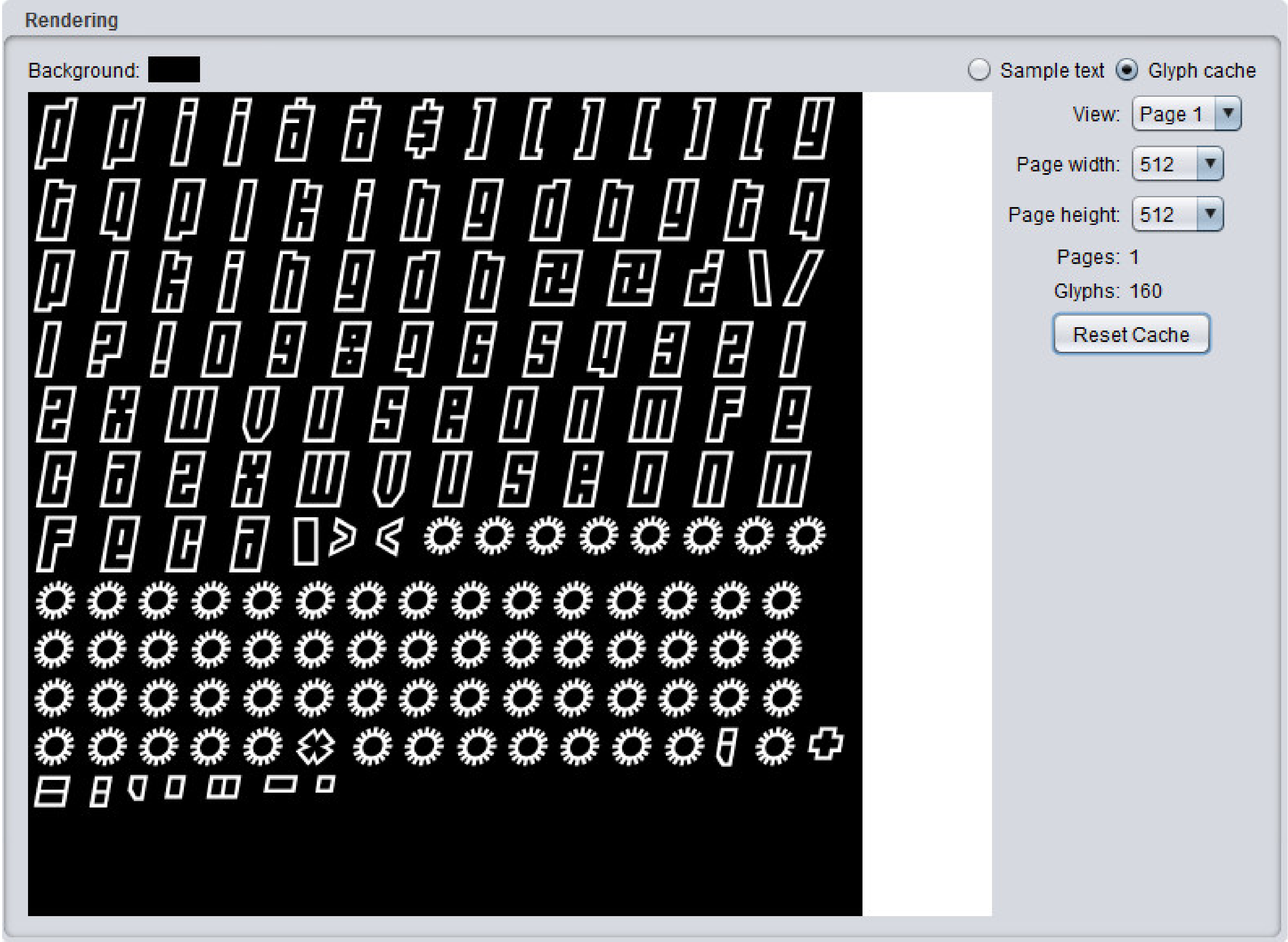
Depending on the effects you've applied, you may need to apply a bit of padding around each letter to accomodate for it and avoid the effect leaking into the adjacent letter's.



X: 0 Y: 0

4. Once you've listed all of the characters you want to be included, applied the desired effects and added your letter padding, click the ***Reset Cache*** button in the ***Rendering*** panel to recalculate the letter placings on the texture atlas to the left.

   TextFX only supports Bitmap fonts with one single Texture Atlas, so you'll need to adjust the dimensions of the Atlas using the ***Page Width*** and ***Page Height*** drop-downs until all the letters fit onto one page.
   (Check that only one page is listed in the ***View*** drop-down)



Rendering

Background:

○ Sample text ● Glyph cache

View: Page 1

Page width: 512

Page height: 512

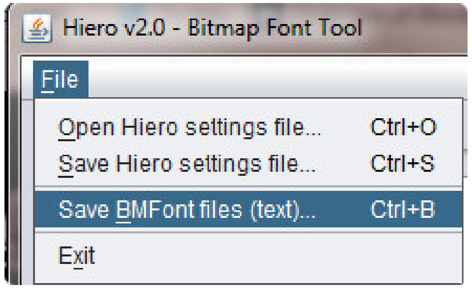
Pages: 1

Glyphs: 160

5. Next, select ***File->Save BMFont files (text)...*** and save the Bitmap font to your Unity project folder.

   Change the file type of the ***.fnt** data file to be a ***.txt** file, so that Unity can interpret it as a TextAsset.

   Important: You'll need to flip the generated texture atlas vertically using an image editing software before it'll work correctly with TextFX in Unity.


Hiero v2.0 - Bitmap Font Tool
File
Open Hiero settings file... Ctrl+O
Save Hiero settings file... Ctrl+S
Save BMFont files (text)... Ctrl+B
Exit