



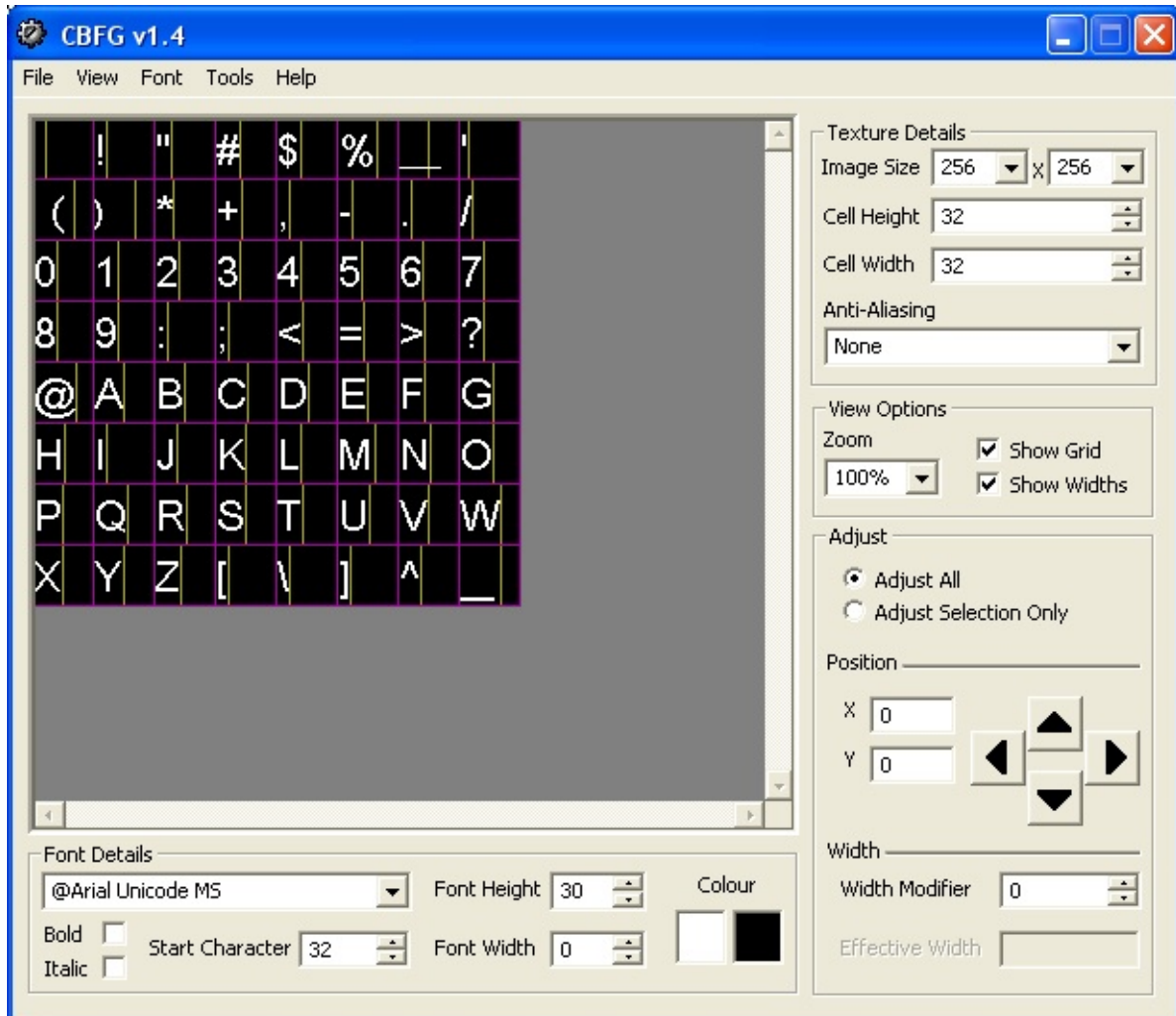
A tool for creating variable width bitmap fonts for use in graphical applications.

Codehead 2005 - 2011

Thanks to everyone who as submitted ideas and bugs, see Help->About for credits.

If you have any comments or questions please visit the website [CBFG Homepage](#)

Main Window

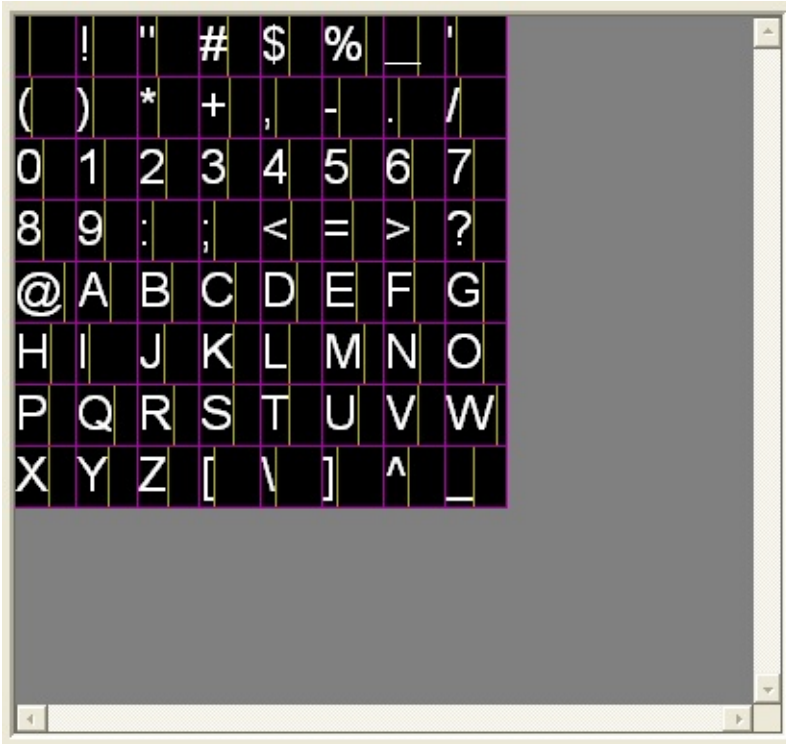


The main window contains the following items:

1. [Menus](#)
 2. [Font Window](#)
 3. [Font Details](#)
 4. [Texture Details](#)
 5. [View Options](#)
 6. [Adjustments](#)
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Font Window

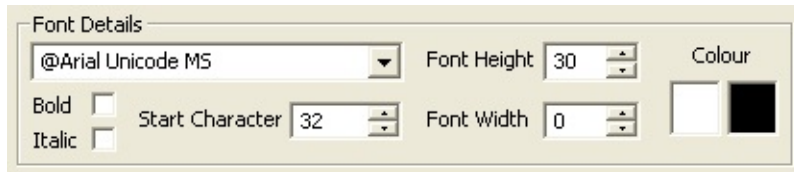
Displays a preview of the font with the selected options applied.



The overlays indicating cell boundaries and character widths can be turned off in the [View Options](#) panel.

Font Details

Allows selection of font parameters.



Font Name

Available fonts installed on your system can be selected from this combobox.

Font Height

The point size of the font determines the height of the character.

Font Width

A value of zero here renders the characters at default width based on the point size, any other setting will stretch or compress the glyph.

Colour

Allows the foreground and background colour to be set. Click the coloured panels to invoke the colour palette dialog.

Bold

Toggles the font weight.

Italic

Toggles italic characters on or off.

Start Character

The offset here is used to prevent non-printable or infrequently used characters wasting space on the texture.

Texture Options

The Texture options panel provides options relating to the image map size, cell size and antialias settings.

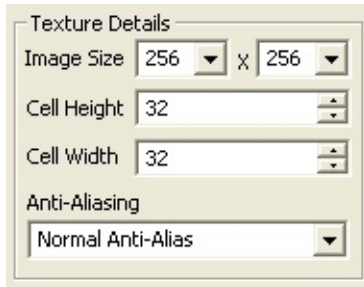


Image Size

The comboboxes allow selection of the texture map size. Width and Height are independent and range between 16 and 4096 pixels.

NOTE: Using 2048x2048 and 4096x4096 sized textures is very CPU intensive. It will run slowly unless you have a high spec machine.

Cell Size

The cell size controls provide a method for determining the spacing of the characters on the texture. Only complete cells are used for characters, any cell which overlaps the edges of the texture will not be used.

Anti-Alias Setting

The following anti-aliasing options are available.



None



Normal Antialias



Cleartype*

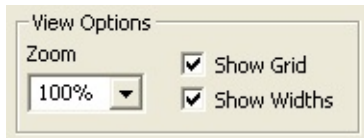
Some fonts do not support antialiasing at small sizes, some fonts do not support antialiasing at all.

* Cleartype is an anti-aliasing method that exploits the structure of LCD screens to produce sub-pixel smoothing that effectively triples the available horizontal

resolution. More Information can be found [here](#). This option is currently only supported on Windows XP.

View Options

The view options panel contains the following controls:



Zoom

Zooms in or out of the font image. (Min 25% - Max 400%)

Show Grid

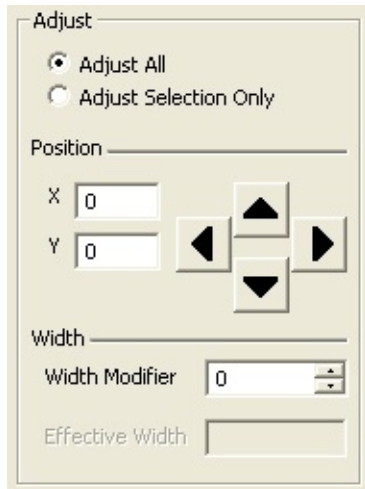
Toggles the display of the cell boundary lines.

Show Width Markers

Toggles the display of the width markers for each character.

Adjustments

Allows tweaking of character position and spacing.



Adjust All / Adjust Selection Only

This radio button selects whether the adjustments made in this panel are applied globally or on a specific character.

When adjusting a specific glyph, it will be highlighted in the [Font Window](#) and the character number is shown in brackets. e.g. "Adjust Selection (65) Only".

Position

The arrow buttons adjust the position of the characters or selected character. The offset values are displayed in the textboxes.

Width

The width modifier adjusts the spacing applied to the character or characters.

The effective width value is the total of the global width offset and the character width offset, it is only shown when adjusting a specific character.

Main Window Menus

The main window contains the following menus:

1. [File](#)
2. [View](#)
3. [Font](#)
4. [Tools](#)
5. [Help](#)

Menus

The file menu contains commands for manipulating the output of CBFg:

1. [File Menu](#)
2. [Save](#)
3. Export
 1. [BMP](#)
 2. [TGA](#)
 3. [TGA32](#)
 4. [CSV](#)
 5. [Binary](#)
4. [Exit](#)

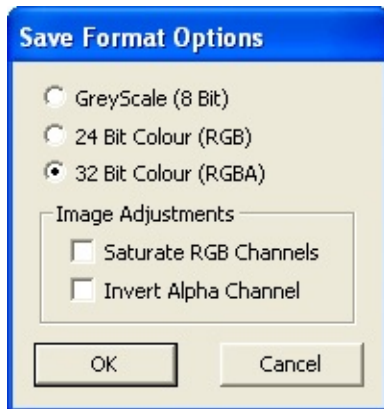
New (Reset)

Resets the program to the current configuration defaults.

Save

Saves the current font in BFF (Bitmap Font File) format.

The following options can be set when saving in BFF format:



GreyScale (8 Bit)

Converts the image to black and white regardless of color settings. The font is rendered in 256 shades of grey.

24 Bit Colour (RGB)

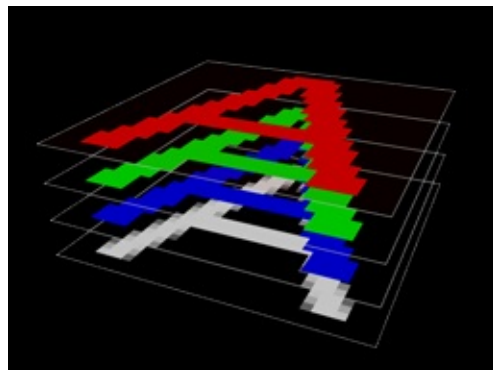
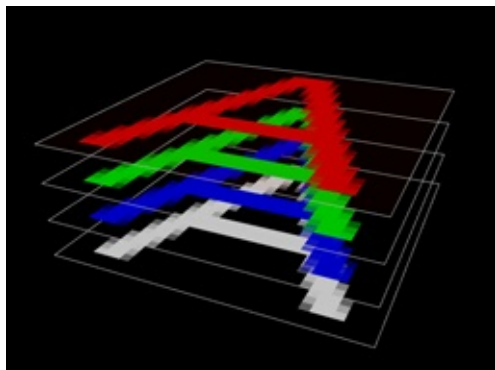
Saves in standard 24 bit RGB.

32 Bit Colour (RGBA)

Combines a 24 bit image with a greyscale 8 bit alpha channel.

Saturate RGB Channels

This option is only available when saving 32 bit images. Any non-background pixels in the RGB channels are set to the foreground colour.



Normal

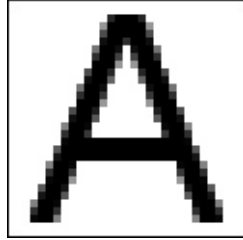
Saturated

Invert Alpha Channel

This option is only available when saving 8 or 32 bit images. The 8 bit alpha component is inverted.



Normal



Inverted



Export -> BMP

Exports the current font as a 24 bit BMP format image. No font data is saved, just the image.

Export -> TGA

Exports the current font as a 24 bit TGA format image. No font data is saved, just the image.

Export -> TGA32

Exports the current font as a 32 bit TGA format image with an alpha channel. No font data is saved, just the image.

Export -> CSV

Exports the current font data in CSV (comma separated values) format. No font image is saved, only the image size, cell size and character spacing data.

Export -> Binary

Exports the current font data in binary format. No font image is saved, only the image size, cell size and character spacing data.

[Binary File Format Specification](#)

Exit

Exits the program.

View Menu

The view menu contains the following commands:

1. [Show Grid](#)
2. [Show Width Markers](#)
3. [Zoom In](#)
4. [Zoom Out](#)

Show Grid

Toggles the display of the cell boundary lines.

Show Width Markers

Toggles the display of the width markers for each character.

Zoom In

Zooms in to the font image. (Max zoom - 400%)

Zoom Out

Zooms out of the font image. (Min zoom - 25%).

Font Menu

The font menu contains the following commands:

1. Antialias
 1. [None](#)
 2. [Normal](#)
 3. [ClearType](#)

The antialias setting can be one of the following:

None

No antialiasing.

Normal

Normal antialias. Antialiasing does not occur on smaller font sizes, some fonts do not support antialiasing at all.

ClearType

ClearType antialiasing uses the RGB columns on LCD monitors to produce smoother glyphs. The image will show coloured edges on the characters. More Information can be found [here](#).

This option is currently only supported on Windows XP.

Tools Menu

The tools menu contains the following commands:

1. [Test/Preview](#)
2. [Configuration](#)

Test/Preview

Invokes the [Test Dialog](#) to preview the font. The dialog has four lines of text which are retained for your session.

Configuration

Invokes the [Configuration Dialog](#).

Help Menu

The help menu contains the following commands:

1. [Contents](#)
2. [About](#)
3. [Check for Updates](#)

Contents

This command got you here.

About

Displays version information and lists the many contributors who have helped me out with CBF_G.

Check for Updates

Performs a check for a newer version of CBF_G (Internet Connection Required)

Test / Preview Window



The preview window is an OpenGL test of the current font. It maintains up to four lines of text per session.

Any text typed into the text box will be rendered in the GL window. If the current font map does not contain a character that has been set in the textbox, a space will be displayed.

NOTE: If your graphics card does not support the resolution selected for the texture, you will not see a preview render.

The window buttons perform the following commands:

Clear

Removes any text in the editable text window.

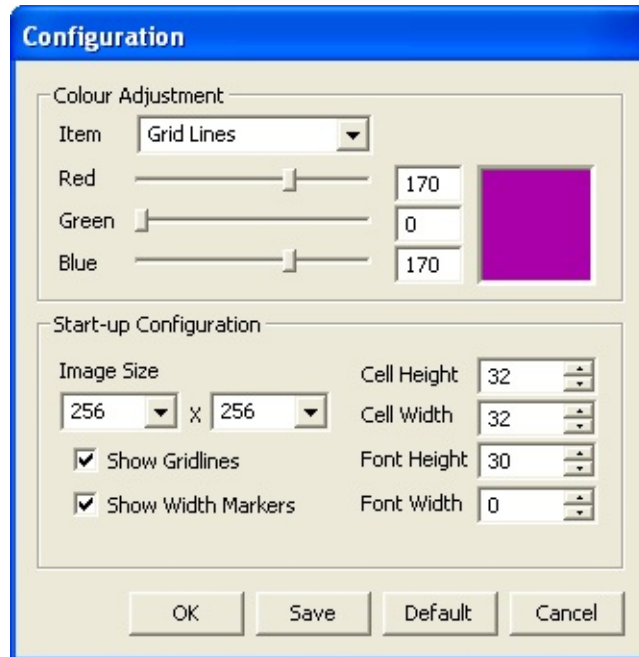
Pangram

Inserts a random pangram into the preview window. (Pangrams are phrases that contain every letter in the alphabet.)

Exit

Closes the preview window and returns to the main application.

Configuration Window



The configuration window allows the user to change the colours used throughout the application and specify the startup configuration of the program.

Colour Adjustment

The RGB sliders and textboxes will adjust the colour for the current item selected in the combobox.

The following items are available:

- Grid Lines
- Width Marker
- Selection Marker
- Font Colour
- Background Colour

Startup Configuration

Options selected here can be saved and will be applied to the application at startup.



The window buttons perform the following commands:

OK

Uses the current settings for the application. Changes are not saved and the old configuration will be reloaded at the next startup.

Save

Saves the current settings and resumes the application.

Default

Revert back to the initial settings at installation.

Cancel

Discards changes to the configuration and resumes the application.

BFF File Format

CDFG native output for font files is Bitmap Font File (BFF) format.

The format supports 8, 24 and 32 bit fontmaps up to 4096x4096 pixels and specifies character width and positioning information.

The files start with a 20 byte header:

Offset	Size (Bytes)	Description
0	2	ID - 0xBF 0xF2 (BFF Version 2)
2	4	Font Image width
6	4	Font Image height
10	4	Cell width
14	4	Cell height
18	1	BPP - will be 8, 24 or 32
19	1	Base character offset - This is the ACSII value of the first character on the font map.
20	256	Character widths
276	Variable	Image map data

Rendering Text using BFF fonts

To render a specific character from the font follow this example pseudocode:

Calculate the number of characters per row on the texture. (Integer value)

```
RowPitch = ImageWidth / CellWidth
```

Calculate the row and column of the glyph within the texture. (Integer values)

```
Row = ( CharASCIIValue - BaseCharOffset ) / RowPitch  
Col = ( CharASCIIValue - BaseCharOffset ) - ( Row * RowPitch )
```

Calculate the UV dimensions for a cell. (Floating point values)

```
ColFactor = CellWidth / ImageWidth  
RowFactor = CellHeight / ImageHeight
```

Multiply the row and column values by the UV factors to obtain the UV coords of the top left of the character.

```
U = Col * ColFactor  
V = Row * RowFactor
```

Add the UV factors to the UV coords to find the bottom right of the character.

```
U1 = U + ColFactor  
V1 = V + RowFactor
```

Render the glyph using the cell height and width values as polygon dimensions, apply the texture using the calculated UVs.

Use the character's ASCII value as an index into the array of width values to determine the spacing required to place the next glyph.

Binary Font Data File Format

CBFG's binary output has a simple file structure. The header contains the texture sizes, cell sizes and base character offset. The remaining data is the character width values.

Offset	Size (Bytes)	Description
0	4	Map Width
4	4	Map Height
8	4	Cell Width
12	4	Cell Height
16	1	Start Character
17	256	Character Widths

Change Log

V1.42 - Public Release

- [Bugfix] RGB values in 24bit and 32bit BFF files now correctly ordered.

V1.41 - Public Release

- [Tweak] Added 16 pixel and 32 pixel options to texture sizes.
- [Bugfix] Fixed vertical scrolling calculation, scroll bars now enable correctly when only vertical scrolling is required.

V1.4 - Public Release

- [Feature] Maximum texture size is now 4096 x 4096.
- [Feature] Font/Background colour now selectable from main window.
- [Bugfix] CSV Export now contains font width data.
- [Bugfix] Fixed memory leak, GDI bitmap was not being freed during screen updates.
- [Bugfix] Fixed application link to help file.
- [Bugfix] Fixed filesize calculation in BMP export.
- [Tweak] Online update check now more verbose on failure.
- [Tweak] Minimum Zoom level now 25%.

V1.3 - Public Release

- [General] Major code re-write.
- [Feature] Online update checking added.
- [Feature] Help file added.
- [Feature] TGA32 support added.
- [Feature] Support for independant image width and height added.
- [Feature] Added option to saturate RGB channels on 32bit BFF.
- [Feature] Added option to invert alpha channels on 8 and 32bit BFF.
- [Bugfix] Fixed flashing font display during scrolling.
- [Bugfix] Fixed incorrect width calculation for non-truetype fonts.
- [Bugfix] Fixed validation of user entered values that could lockup the system.

- [Bugfix] Fixed colourkey issue in preview window. Now rendered by OpenGL.
- [Bugfix] All Alpha channels are now rendered black and white, regardless of text colour.
- [Bugfix] 'File->Reset' now resets all attributes.

V1.2 - Private testers only.

- [Feature] Added binary font data output support.
- [BugFix] Minor stability issues addressed.

V1.1 - Private testers only.

- [Feature] Added Test/Preview window.
- [Feature] Added 32bit BFF output support.
- [Feature] Added CSV font data export.

V1.0 - First release. Private testers only.