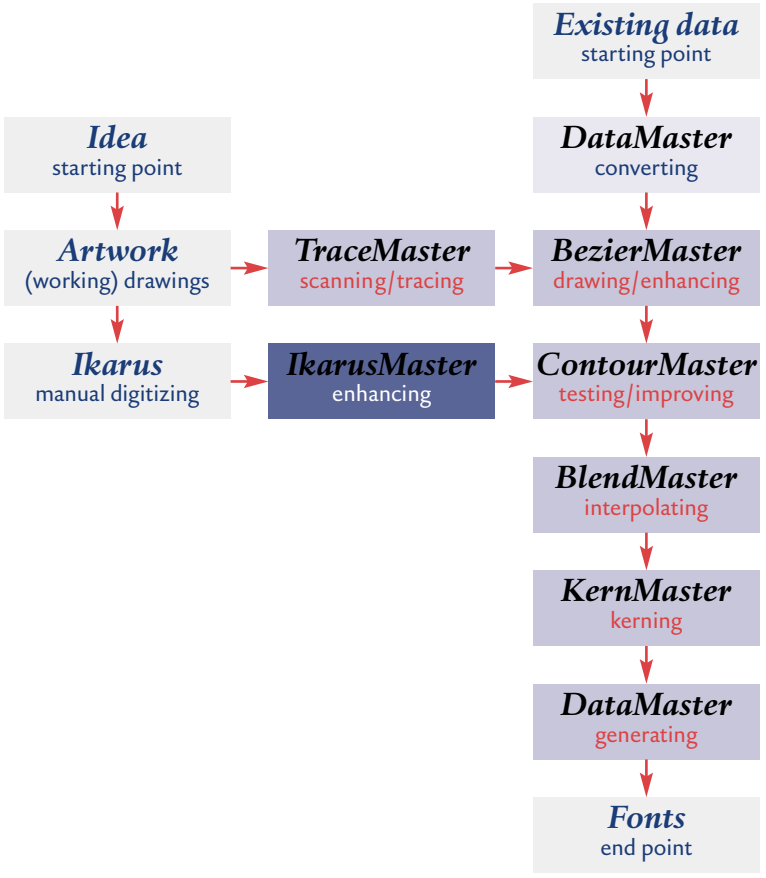
Dutch Type Library

DTL IkarusMaster

's-Hertogenbosch / Hamburg
Autumn 2004



The diagram shows a typical workflow based on the modules of DTL *FontMaster.*

DTL IkarusMaster is an editor for the Ikarus format. Almost all of the functionality matches that which DTL BezierMaster offers for the bezier format; there is a Font Administration tool, a Metrics Editor and a number of optimisation functions. The seamless integration with the bezier editor is not only apparent in its similarities with the interface, but also from the fact that Ikarus data can be loaded directly into the background of DTL BezierMaster. Consequently, the conversion of the IK format to the BE format can be fully checked.

DTL IkarusMaster is a fantastic upgrade for the users of the earlier editors of the Ikarus format, including Ikarus M and Ikarus D. The Ikarus format is accepted by DTL DataMaster as input format and this makes it possible to generate PostScript Type 1, TrueType and OpenType fonts directly from the IK data.

User Interface Guidelines

The user interface of the modules of DTL FontMaster follow the standards of Mac OS and Windows.

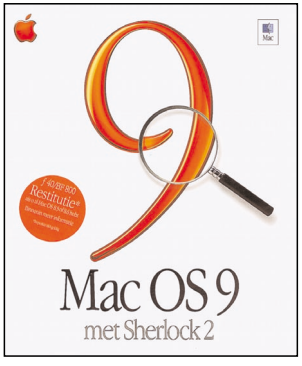
The tool bar showing the functions as graphic symbols can be moved around with the mouse to a desired place.

Function selection works as usual: if you click the mouse inside the menu bars, for example **File**, you can select the functions in 'pull down menus' which are displayed on the screen. Select the requested function, for example *Open …*, inside the menu by selecting the item with the mouse. For some functions shortcuts on the keyboard are also available. They are displayed as shown at the right and can be executed without pulling down the **File** menu first.

Under Windows the combination for *New* for example is <Ctrl> + N, on the Macintosh the key is ⌘ + N.

On Windows systems you can also select any function by pressing the <Alt> key and the underlined character shown in the pulldown menu.

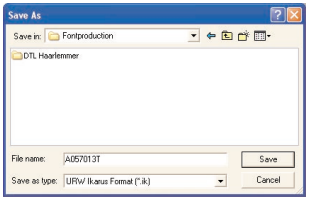
A summery of the shortcuts for Mac OS and Windows for DTL IkarusMaster is given at the end of this chapter.



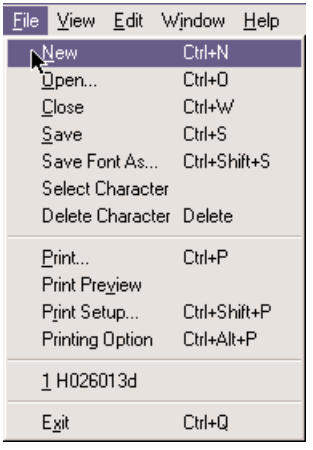
Nomenclature

In this manual as well as in the modules we do not distinguish between glyphs and characters. The term *character* is used many times to indicate an outline description, although a character actually can be represented by different glyphs. For example the character 'a' can look like this:

a a · a a · a a



The screen dumps in this manual were made with alternately the Mac OS and Windows versions of DTL FontMaster.



Shortcuts are displayed in the pull down menus next to the related function.

DTL FontMaster runs under Mac OS 8.6 and higher, including Mac OS X Classic mode and under Windows 95/98, ME, NT, 2000 and XP.

Outline Description

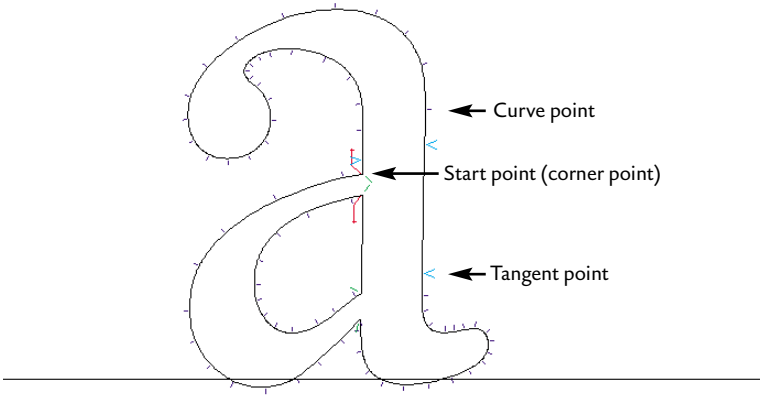
The outlines of the glyphs in the font are described by the Ikarus format. The IK format describes an outline by either straight lines or a Cubic spline section, which is also a third-degree polynomial. Every point of the Ikarus format lies exactly on the contour -in contrast to the Bezier format, where control points are located outside the contour. Therefor the IK format is ideal for working with a digitzing tablet for input.

For a long time the Ikarus format has been the *de facto* standard for creating and manipulating digital fonts, and is still in use worldwide by specialist type design houses. These demanding customers appreciate the high quality of the digital data combined with the system's flexibility, its simplicity and the speed with which fonts can be digitized, edited and converted into other data formats.

NOTE: The IK file format is considered as a database format. Currently one file can contain up to 22000 glyphs. Glyphs are identified by 2-byte numbers (1–65535). The data consists of header, contour header and outline. There is no hinting information in the data. For PostScript Type 1, TrueType and OpenType production additional information is necessary and has to be supplied via text files, like UFM, AFM, etc. (more info about these text files can de found in the appendices).

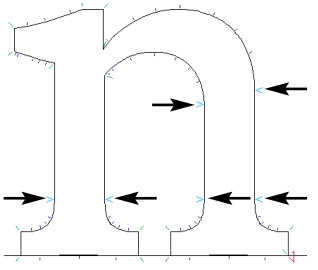
The format specification is public and can be found in Dr. Peter Karow's Schrifttechnologie (Berlin, 1992).

Four different type of point are available to mark the contours:



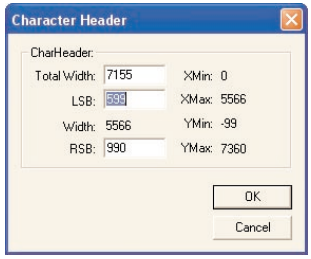
TIP: If you use <Ctrl> + mouse click the program will change the label from Anchor to Smooth Anchor point and vise versa. Using the Change Label function from the Function Tool Bar makes it possible to change straight lines into curves and vice versa, this way adding and removing Control points.

1. **Start points**: only one start point for each contour is allowed. The ideal location for a start point is at a corner. If there are no corner points on the contour, the second best location is at the first (in clockwise order) of two adjacent tangent points. If there are neither corner nor tangent points, the start point should be placed at an extreme curve point. Start points are marked in red by default.
2. **Curve points**: describe curved sections of the contour, by default marked in dark blue.
3. **Corner points**: marking a non-continuous transition between two straight sections, two curve sections or a curve and a straight line.
4. **Tangent points**: These points are marking a continuous tangential transition from a straight line to a curve and vice versa. They are marked in light blue by default.

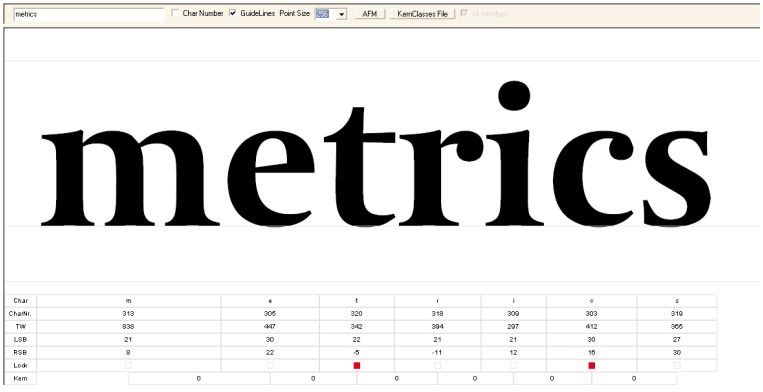


Tangent points are forcing tangent continuity between the adjacent sections.

The available functions of DTL IkarusMaster can operate on three different 'objects':
– Points as described above
– Contours. Contours are consisting of several curves and/or straight lines. They should be closed.
– Characters. These consist of zero, one, or several contours.
There is additional information for the character such as the width and the left and right sidebearings. These values can not be edited interactively in the Character Edit Window, but can be changed numerically in the *Character Header* from the **Edit** menu or in the ***Metrics Window***.



The character width can be edited with the Change Character Header function from the ***Edit*** *menu.*

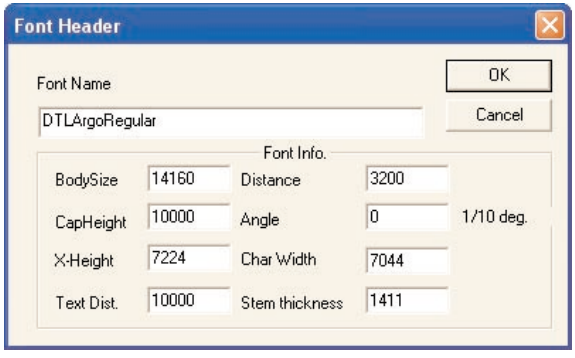


In the Metrics Window the character width can be altered.

The general information about the complete font, such as the Bodysize, is contained in the *Font Header*. For some parameter values it is important to know the bodysize of the font, which usually is 15000 (in standard Ikarus data), 1000 (in a PostScript font) or 2048 (in a TrueType font). Font Header information can be viewed and changed with *Change Font Header* function in the **Edit** menu.

The Font Header contains general information about the complete font. These settings are used for instance for the V/H Guide Lines function in the ***View*** *menu and for the generation of the UFM file.*

For further information on the Ikarus format please see also Peter Karows books on digital typography, like *Digitale Schriften, Darstellung und formate* (Berlin, 1992).



Selecting points

DTL IkarusMaster uses a standard mouse with one button on the Mac or the left button of the mouse under Windows.

For some functions it is necessary to click a mouse button and at the same time press down the <⇧Shift> key or the <Ctrl> key. On the Mac the command <⌘> key is used.

These combinations will be referred to as <⇧Shift>-mouse button, <Ctrl>-mouse button or <⌘>-mouse button.

The *arrow* tool (–>), also called *pointer* tool, is the default function for selecting objects like points, contours or complete characters. Clicking the mouse button near an outline point will select this point.

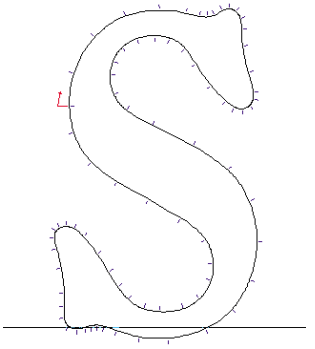
The selection will be constrained to a certain radius around the point. This radius can be modified by the user in the **Config menu**. Clicking outside this radius will deselect all selected points.

If no point is selected while a function is executed the whole character will be modified by default.

Arrow or pointer tool

1. Selecting single points

To move or delete for one point you must click near the point on the screen to select it, in other words, select by clicking.



No points selected

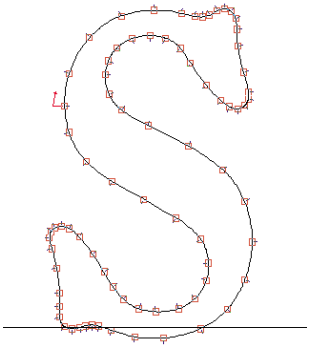
2. Selecting multiple points

2.1 *Collecting points*

Select the first point by clicking on it. While holding down the <⇧Shift> key, click again on another BE point to add it to the selection. You can also deselect an already selected point by clicking on it while holding the <⇧Shift> key.

2.2 *Window-in Selection*

You can select all points within a user-defined window. To do so, click away from an outline point, hold down the mouse button and drag the cursor over the points to be selected. You can add more points to the already selected collection by pressing the <⇧Shift> key and repeating the window selection. The new points will be added to the already selected ones.



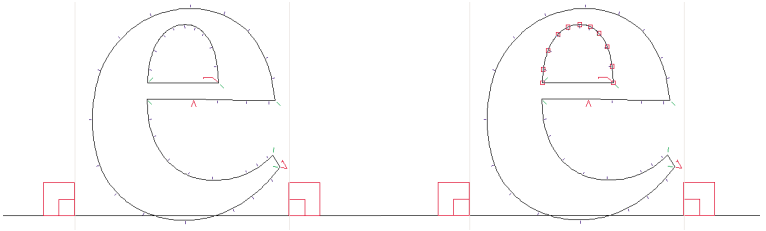
All points selected

3. Contour Selection

To select a contour, double click near an outline point off the requested contour. To select additional contours click again near an outline point of another contour while holding down the <⇧Shift> key. To deselect a contour click near an outline point off the requested contour while pressing the <⇧Shift> key.

4. Character selection

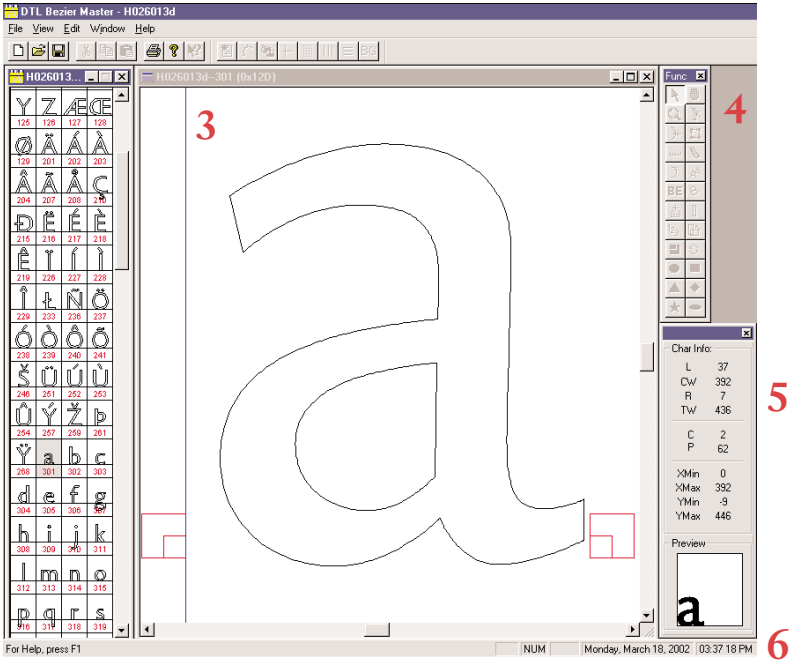
To select all points of a character use the standard shortcut <Ctrl> + A. Some of the more advanced functions, like *Hidden Lines*, assume that all points are to be processed if none is selected.

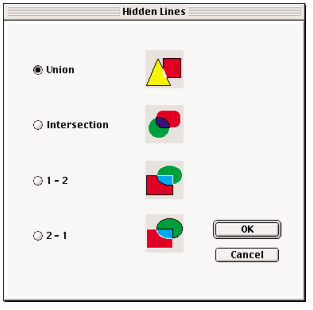


A glyph can also be selected by double clicking while positioning the pointer tool inside the contour.

Screen Layout

The DTL BezierMaster editor has the following components in the screen layout:





*The Hidden Lines function from the **Special** menu.*

1. Tool Bar
2. Character List Window
3. Character Edit Window (several windows are possible)
4. Function Tool Bar
5. Character Display Info and Preview
6. Status Bar

Menu functions

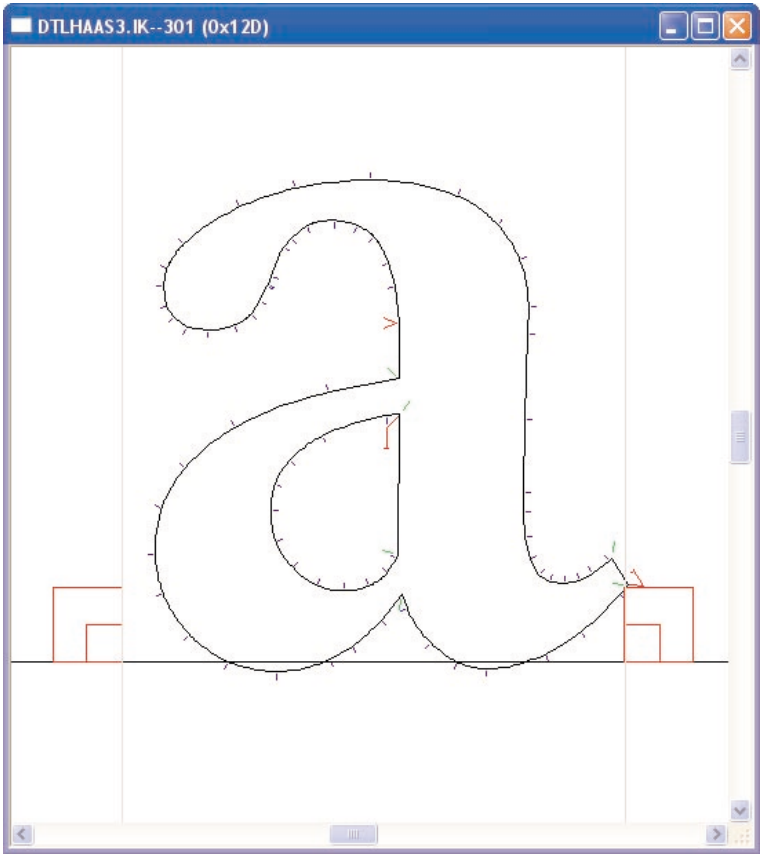
The menu functions are selected from the pulldown menus or with the defined shortcuts from the keyboard.

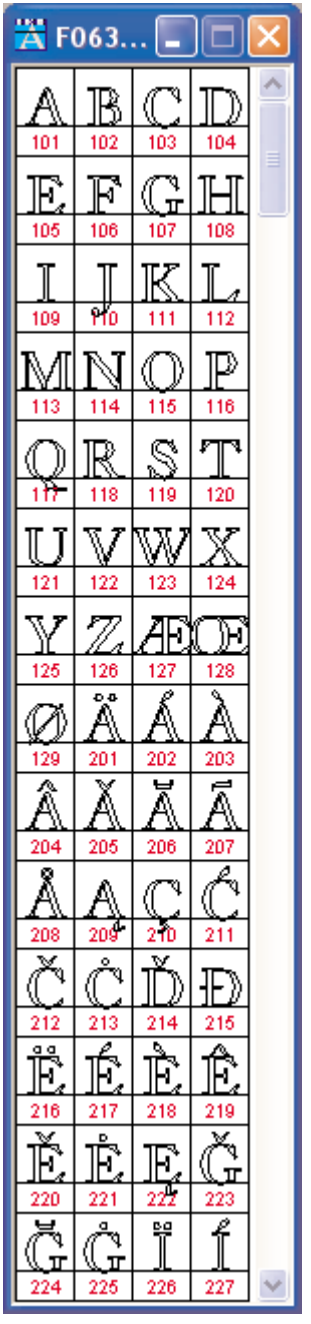
The following menus are available while the Character List Window (right) is active:

File View Edit Window Help

In the Character Edit Window the actual designing takes place.The following menus are available while the Character Edit Window (below) is active:

File Edit View Tools Function Special Config Window Help





The Character List Window (top) shows an overview of all characters in the database. The Character Edit Window is shown left.

FILE MENU

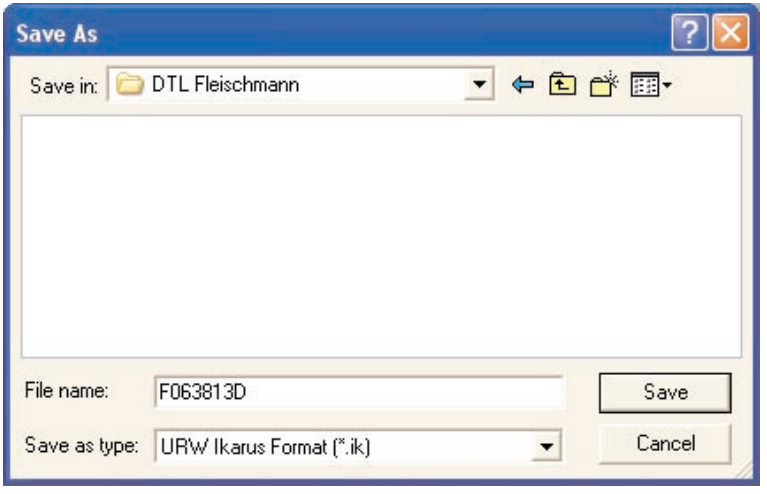
The file menu has the following functions in the pull down menu:

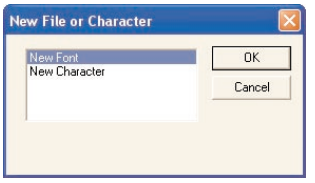
New (⌘ + N) (Ctrl + N)

This function allows you to create a new font or a new character in an already open font.

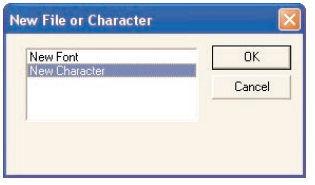
1. New font

Generates a new IK font. You should name and save the font first. Afterwards you insert the character number of the character in the new font you wish to create.





Before a new IK character can be created, first a new IK font has to be generated.

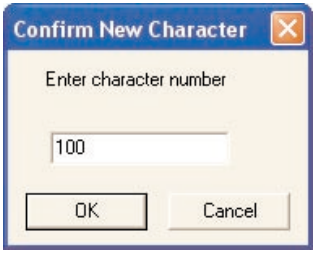


After a new IK font is generated, a new IK character can be created.

2. New Character

Insert the number of the new character you wish to insert into your currently edited font in the following dialog box.

Allowed character numbers are in the 16-bit range i.e. from 1 to 65535. 0 (zero) is not an allowed number. Character numbers can be found in Appendix IX: *Character number listing*.



TIP: Instead of generating a new character by entering the appropiate BE number, the Font Administration tool from the View menu can be used. Double clicking with the mouse on a cell of a particular codepage will open the character and add the IK number to the database accordingly.

After a character number has been defined, a new slot in the Character List Window is generated.

Open (⌘ + o) (Ctrl + o)

Opens an existing font using the standard open file dialog box. After succesfully opening the font the program will display all characters in the Character List Window. This window can be used to select characters to be edited by simply clicking into the small window. Several character edit windows can be opened simultaneously.

On Windows systems there is the option to use abbreviations (archives) for predefined directories. If a certain flag in the Windows registry is set, the program will accept only input from archives and display a special open dialog.

Close (⌘ + w) (Ctrl + w)

This function works differently depending on which window is currently active. If the character list window is active, it will close the font which you are working on. If you have changed some characters, you will be asked whether to save or not save the changes you made. All open character edit windows will be closed too. If the character edit window is active only this particular window will be closed.

Save (⌘ + s) (Ctrl + s)

Saves the data to disk. It is recommend to use this function frequently to avoid a loss of data. This function works both in the Character List Window and the Character Edit Window.

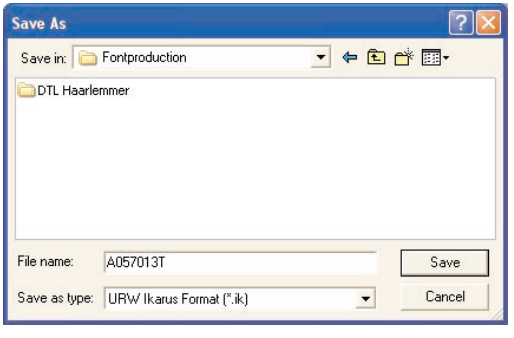
Save as (⌘ + ⇧Shift + s) (Ctrl + ⇧Shift + s)

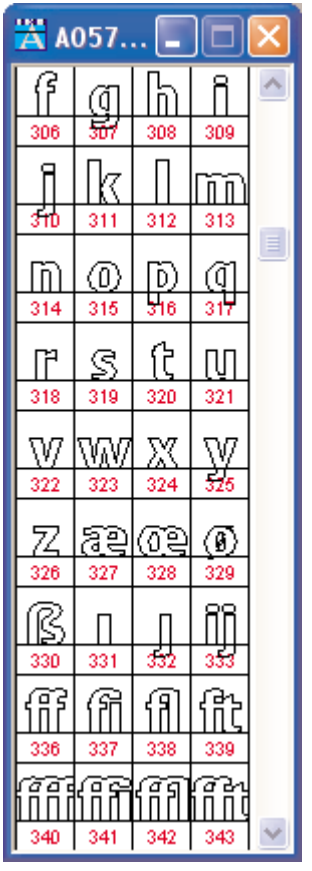
This option functions different depending on the active window:

1. Character Edit Window active

Saves the character you are working on to a different character number in the font database. The Character Edit Window will subsequently contain the new character. The previously edited character will be closed without saving the changes.

This function can be used to duplicate characters to other positions, as a basis to construct new characters, such as accents, from existing ones, or simply to reposition characters.





After succesfully opening the font the program will display all characters in the Character List Window.

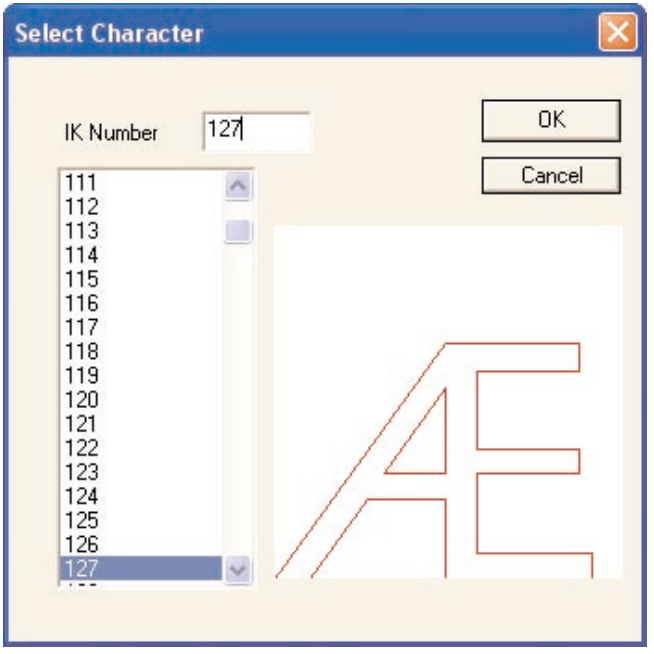
The Character List Window has to be active for saving the font under a different name.

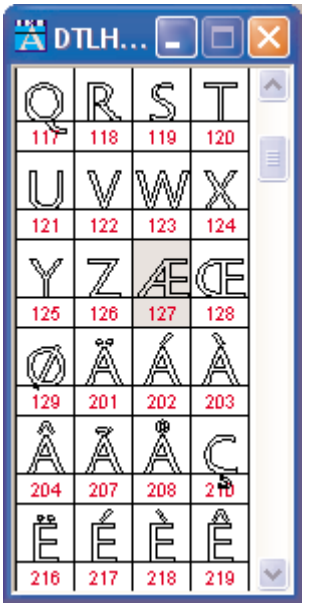
2. Character List Window active

With this function you can save the font under a new name.

Select character

In the following dialog box you can select a character by double clicking its number. The image of the character will be displayed as you click on the number once. You can also enter a character number numerically or use the arrow keys (up and down) to scroll through the character list. Double clicking on a character in the Character List Window gives the same result.





The numbers shown in the Select Character dialog are, of course, the same as in the Character List Window.

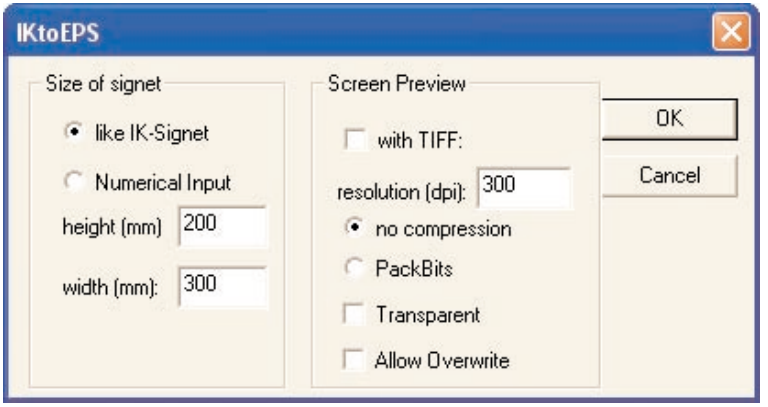
Delete character (← Backspace) (Delete)

To delete a character, just select the character in the Character List Window on the left side by clicking once on the character and then press the <←Backspace> or <Delete> key.

Import EPS file

Reads an EPS file and converts it to IK format. For instance EPS files made with Adobe Illustrator® can be imported. The EPS data will be converted to Ikarus format and merged into the currently active Character Edit Window.

The size and positioning of the IK data is taken from the EPS data and scaled to the bodysize of the font. Please note that the EPS file must have the suffix *.eps* to be recognized. The EPS file must also not contain multiple layers; these have to be removed first before importing the data in the Character Edit Window.



The IK to EPS dialog offers a number of options for the export of EPS files.

EPS Output

Glyphs can be exported individually as EPS data. The same functionality is available for groups of glyphs from the *EPS Output* option in the **Batch** menu.

TIP: To export IK glyphs as EPS data in groups, the EPS Output function in the Batch menu can be used.

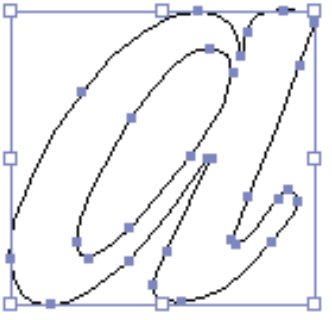
– Size of signet

The glyph(s) can be exported with unchanged size by selecting the option *like IK-Glyph*. This preserves the original relation to the other glyphs in the font database, which makes re-importing (for instance after editing in Adobe Illustrator®) possible without any scaling. With the option *Numerical Input* the bounding box can be scaled to any size measured in millimeters.

– Screen Preview

The EPS files can be provided with a TIFF for screen previewing. As an option the required resolution can be entered. The default reolution is 300 dpi. The TIFF files can be compressed with Apple's *PackBits* format or leaved uncompressed, which is the default setting.

Further options are *Transparant* and *Allow Overwrite*, which let the program overwrite EPS files with the same name. The name of the EPS is taken from the name of the database plus the Character Number. Exporting the glyph with Character Number 302 of the H022013D named database will result in H022013D_00302.EPS. The EPS files are automatically stored in the directory that contains the used font database.



Exported EPS files can be imported for instance in Adobe Illustrator®.

Print (⌘ + P) (Ctrl + P)

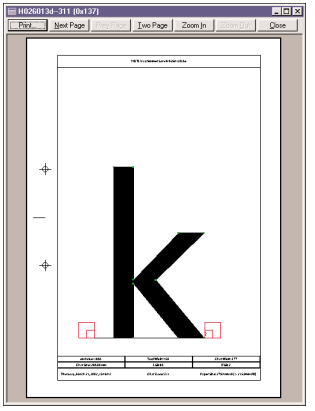
Uses the standard printer driver print dialog. Select the number of pages you wish to print or set the properties of the printer. These depend on the printer you have installed.

Print Setup ... (⌘ + ⇧Shift + P) (Ctrl + ⇧Shift + P)

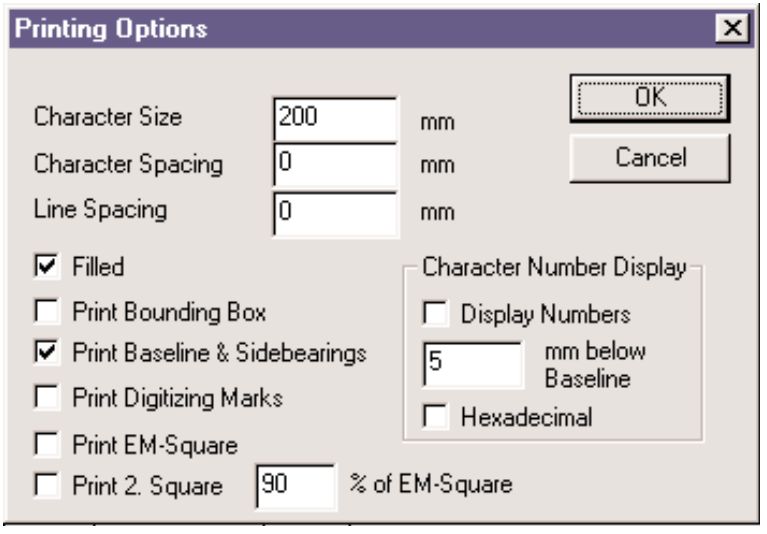
This function allows you to change the printer and printer properties.

Print Preview

This function works differently depending on which window is active.
–If the Character Edit Window is active, a printout of this character will be generated with the selected print options and be displayed in the currently active window as a preview.
–If the Character List Window is active all characters or the selected ones (see **File Menu** –> *Printing Options* –> *Text Options*) will be prepared for printing and the generated page will be shown in the character list window. Since this window is quite narrow it should be enlarged to show the complete page and all the options for the display of the preview.



Print previewing is possible.



A large range of print options is available when the Character Edit Windows is active.

Print Options (⌘ + ⌥Alt + P) (Ctrl + Alt + P)

These options are different depending again on the active window:

1. Character Edit Window active

This function allows you to set different options for proofing of individual characters.

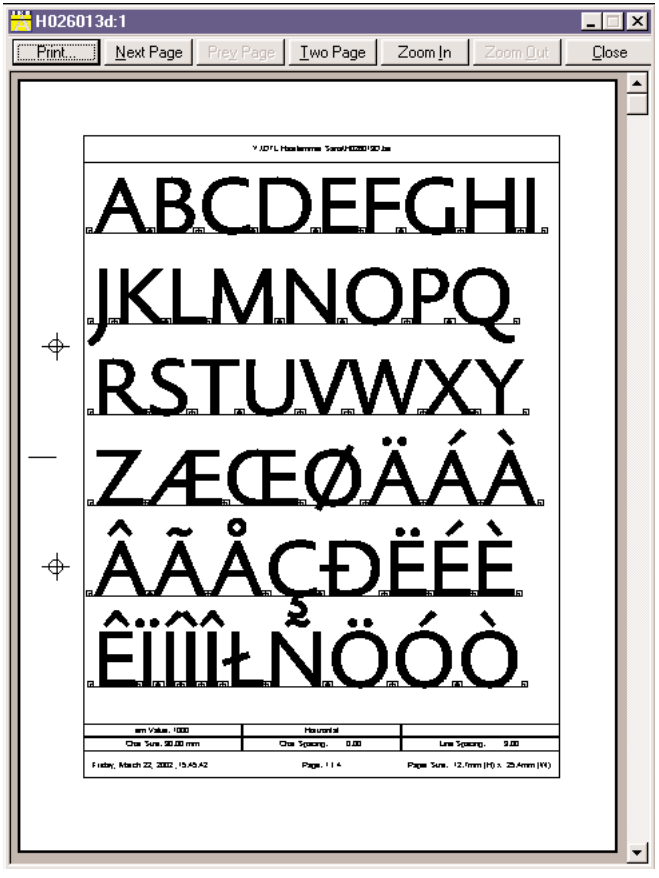
1.1 *Character Size* (bodysize in millimeters).
1.2 *Character Spacing* (spacing in millimeters).
1.3 *Line Spacing* (line spacing in millimeters).
1.4 *Filled* (displays the character solid or as outline).
1.5 *Print Bounding Box* (shows the character bounding box).
1.6 *Print Baseline & Sidebearings* (shows baseline and sidebearings).
1.7 *Print Digitizing Marks* (shows anchor and control points).
1.8 *Print EM-Square* (shows the EM around the character).

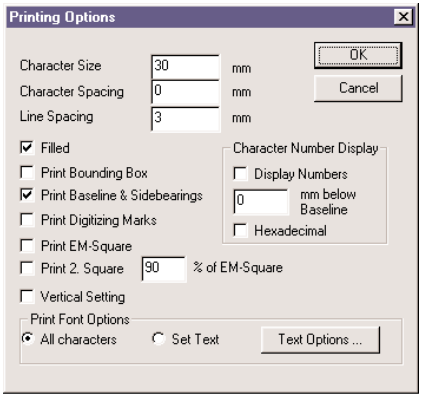
1.9 *Print 2. Square* (shows the facesize for Kanji).
1.10 *Display Numbers* (shows the character number at the set distance below the character).
1.11 *Hexadecimal* (Output of character number in hexadecimal; decimal is the default setting).

2. Character List Window active

This function allows to set different options for proofing of several or all characters. Additional options compared to the printing of a single character are:

2.1 Character spacing (distance between the sidebearings of two characters).
2.2 Line Spacing (distance between the two lines of text).
2.3 Horizontal/vertical setting (option for Kanji setting).

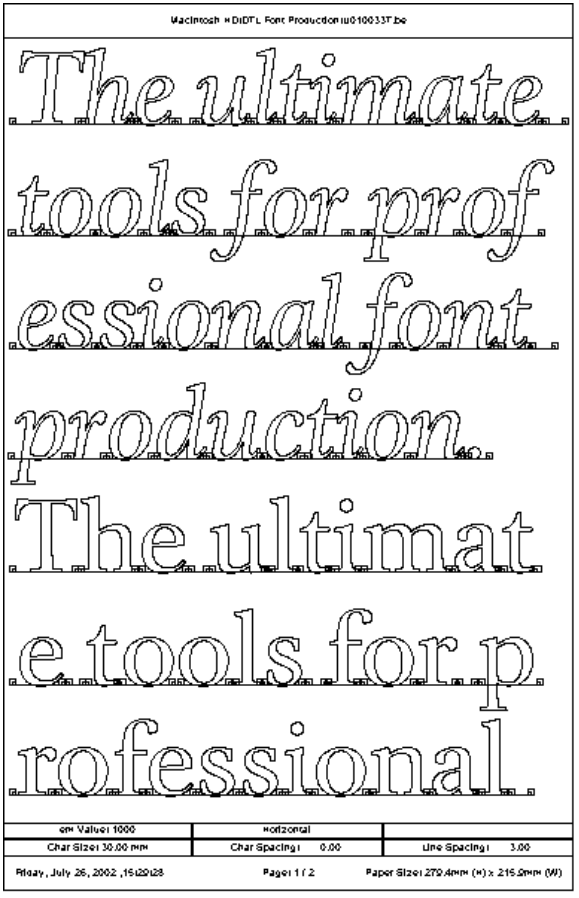


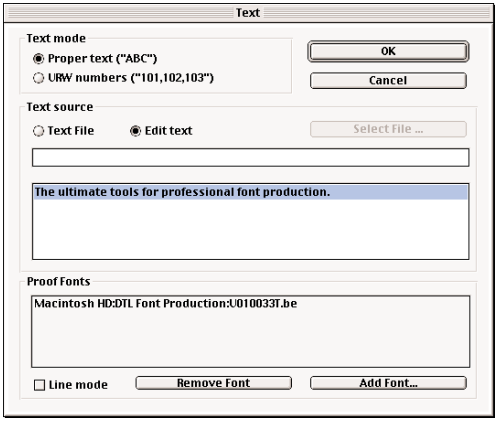


A large range of print options are available when the Character List Window is active. The options selected in the dialog above result in the output shown on the left.

2.4 TextOptions. You will see a dialog which allows the input of character numbers or proof text. For proof text you can select an existing text file or edit text in the Edit Window. You can also choose different fonts for printing the selected text.

After selecting Text Options … in the Printing Options dialog it is possible to enter a text for proofing the font(s), as shown at the left.





(left) In case you have chosen more than one font to display the text, you can display the whole text in the first font, then in the second, the third, etcetera. Note that the line mode will change the Proof fonts after each line of text, not after the complete text.

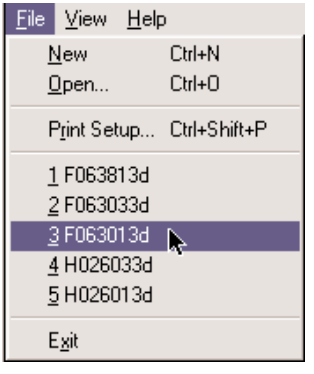
File list, 1 … 2 … 3 … 4 …

Select a font from up to eight font files listed in the **File** menu. These fonts have been opened before and have been memorized by the program automatically.

Exit (⌘ + Q) (Ctrl + Q)

Exit the program. If unsaved data is still in memory, the program will ask you if you would like to save these changes to disk.

On Windows you can also use the standard <Alt> + <F4> to close the program.



The File List, 1 …, 2 …, 3 …, 4 …, function will show up to eight of the most recent used files.

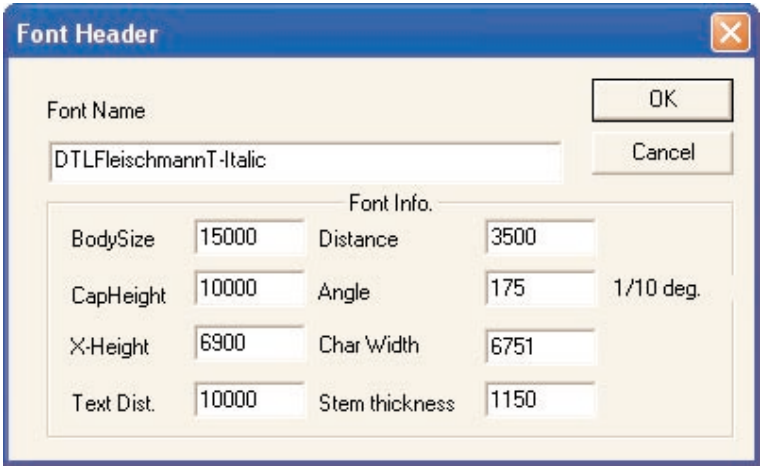
EDIT MENU

These options are different depending on the active window:

1. **Character List Window active**

Change Font Header (⌘ + ⇧Shift + F) (Ctrl + ⇧Shift + F)

Use this function to numerically change the Font Header as well as to display the content. All values are font specific and might be used for further format conversions.



*The font header contains general information about the complete font. These settings are used for instance for the V|H Guide Lines function in the **View** menu and for the generation of the UFM file.*

The *Distance* is the space between the baseline descender line. The BodySize is normally the distance between the extremes of the ascender and the descender.

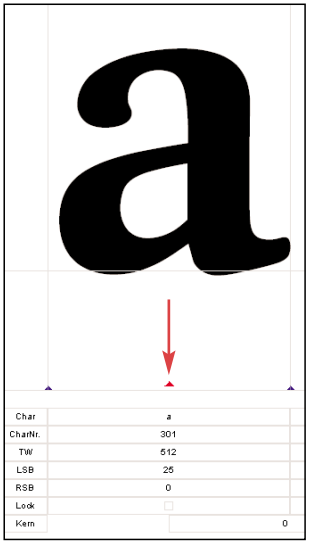
Metrics Editor

This is a very powerful tool to adjust the positions and widths of characters. The Metrics Window can be resized to take full advantage of the screen resolution. The anti-aliased shown Characters can be selected by keystrokes or by character (database) number. The size of the characters can be defined by point size.

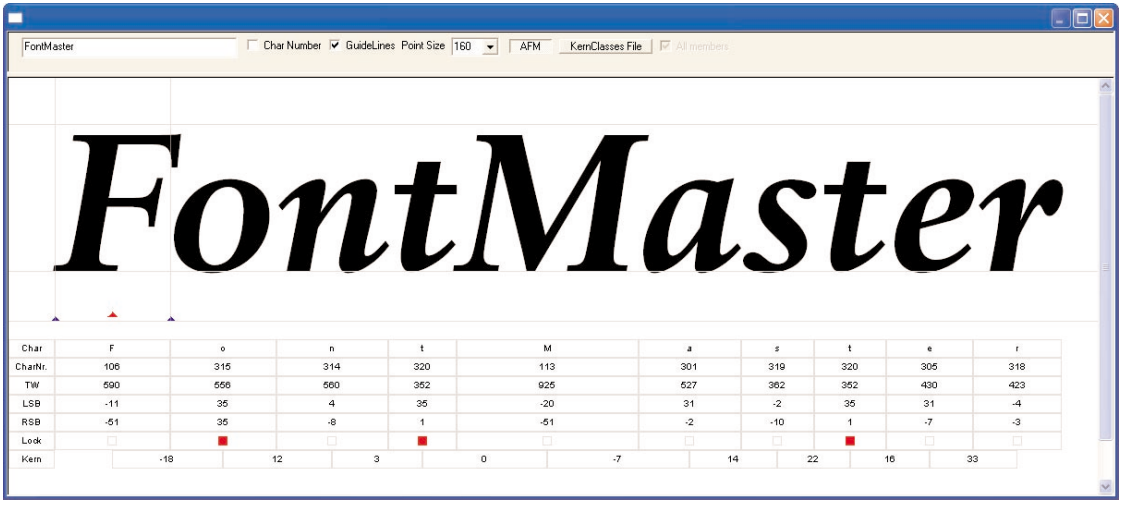
The position of the characters can be changed by selecting and dragging the triangle below the line that marks the *Distance* value in the Font Header (normally the length of the descenders). The triangle marks the centre of the *bounding box*. By default the triangle is blue but in case a character is selected the triangle in the centre is red. Only a selected triangle can be moved. The side bearings can be changed by dragging the blue triangles (these don't change colour) that mark the widths of the characters. Always take note of the fact that moving the side bearings only affects the width of the selected character (marked with the red triangle in the center). The side bearings are shown if the option *guidelines* is selected.

Changes to the width can also be made numerically by altering the values of the side bearings indicated by LSB (left) RSB (right). The changes made in the Metrics Editor are saved automatically to disk. There is of course an undo function. To prevent any errors, there is the possibility to lock the position and the width of the shown characters.

Further options include the import and export from kerning information from AFM file or kern feature file, which for instance can be generated both by DTL KernMaster.



A red triangle in the centre (of the bounding box) marks a selected character.



The Metrics Editor is a powerful tool to adjust the positions and widths of characters.

2. Character Edit Window active

Undo (⌘ + Z) (Ctrl + Z)
Undoes the last editing action. The program supports up to 50 undo levels.

Redo (⌘ + Y) (Ctrl + Y)
Redoes the last editing action with the **Undo** function. Redo supports up to 20 different redo steps.

Undo Character Editing
Undoes all changes since the last **Save**.
The program will ask for a confirmation before all edits are discarded.

Cut (⌘ + X) (Ctrl + X)
Deletes and simultaneously copies one or more selected contours to the clipboard.

Copy (⌘ + C) (Ctrl + C)
Copies all selected contours to the clipboard.

Paste (⌘ + V) (Ctrl + V)
Pastes the content of the clipboard into the currently edited character at the position which is defined as the original position plus a fixed offset in X and Y which is currently set to 300,300 for 15000 EM.

Paste (⌘ + ⇧Shift + V) (Ctrl + ⇧Shift + V)
Pastes the content of the clipboard into the currently edited character without offset.

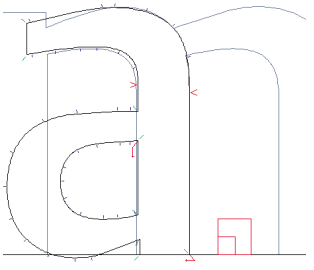
Select all points (⌘ + A) (Ctrl + A)
Selects all points of the character.

Copy into Background (⌘ + Ctrl + C) (Ctrl + Alt + C)
Copies the character in the foreground into the background.

Replace by Background (⌘ + Ctrl + R) (Ctrl + Alt + R)
Replaces the character in the foreground by the character in the background.

Paste from Background (⌘ + Ctrl + V) (Ctrl + Alt + R)
Adds the character in the background to the character in the foreground.

Next Character (⌘ + →KeyRight) (Ctrl + →KeyRight)
Selects the next character in the currently active character edit window



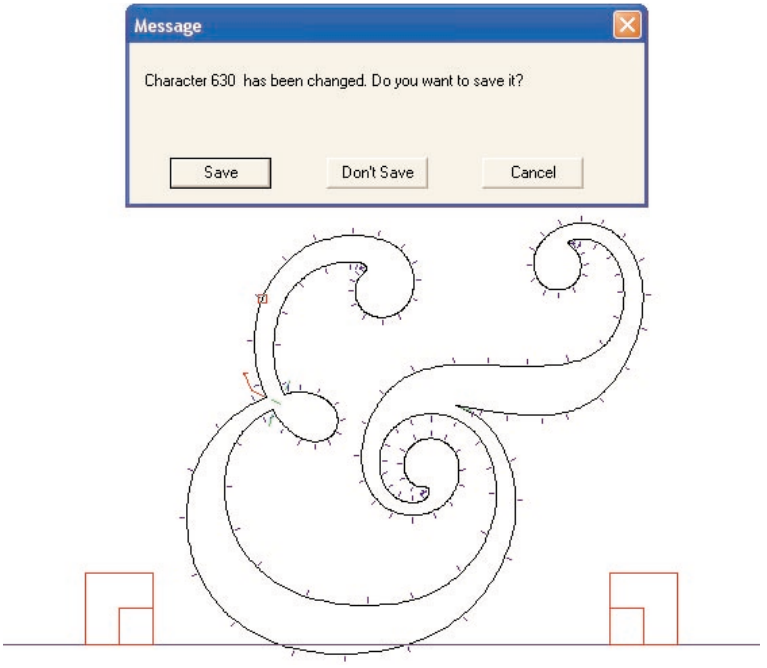
Copying in fore- and background can be done using shortcuts.

with respect to the character number. If the currently edited character has been modified, the program will ask if you want to save the edits.

If the background is active, the character in the background will be changed too if the same number as used for the foreground character exists.

Previous Character (⌘ + ←KeyLeft) (Ctrl + ←KeyLeft)
Selects the previous character in the currently active Character Edit Window with respect to the character number. If the currently edited character has been modified the program will ask whether to save the edits or not.

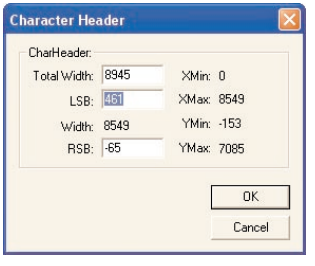
If the background is active, the character in the background will be changed too if the same number as used for the foreground character exists.



If changes have been made to the current character, the program will ask whether to save these or not before showing the next or previous character.

Change Character Header (⌘ + I) (Ctrl + I)
Use this function to numerically change the left side bearing (LSB), right side bearing (RSB) and total width (the width is calculated automatically).

You can edit the fields on the left side. You can not edit the xMin, xMax, yMin and yMax fields. These will be calculated automatically.



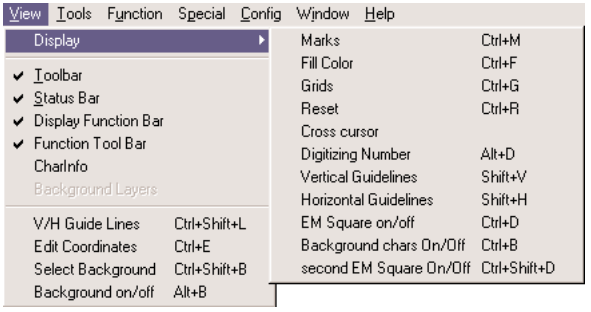
In the Character Header dialog the width and side bearings can be numerically changed.

The side bearings can also be changed by selecting and dragging in the Character Edit Window.

Change Font Header (⌘ + ⇧Shift + F) (Ctrl + ⇧Shift + F)
Use this function to numerically change the Font Header as well as to display the content. All values are font specific and may be used for further format conversions.

VIEW MENU

This menu has different options depending again on the active window. If the Character Edit Window is active you will see the following menu entries.



Display

In this submenu several parameters for the display can be set.

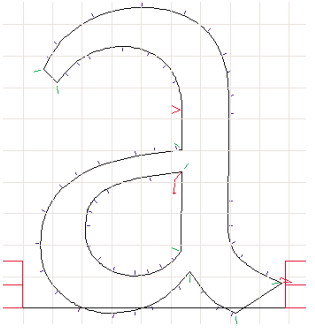
***Display Marks* (⌘ + M) (Ctrl + M)**
Displays the Ikarus points:
– *Start points* (indicated with an arrow)
– *Corner points* (indicated with a long line)
– *Curve Points* (indicated with a short line)
– *Tangent points* (indicated with a v-shaped line)

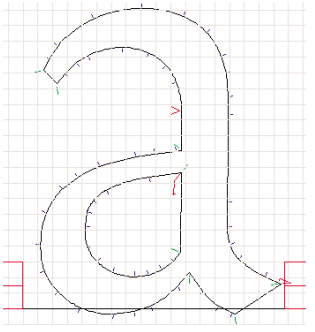
***Fill Color* (⌘ + F) (Ctrl + F)**
Use this function to switch on and off the filled display. The colour is set in the **Config Menu**: ***Editor functions and colors***.

***Grids* (⌘ + G) (Ctrl + G)**
Use this function to switch on and off a grid which is shown in the background. The grid can be defined in the **Config Menu**: ***Editor functions and colors***: ***Grid step***.

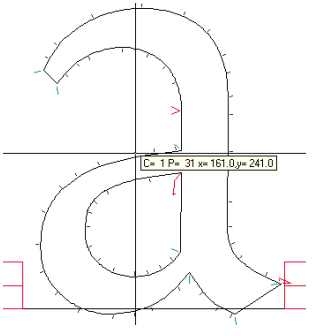
***Reset* (⌘ + R) (Ctrl + R)**
Resets the display to the default size. Use this function also to redisplay the character in case of display problems.

Cross Cursor
Use this function to switch on and off a cross-hair cursor.





The grid is defined in the ***Config Menu: Editor functions and colors: Grid step****.*



The cross cursor is an alternative for the arrow (pointer) tool.

Digitizing Number **(⌥Alt + D) (Alt + D)**
Use this function to switch on and off the digitizing numbers of the anchor and control points, corresponding to the Edit XY list.

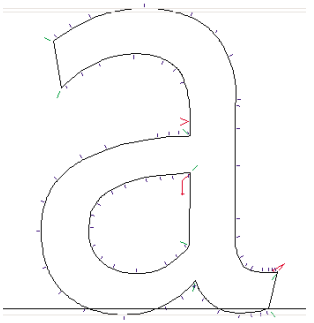
Vertical Guidelines **(⇧Shift + V) (⇧Shift + V)**
Use this function to switch on and off the vertical guidelines as set in **View** –> ***V/H Guidelines***.

Horizontal Guidelines **(⇧Shift + H) (⇧Shift + H)**
Use this function to switch on and off the horizontal guidelines as set in **View** –> ***V/H Guidelines***.

EM Square on/off **(⌘ + D) (Ctrl + D)**
Use this function to switch on and off the EM square.

Background chars on/off **(⌘ + B) (Ctrl + B)**
Use this function to hide and display the characters that are put into the background.

Second EM Square on/off **(⌘ + ⇧Shift + D) (Ctrl + ⇧Shift + D)**
Use this function to switch on and off the second EM square, as defined in the **Config** –> ***Settings*** menu.



*With the **Horizontal Guidelines** switched on, the guidelines set in the **View** menu will be shown.*

Toolbar
Use this function to switch on and off the toolbar with the file and print icon, etc. at the top of the screen. You can use the toolbar to simply select for example, Open or Save, by clicking on the toolbar icon.

Status bar
Use this function to switch on and off the status bar with the date and time at the lower side of the screen.

Display Function bar
Use this function to switch on and off the display functions toolbar at the top of the screen. You can use the display functions toolbar to simply hide or display, for example, marks and grid, by clicking on the toolbar icon.

Function Toolbar

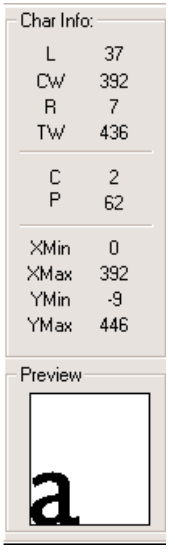
Use this function to switch on and off the Function Toolbar at the right side of the screen. You can use the Function Toolbar to simply select, for example, shift or *Zoom*, by clicking on the toolbar icon .

You can also use the construction tools, such as *Circle* or *Rectangle*, etcetera by clicking on the toolbar icon.

Charinfo

Hides or displays an information window for the characters metrics. The information will be shown on the right side of the screen together with a small filled preview of the character.

The explanation of the number is as follows:

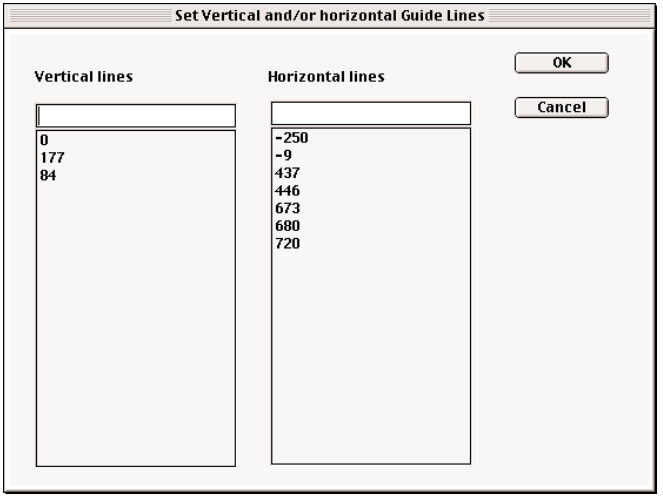


*The functions in the Function Toolbar (top) are described in the chapter about the **Tools** menu.*

L	(left side bearing; 1/100 mm)
CW	(character width; 1/100 mm)
R	(right side bearing; 1/100 mm)
TW	(total width; 1/100 mm)
C	(number of contours)
P	(digitizations; number of IK points)
xMin	(position of leftmost IK point)
xMax	(position of rightmost IK point)
yMin	(position of lowest IK point)
yMax	(position of uppermost IK point)

V/H Guide Lines (⌘ + ⇧Shift + L) (Ctrl + ⇧Shift + L)

You can determine vertical and horizontal guidelines in the following dialog. The values for the vertical guidelines start from the left sidebearing (LSB) of the character. After inputting a value, press the <↵Return> key.

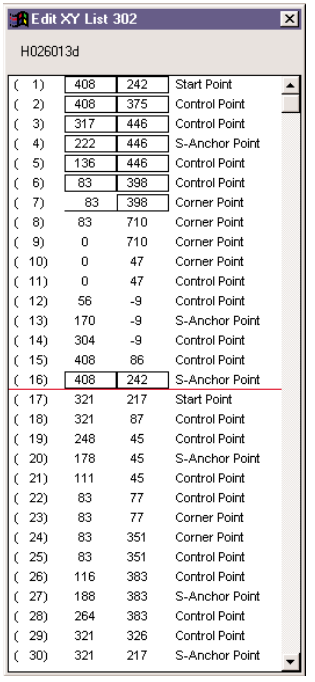


*The horizontal guide lines for ascender, x-height and descender are automatically generated based on the values in the Font Header in the **Edit** menu.*

Edit Coordinates (⌘ + E) (Ctrl + E)

Here you can edit the coordinates of all IK points in the following submenu. Selected points are marked in the display as well as in the list.

To shift the selected points numerically just double click on one selected value in the Edit Coordinates window and change it to the desired value by keyboard input. If several points are selected all points will be modified with the same amount. Undo/redo is possible via <Ctrl> + Z/Y.

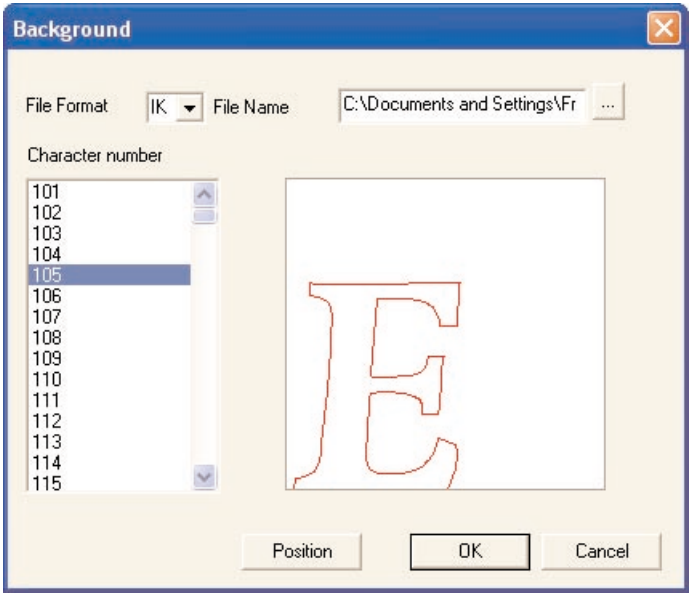


In the Edit Coordinates window the coordinates can be edited nummerically.

Select Background (⌘ + ⇧Shift + B) (Ctrl + ⇧Shift + B)

You can select another IK character from the same font or another font as a background character.

It is also possible to display a scanline character (from scanned input) as background. You can select the background from the dialog shown below.



You can select different formats (IK, II, BE and SC) for the background. It is possible to show IK and SC in the background simultaneausly.

If a background character is selected from a font database that contains more characters, typing ⌘ + → or ⌘ + ← will show not only the next or previous character in the foreground but also the next or previous character from the background font. Closing the Character Edit Window will remove the link to the background font.

Background on/off (Ctrl + B) (Alt + B)

With this function you enable or disable the background. You can also determine whether the outline font in the background is shown with or without marks or modify the position of the glyphs.

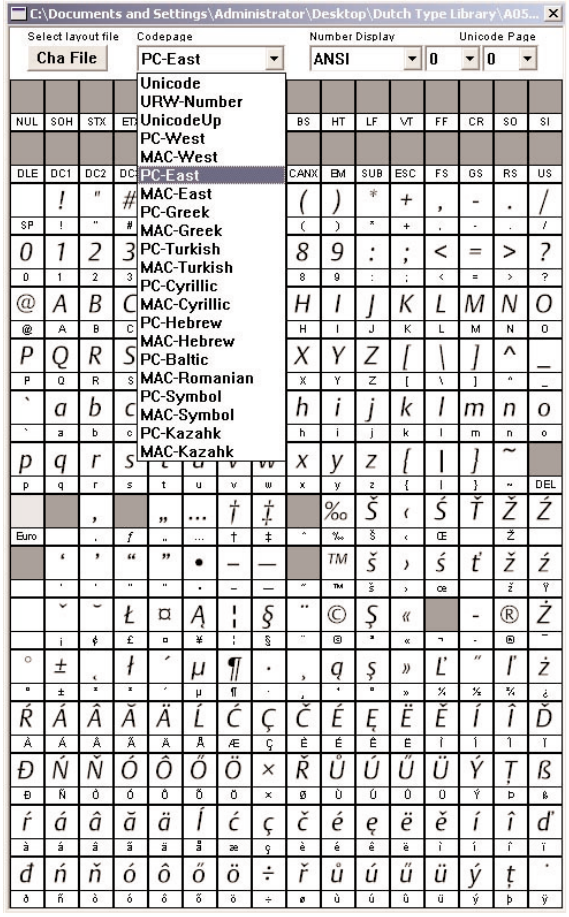
With Show background you can make the background visible.

If the Character List Window is active the **View** menu will only display the options *Toolbar*, *Status Bar* and *Font Administration*.

The *Toolbar* and *Status Bar* functions have been described in the previous pages.

Font Administration (⌘ + U) (Ctrl + U)

This is a very powerful tool for handling and organizing the font database. Because allowed numbers are in the 16-bit range, the database can consist of more than 65.000 characters. In the Font Adminstration window the different code pages that are supported by the character set in the database can be shown beside the Unicode and the Character Numbers. It is possible to copy and paste between the codepages. Pasted characters will be placed in the database automatically under the appropriate number. Newly (re)placed characters are saved automatically. Be aware that undo is not available here!

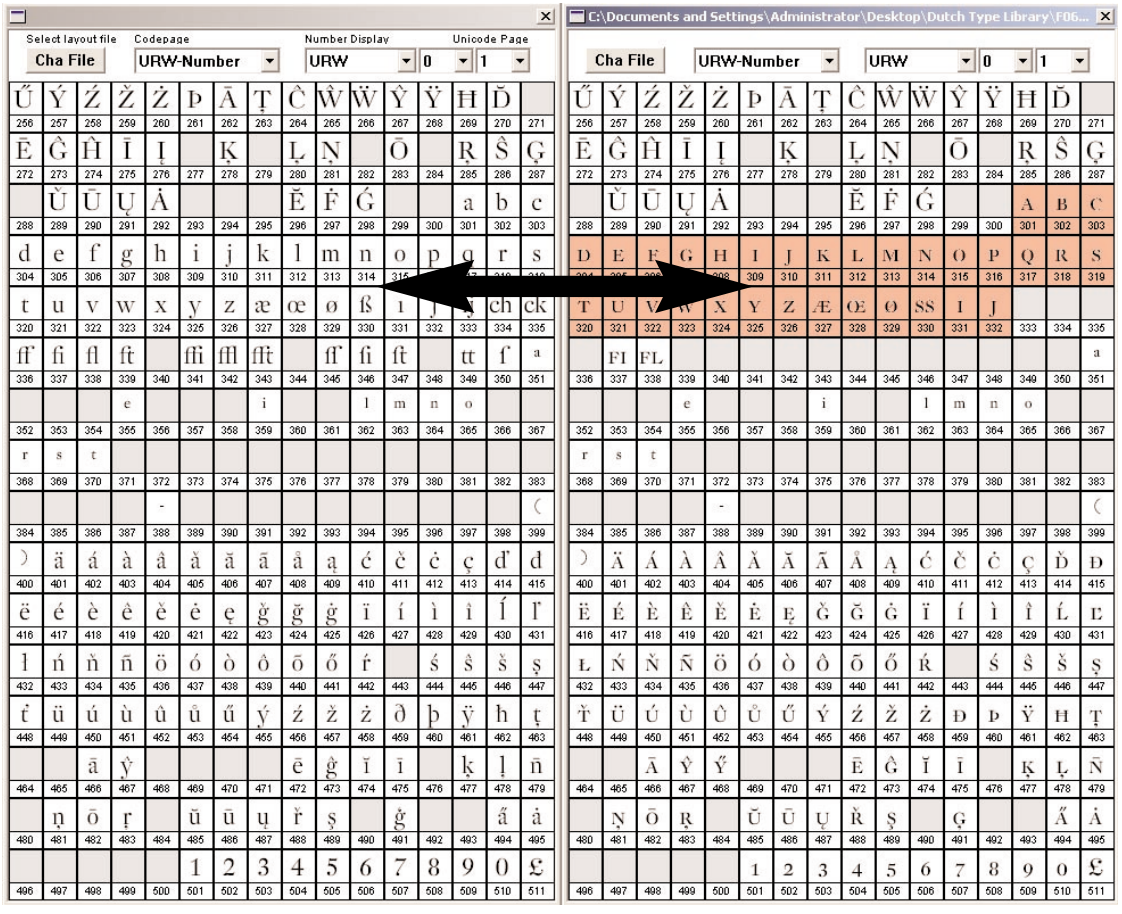


TIP: Because changes made to the database with the Administration Tool are irreversible, it is recommended to make a back up of the font first.

The current beeditor.cha file supports the following codepages:

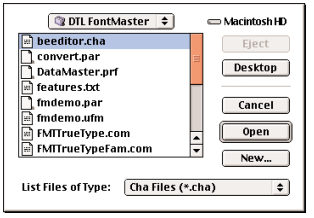
- *Unicode*
- *URW-Number*
- *PC-West*
- *Mac-West*
- *PC -East*
- *Mac -East*
- *PC-Greek*
- *Mac-Greek*
- *PC-Turkish*
- *Mac-Turkish*
- *PC-Cyrillic*
- *Mac-Cyrillic*
- *PC-Hebrew*
- *Mac-Hebrew*
- *PC-Baltic*
- *Mac-Romanian*
- *PC-Symbol*
- *Mac-Symbol*
- *PC-Kazakh*
- *Mac-Kazakh*

Although characters can be copied and pasted between different IK databases in the Character Edit Window, this functionality is limited to one character at the time. With the Font Administration tool it is possible to copy and exchange (large) ranges of characters between different databases. To select more than one character, hold down the <⇧Shift> key while you select single characters or several series of characters. Characters can be selected in serie by holding the mouse button down and simply dragging the mouse.



With the Font Administration tool characters can be exchanged between different font databases.

The Character Edit Window can also be opened from the Font Administration tool by double clicking on a character.



The Character Layout Files are placed in the same directory as the FM modules, libraries and the other stuff.

Different Character Layout Files (*.cha) can be selected. These Character Layout Files are also used by DTL DataMaster when fonts are generated. After installing DTL FontMaster four Character Layout Files are installed in the same directory as the FM modules:

– *beeditor.cha*

This is the default Character Layout File for DTL BezierMaster.

– *TTBAS.CHA*

Basically you can ignore this Character Layout File here because normally it will only be used in DTL DataMaster to import fonts.

– *urwotf.cha*

In DTL DataMaster this Character Layout File must be selected when you want to generate OpenType. All possible OpenType features will only be generated if this .cha file is selected.

– *winuni.cha*

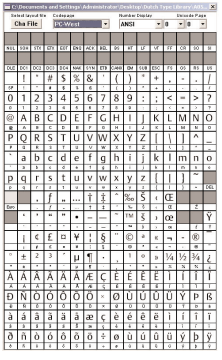
Basically you can ignore this Character Layout File here because normally it will only be used in DTL DataMaster to import fonts.

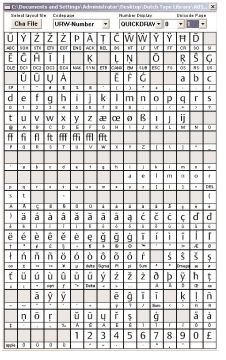
Currently, the beeditor.cha file supports 21 code pages. The Character Layout Files are fully editable and more code pages can be added by the user (see Appendix III).

The Number Display shows five options that can be used in combination with the codepages:

–HEX (hexadecimal notition; default for Unicode)
–URW (URW database numbers)
–ANSI (default for PC codepages)
–QUICKDRAW (default for Macintosh codepages)
–DECIMAL (decimal notition)

Although there are some default combinations of codepages and number displays, each possible combination can be made.



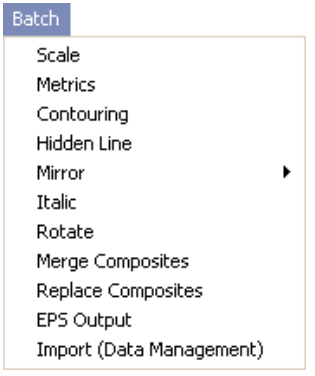


From left to right the code pages for Mac-West, PC-West, Mac-East, and URW-Number.

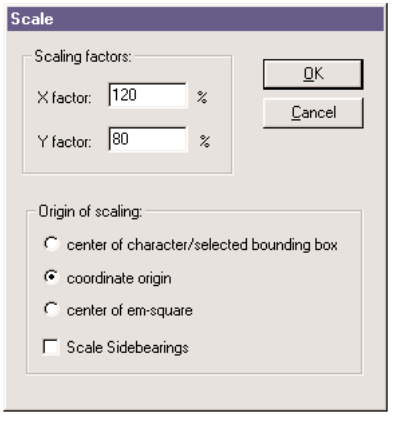
BATCH MENU

This menu is only available in case the option *Font Administration* is selected from the **View** menu. The functions in the **Batch** menu can also be found in the **Tools** and **Special** menus when the Character Edit Window is active. The big difference between the functionality in the **Batch** menu and the other two menus is that in the *Font Administration* tool several or even all characters can be selected for processing while using the same functions in the Character Edit Window only influences the selected character. If no glyph is selected the batch operation will be applied to all glyphs in the database.

Please pay attention to the fact that changes are irreversible; the operations applied to the glyphs are automatically saved on the disk.



*The options in the **Batch** menu are only available in case the Font Administration tool is active.*



Scale

After having selected contours or the whole character, input the scaling factors in X and Y direction in %. You can also determine the origin of the scaling and whether or not you will scale the sidebearings simultaneously.

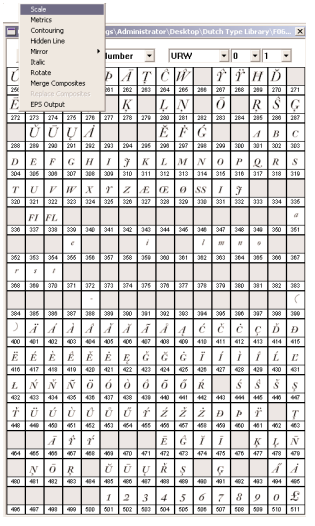
Metrics

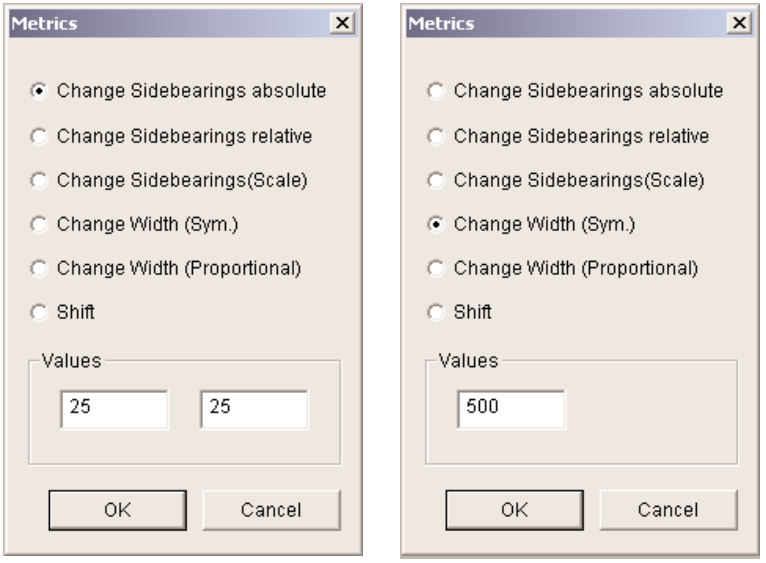
There are several options to modify the metrics by changing the widths or sidebearings of the selected glyphs. In the Metrics dialog positiv or negative values can be entered in the input field(s) called *Values*.

– Change Sidebearings absolute

The sidebearings of all the selected glyphs will get the values specified in the two input fields for the left and right sidebearing.

In case no glyph is selected the batch operation will be applied to all glyphs in the database.





For changing the sidebearing(s) the dialog will show two input fields ('Values'): one for the left and one for right sidebearing. For changing the width(s) there is, of course, only one input field available.

– Change Sidebearings relative

The sidebearings of all the selected glyphs will be modified by the values specified in the two input fields (for the left and right sidebearing).

– Change Sidebearings (Scale)

The sidebearings of all the selected glyphs will be scaled according to the values specified in the input field.

– Change Width (Sym.)

The total width of all the selected glyphs will be made equal to the value in the input field. The glyphs will be centered in the specified width, this way making the left and the right sidebearing equal (symmetrical).

– Change Width (Proportional)

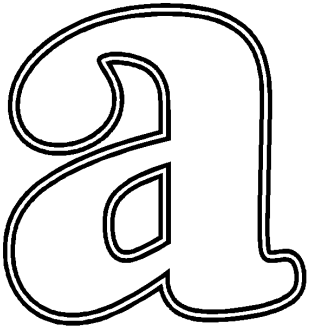
The total width of all the selected glyphs will be made equal to the value in the input field. The left and the right sidebearings will be changed proportionally according to the original relation between the sidebearings.

– Shift

The glyphs will be shifted in horizontal or vertical direction by the specified amount.

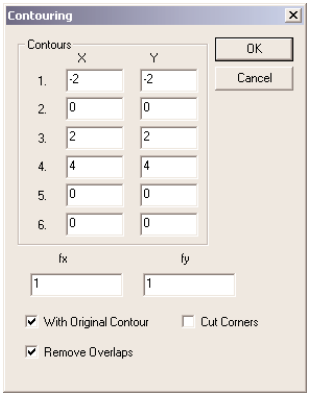
Contouring

This function is used to create additional contours automatically, so called outlined characters. It can also be used to bolden a typeface or make it



An example of contouring.

thinner. Input up to six values in millimetres into the Contouring dialog to create up to the same amount of additional contours. A positive value of for example 2 adds a contour with two millimetres distance from the original contour to the outside. A negative value works to the inside.



Up two six contours can be generated using the Contouring function from the ***Batch*** *menu.*

– Contours

Here you can enter positive or negative values for the contouring.

– fx and fy

The creation of contours can be combined with scaling. The factors specified for scaling in horizontal and vertical directions will be applied on the selected glyph(s).

– With Original Contours

In case this option is selected the original contour will be preserved. This only works if the specified values are positive.

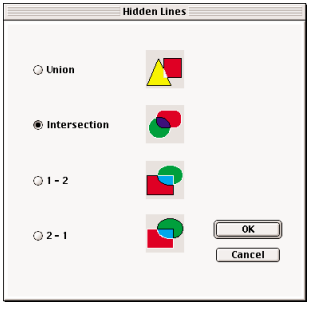
– Cut Corners

Selecting this option will preserve line thickness in the newly generated contour.

– Remove Overlaps

The functionality of this option is comparable with the *Union* function from the *Hidden Line* option and prevents overlapping contours.

The Hidden Line dialog.



Hidden Line

This function merges overlapping contours. It currently works always on the complete character.

– Union

Merges the contours.

– Intersection

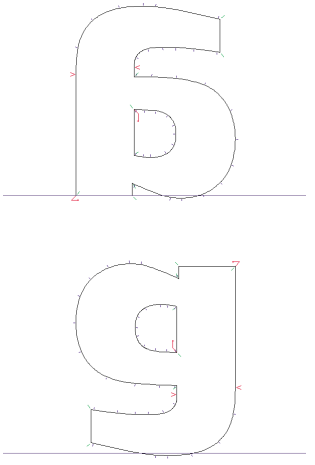
Creates the intersection. Only the overlapping parts remain. The rest of the contours are deleted.

– 1-2

Deletes the second contour and the part of the first contour that was overlapped.

– 2-1

Deletes the first contour and the part of the second contour that was overlapped.



The a on top is mirrored Left <–> Right and the other Top <–> Bottom.

Mirror

This function mirrors the selected contours or the whole character. There are two options.

Left <–> Right

This function mirrors the selected contours or the whole character horizontally around the center of the selected parts.

Top <–> Bottom

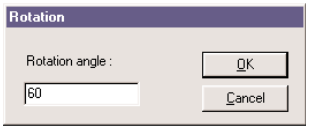
This function mirrors the selected contours or the whole character vertically around the center of the selected parts.

Italic

Use this function to oblique the character electronically. A special selection mode is not required. In this function the character mode is always used. After selecting the function a pop-up menu appears. An angle between –45 and +45 degrees is recommended. A positive angle obliques clockwise.

Rotate

The rotate function works for selected contours or the whole character. Input a Rotation angle; a positive angle rotates clockwise.



The Rotate dialog in which the angle can be specified.

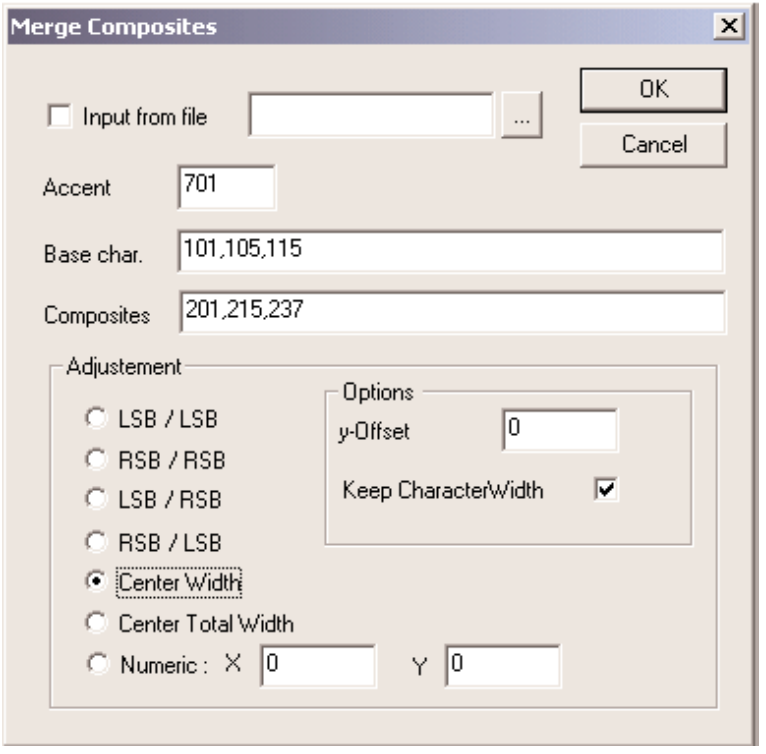
Merge Composites

This is an extremely powerful function that creates accented characters or fractions or other glyphs made out of several composites. It allows a manual parametrization or it can alternatively read and create composites from an external text file.

Selecting the *Merge Composites* function will open a dialog which shows a range of options.

– Accent

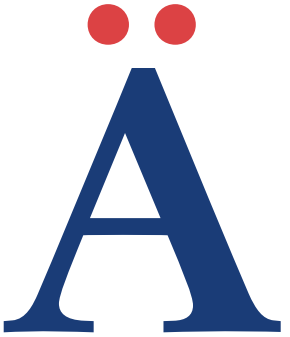
This makes together with the options *Base char.* and *Composites* manual parametrization possible. In the *Accent* input field the Character Number of the accent is specified. For instance number 701 indicates the upper case dieresis.



The Merge Composite dialog.

– Base char.

Here the Character Number(s) must be entered of the character(s) that should be combined with the specified accent. Combining the character numbers 101, 105, 115 which stand for repectively A, E and O with Character Number 701 (Dieresis) will result in Adieresis, Edieresis and Odieresis. Of course these newly generated characters have to be saved at the appropriate positions. Therefore the *Composites* must be specified.



The Adieresis was generated by combining the accent called dieresis with Character Number 701 with base character A, which has character Number 101.

– Composites

Here the Character Number(s) must be entered of the character(s) that are the result of combining the specified accent(s) with the specified base character(s). The standard positions in a IK or BE database for instance for Adieresis, Edieresis and Odieresis are the character numbers 201, 215 and 237. The order of the specified composite Character Numbers must be corresponding with the specified base characters. For instance base character 101 (A) plus dieresis *must* result in Character Number 201 (Adieresis) in case the default Character Layout Files *beeditor.cha* and *urwotf.cha* are used to generate fonts in DTL DataMaster. Details about the Character Layout Files are revealed in Appendix III. More information about the Character Numbers can be found in Appendix IX.

NOTE: The standard places in a IK or an BE database for the lowercase accents are in the range 751–769. The capital accents should be placed in the range 701–719. Normally the lowercase accents are positioned in such a way that no shifting is necessary when they are placed on top of a lowercase character. The same is the case for the capital accents. It is recommended to check first if the capital accents are available and at the right position before generating composite characters.

– *Adjustment*

For the positioning the same options are available as for the *Merge Character* function for individual glyphs from the **Function** menu.

Please note that it is important for merging accents to switch on the *Keep CharacterWidth* option, otherwise the character width of the composite will be different from the base character depending on the adjustement option.

– *Input from file*

Instead of entering all base characters, accents and composites manually the batch mode allows the input from a text file.

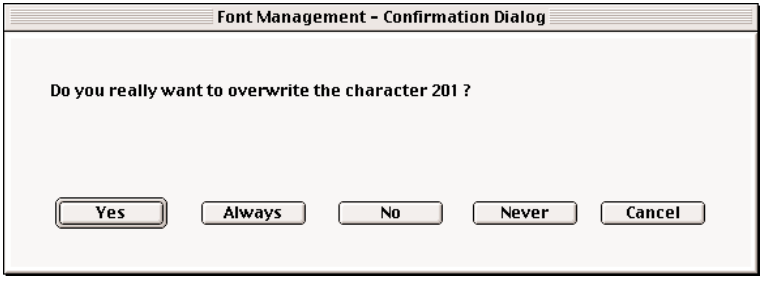
This file should have the following form:

```
// URWNum;URWComp;URWComp
201;101;701
202;101;704
```

The first number is the Character Number of the new composite glyph, the following numbers are of the glyphs which are merged, for instance respectively of the base character and the accent.

It is allowed to specify more than two components, for example to create fractions: 681;623;553;566. In combination with the option *Center Width* and *Keep CharacterWidth* this series of Character Numbers creates a nut fraction (with the Character Number 681) with the width of the first glyph (623 = hyphen) from the three glyphs 623,553 and 566.

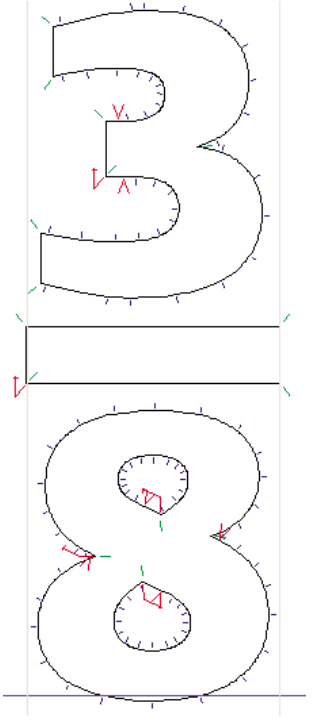
A default text file named *accents.txt* is installed in the same directory as the other DTL FontMaster files. This text file covers all characters containing accents for the Western and Eastern European and Turkish character sets for Mac OS and Windows.



In case the **OK** button has been pushed, the *Font Management-Confirmation Dialog* pops up in case character numbers already exist in the database. *Always* means that all existing characters with the same numbers will be replaced. Please note that overwriting characters is irreversible.

```
// URWNum;URWComp;URWComp
201;101;701
202;101;704
203;101;705
204;101;706
206;101;708
207;101;709
208;101;703
209;101;713
210;103;711
211;103;704
212;103;707
214;104;707
```

The default text file for making composites, accents.txt, is installed in the DTL FontMaster directory.



A nut fraction that was automatically generated using the Merge Composites function from the ***Batch*** *menu.*

Replace Composites

With this function the base characters used for the composites can be replaced by their originals. This is very useful when changes have been made to the base characters after the generation of the composites with the *Merge Composites* function. Please note that the accents are not affected and these have to be replaced manually in case of changes made to the originals.

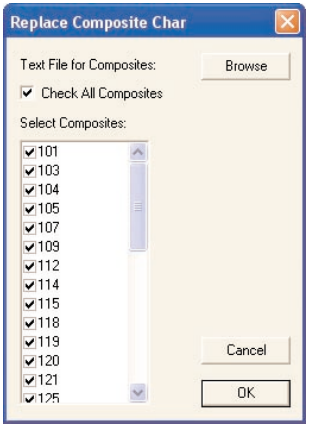
Selecting the *Replace Composites* function will open a simple dialog which shows a small range of options.

– Text File for Composites: Browse

Here a text file that contains composite information, like for instance the default *accents.txt*, has to be selected. The second entries (after the actual Character Numbers of the composites) in the text file will show up in the *Select Composites:* part of the dialog.

– Check All Composites

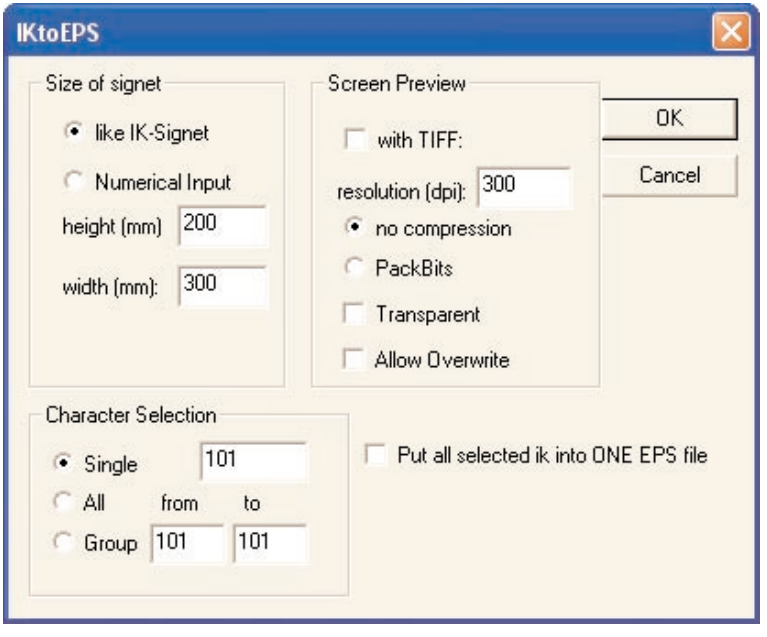
This option makes it possible to replace all base characters listed in the selected text file or, when not activated, to select individual Character Numbers in the *Select Composites:* part of the dialog.



After a text file that contains the composite information has been selected, the Character Numbers of the base characters show up in the dialog.

EPS Output

Glyphs can be exported as EPS data individually or as group. Selecting this batch function will open the *IK to EPS* dialog containing a range of options.



Glyphs can be exported as EPS data using several options.

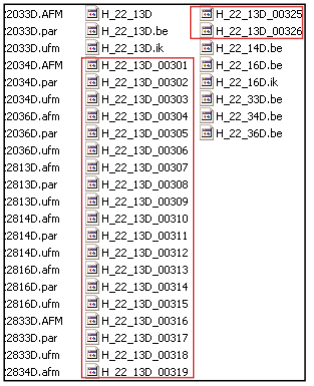
– *Size of signet*

The glyph(s) can be exported with unchanged size by selecting the option *like IK-Glyph*. This preserves the original relation to the other glyphs in the font database, which makes re-importing (for instance after editing in Adobe Illustrator®) possible without any scaling. With the option *Numerical Input* the bounding box can be scaled to any size measured in millimeters.

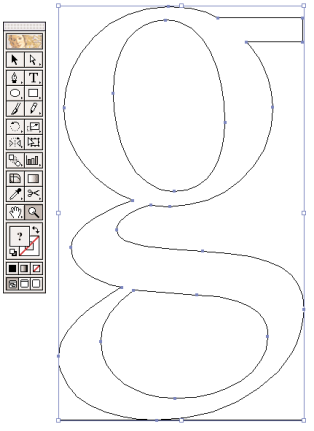
– *Screen Preview*

The EPS files can be provided with a TIFF for screen previewing. As an option the required resolution can be entered. The default reolution is 300 dpi. The TIFF files can be compressed with Apple's *PackBits* format or leaved uncompressed, which is the default setting.

Further options are *Transparant* and *Allow Overwrite*, which let the program overwrite EPS files with the same name. The name of the EPS is taken from the name of the database plus the Character Number. Exporting the glyph with Character Number 302 of the H022013D named database will result in H022013D_00302.EPS. The EPS files are automatically stored in the directory that contains the used font database.



The exported EPS files are stored in the directory that contains the used font database.

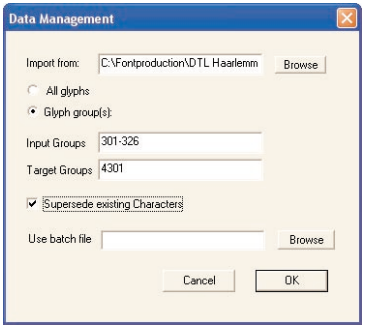


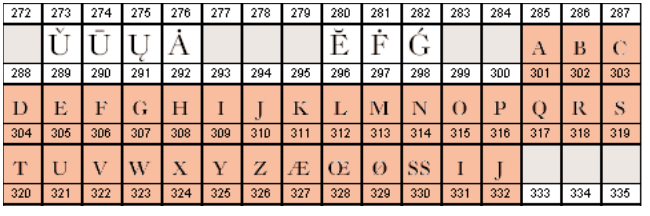
The size of the exported EPS file is based on the bounding box of the glyph.

– *Character Selection*

Glyphs can be exported individually as EPS files but also as group. With the option *Single* a Character Number can be entered. The option *All* will export all the glyphs in the font as EPS files. It is also possible to export ranges using the input fields of the *Group* option.

If multiple glyphs are exported by default the prgram will generate a number of single EPS files. In case one large EPS file that contains all glyphs is required, the function *Put all selected IK into ONE EPS file* should be activated.





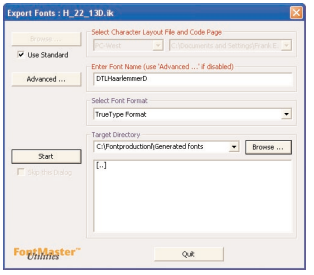
The Import (Data Management) function makes the exchange of data between different files very easy.

Import (Data Management)

With this very powerful batch function glyph data can be imported in the currently open IK database from any other IK database. It is not necesarry

to actually open the other database(s) in DTL BezierMaster. This function makes it for instance possible to build large databases from ones that contain only single code pages, which is very useful especially with the OpenType production in mind.

Using the default Character Layout File *beeditor.cha* when importing for instance PostScript Type 1 fonts in DTL DataMaster will place the lower case characters in the Character Number range 301–326. The same will happen when a Small Caps font is imported because of the used PostScript names for the characters. However, the 'real' names of the small caps are not a,b,c, etc. but Asmall, Bsmall, Csmall, etc. The corresponding Character Numbers in the *beeditor.cha* are 4301, 4302 and 4303. By simply entering the range 301–326 in the *Input Groups* input field and entering 4301 in the input field of *Target Groups*, the small caps will placed in the correct positions in the database, which correspondents with the appropriate PostScript names and Unicode numbers.



The default setting for the Character Layout File in DTL DataMaster will let the program use the beeditor.cha file when PostScript Type 1 and TrueType fonts are converted to the IK format. For OpenType fonts the urwotf.cha file is used by default.

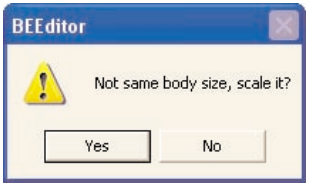
– Import from:

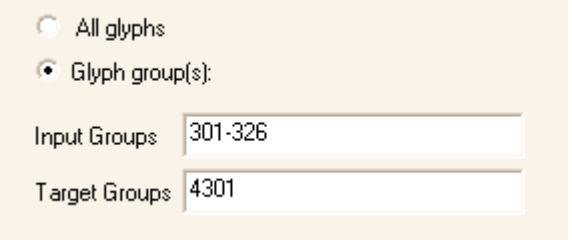
Here the IK database has to be entered from which glyphs have to be imported in the currently active font in the Font Administration tool. You can browse to select the database.

Activating the *All glyphs* option will import all the characters from the selected database. If the *Glyph group(s):* has been activated subsequently the range(s) of the *Input Groups* and the *Target Groups* have to be defined. In the input filed of *Input Groups* the first and last Character Number has to be given divided by a hyphen. For the *Target Groups* only the first Character Number has to be entered. Comma's are used between multiple groups. For example: the groups 101-110, 301-310 entered in the *Input Groups* section can be placed at the *Target Groups* 4101,4301. There is basically no limit to the number of groups defined.

If the *Supersede existing Characters* check box has been activated, existing glyphs with the same Character Numbers as entered in the *Target Groups* input field, will be overwritten. Please pay attention to the fact that these changes are irreverible!

In case the bodysize of the two databases are different, you will be asked whether to scale or not the glyphs to the bodysize of the target database.

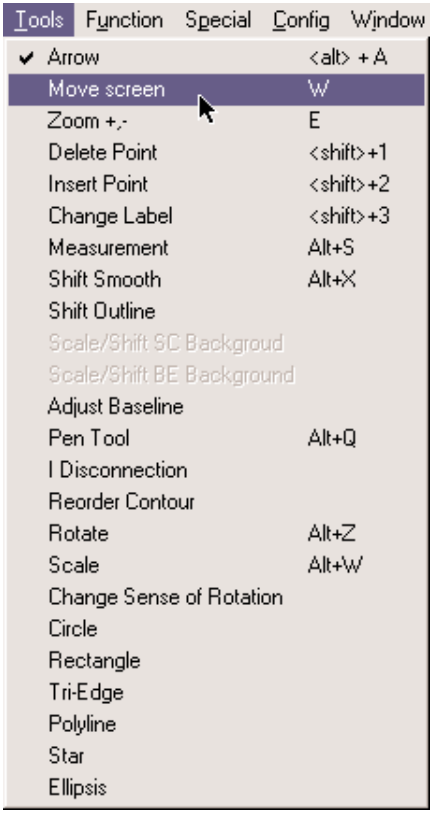




Glyphs can be imported in single or multiple groups.

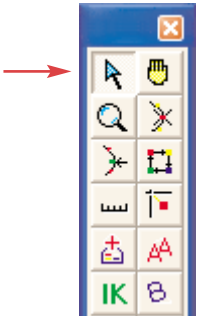
TOOLS MENU

The functions in the **Tools** menu can be chosen either from the pulldown menu or from the *Function Toolbar*. Moving the mouse slowly across the toolbar automatically displays an explanation of the icon. Some functions can also be chosen via keyboard shortcuts. The abbreviations are shown in the pulldown menu on the right side, for example <Alt> + A keys to select the arrow (pointer) tool.



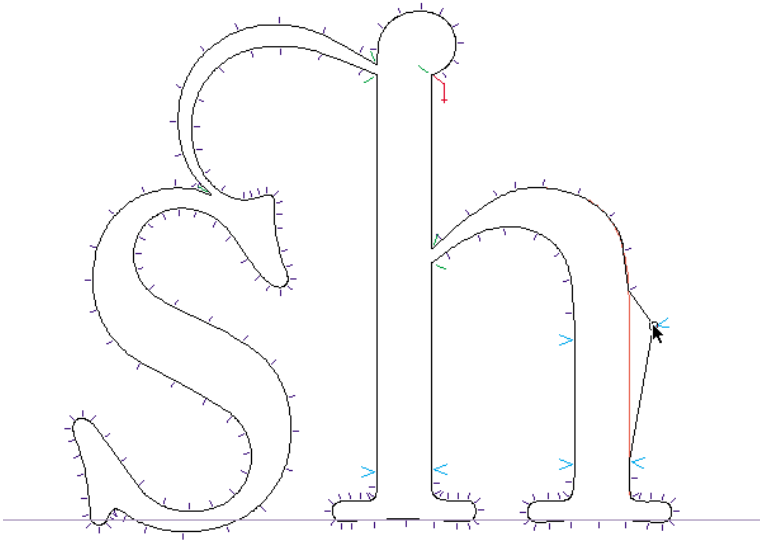
TIP: Several of the functions from the Tools menu, that work in the Character Edit Window only for the active character, can be used for a (large) range of characters using the Batch menu in combination with the Font Administration tool.

Arrow (Space) (⌥Alt + A) (Alt + A)



The arrow or pointer tool is the standard tool to select one or more points or contours as explained in the selection rules:
– Clicking near a point selects this point.
– <⇧Shift>+ mouse click adds a point to the selection.
– A mouse click far away from any point deselects everything.
– A selection with a rectangle can be made by holding down the mouse button and dragging it across the desired area.
– A contour can be selected by double clicking on it.
– A glyph can be selected by double clicking inside it.

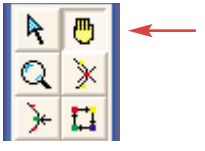
The selected objects can be shifted easily with the arrow tool. Move the arrow near one of the selected objects, press the mouse button, hold it down and move it to the desired position. The objects will be shifted to that position.



*Points can be shifted with the ← and → keys also. The Step Shift units can be defined in the **Config** menu.*

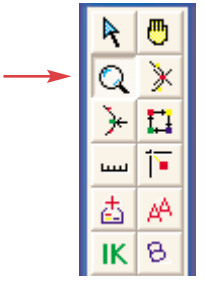
Move Screen (W) (W)

This function allows you to shift the visible display of the currently edited character within the window. It is equivalent to scrolling using the standard scrollbars, but more conveniently.



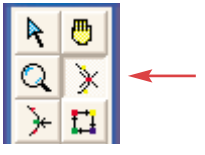
Zoom +,– (E) (E)

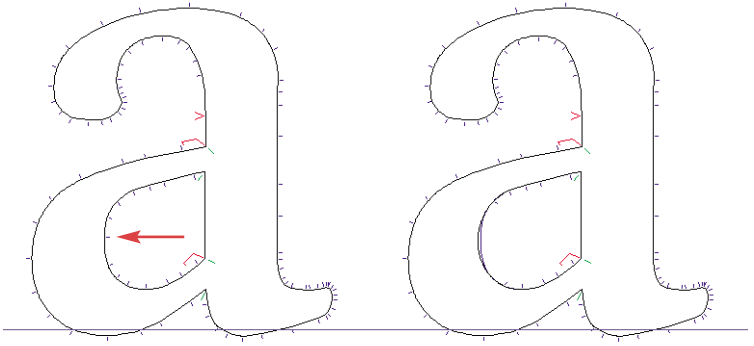
Selecting this function changes the cursor to a looking-glass symbol. You can use it to enlarge or reduce the display.
Zoom (+) Click the mouse button enlarges the display in small steps.
Zoom (-) <⇧Shift>-mouse click reduces the display in small steps.
Holding down the mouse button and dragging the mouse opens a rectangle. If you enlarge the display this rectangle will be the viewable area if the mouse button is released again. If you hold the <⇧Shift> key while dragging the mouse, the currently visible area will be displayed in the rectangle generated by the mouse. **Reset (⌘ + R)** will restore the default image size. The zoomfactor can be set in the **Config** menu.



Delete Point (⇧Shift + I) (⇧Shift + I)

With this function, if you click on an anchor point, it will be deleted immediately. If the anchor point delimites two Bezier curve sections the neighbouring control points will be deleted as well. If you click on a control point both control points of a Bezier section will be deleted.

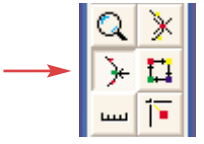




The Delete Point function in action.

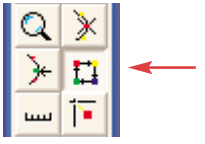
Insert Point (⇧Shift + 2) (⇧Shift + 2)

Click the mouse near the contour to insert a point. By default a curve point will be inserted. <⇧Shift>-mouse click will result in a corner point. <Ctrl>-mouse click produces a tangent point.



Change Label (⇧Shift + 3) (⇧Shift + 3)

This function can also be used to toggle between curve, corner and tangent points. If you use <Ctrl> + mouse click the program will change the label from curve to corner to tangent point and vice versa.

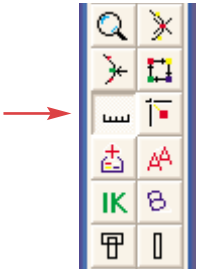


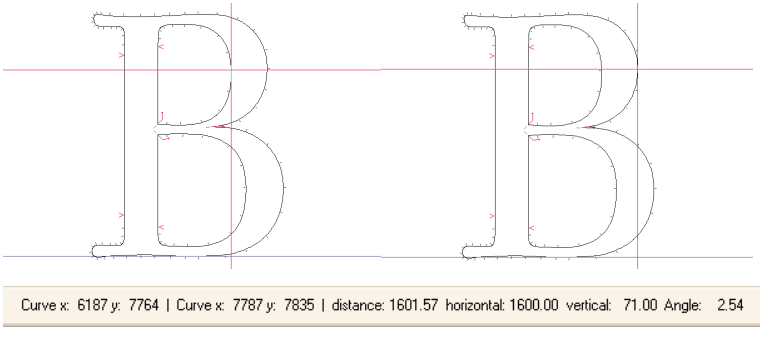
Measurement (Ctrl + s) (Alt + s)

This function can measure the distance between two outline points by simply clicking on them with the mouse. The result will be shown in a small popup window on the screen. You can make the measurement window disappear by selecting another function like *Arrow*.

The measurement window displays the coordinates, the nature (start, curve, corner, tangent). The same information is displayed for the last point which was clicked with the mouse (denoted as 'Another Point').
You will also see the distance of these two points in X and Y, the complete euclidian distance and the angle between these points.

If you click far away from any outline point the screen display position will be displayed and no information about point number etcetera is shown.

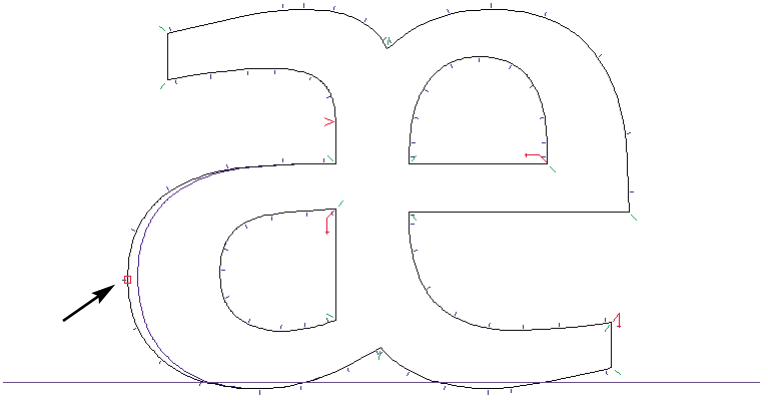


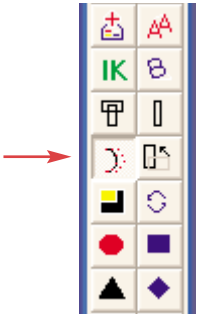


For measuring the distance between two points, select a point with a mouseclick and repeat this with another point.

Shift Smooth (Ctrl + x) (Alt + x)

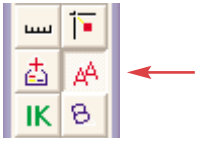
This function can be used to move points. The point will be shifted such that tangent continuity is preserved. This means that the adjacent points are shifted too





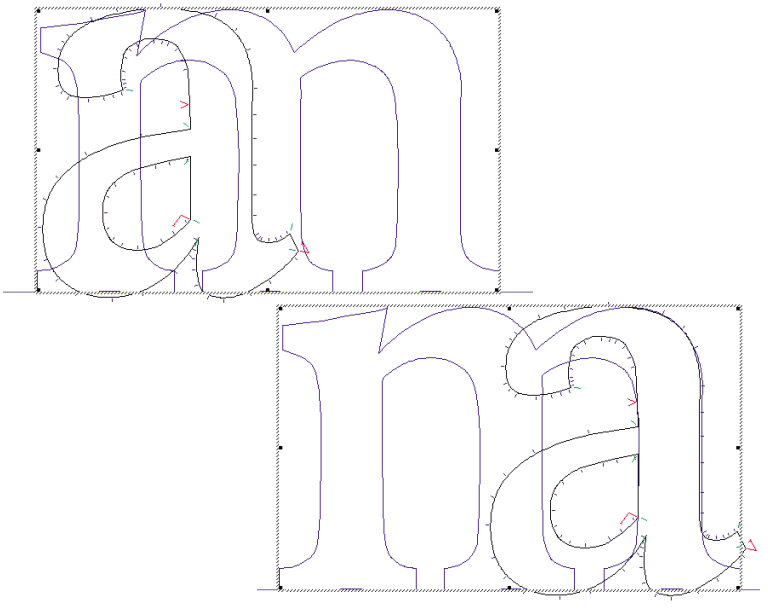
Scale or Shift SC Background

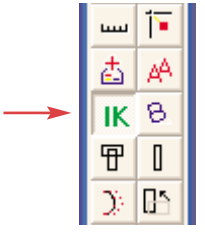
Using this function you can scroll the SC background to a desired position. After selecting this function, a scalable rectangle will appear which you can move on the screen to the desired position.



Scale or Shift IK Background

Using this function you can scroll and scale the IK background to a desired position and size. You have to set the BE background first in the View menu.



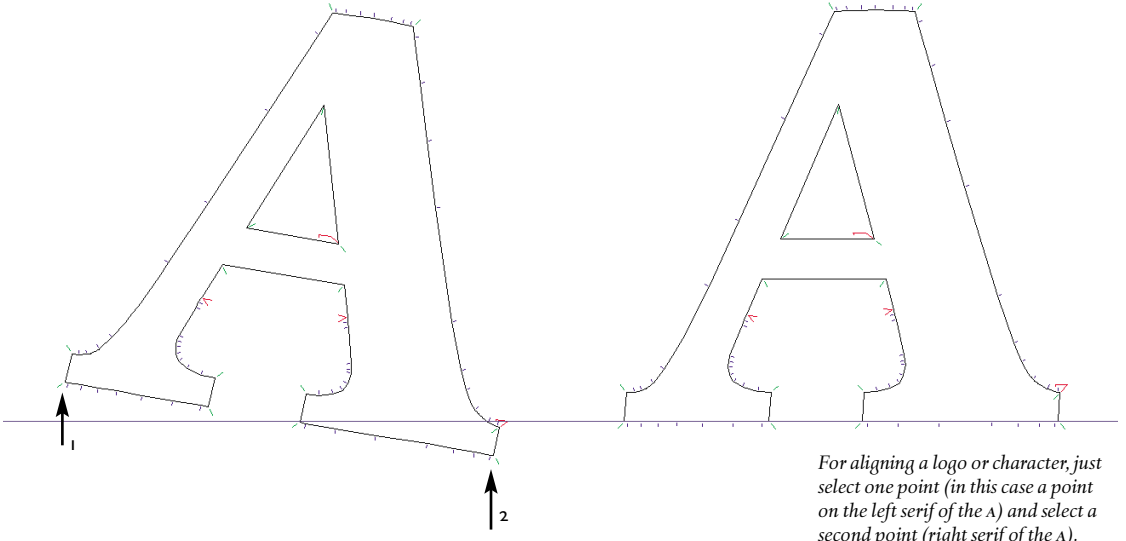


Moving the mouse into the rectangle that marks the IK background will change the cursor into a four-arrow shape. With this cursor activated, the background can be moved. Selecting one of the eight points that mark the background rectangle will change the cursor into a two arrow variation. With this cursor activated, it is possible to resize the background.

Changes made in the background are irreversable.

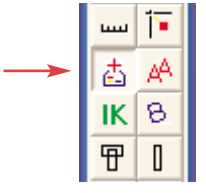
Adjust Baseline

This function is designed to align logos or letters which are automatically converted from scanner data into outline data. It is not possible to align a logo 100 % vertically or horizontally by hand on a scanner. Use this function to align a logo to two outline points. The function will rotate the character so that the two selected points are either horizontal or vertical after the rotation, depending on the angle of the original points. After selecting this function, click on the first anchor or control point and then on the second one.

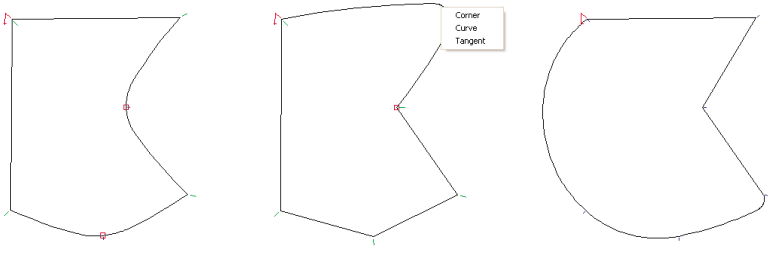


For aligning a logo or character, just select one point (in this case a point on the left serif of the A) and select a second point (right serif of the A).

Pen Tool (Ctrl + Q) (Alt + Q)



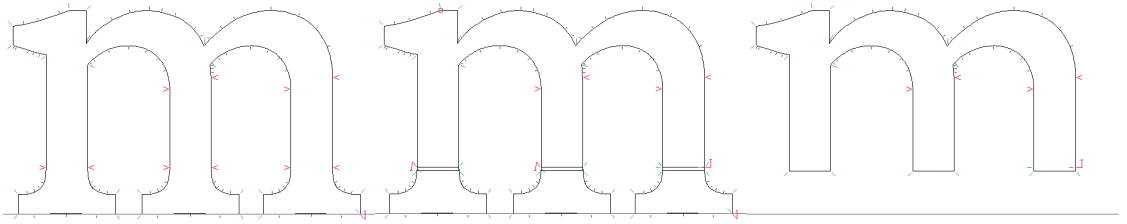
With this function you can draw contours by directly placing points with the mouse in the Character Edit Window. By just clicking and immediately releasing the mouse button, only curve points will be placed. While holding down the <⇧Shift> key and clicking the mouse, the points will be connected by straight lines in vertical or horizontal direction with exception of the line that closes the contour. <Ctrl>-mouse click produces a tangent point. This function makes a perfect combination with the *Change Label* function.

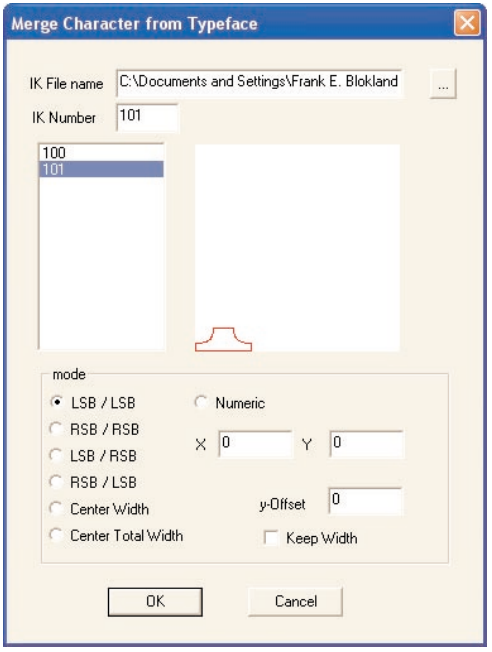


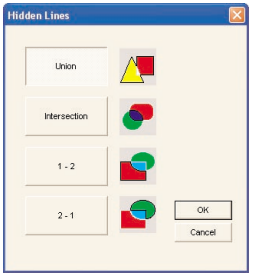
The variations of the shape were made with the Change Label function.

1 - Disconnection

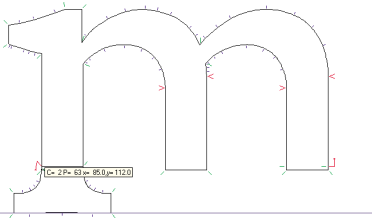
This is a powerfull function to cut a single contour is into two contours with an overlap. Especially in combination with the *Hidden Line* function, the *1-Disconnection* function can be of great value for font production. For instance, a database of different serifs can be built and connected to the stems at a later stage of the production.







Disconnecting is very easy; just select a point with the mouse and consequently select another point. Two closed contours will be generated automatically. In the illustrations this action is repeated until all three serifs could be removed.



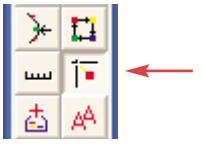
It is possible to build a database of serifs that for instance can be connected numerically to the stems using the Merge Character and Hidden Lines functions.

The selection of the location of the cut can be done by selecting two IK points (the function is executed immediately after having clicked onto the second IK point) or by dragging the mouse by holding the left mouse button down over the contour part which has to be separated. The function is executed immediately after having released the mouse button.

The overlap is set in the *Disconector Overlap (units)* option in the **Config** menu.

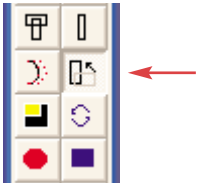
Fit Point to guide line

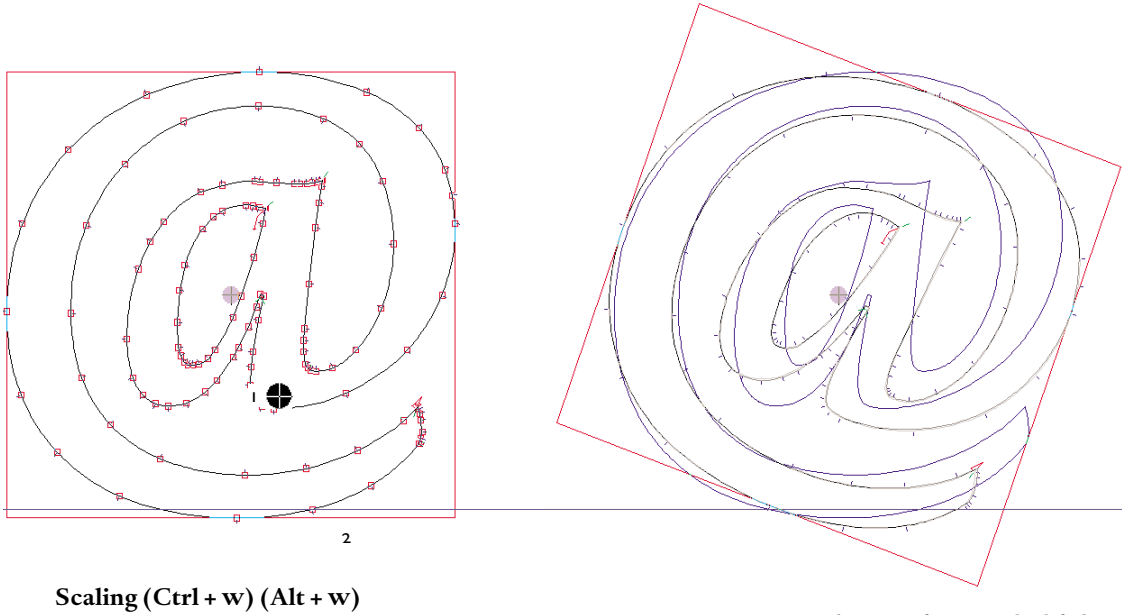
Using this function, you fit a point ot the nearest horizontal or vertical guideline. Currently not implemented.



Rotate (Ctrl + z) (Alt + z)

Using this function, you can rotate selected contours or the complete character around a defined center of rotation. Set the center of rotation with the mouse. The default setting is the center of the bounding box but you can place the center of rotation practically everywhere. Changing functions in the Function Toolbar wil restore the default position. To rotate the character click on the edges of the rectangle and move the mouse.





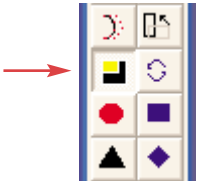
The center of rotation is by default the center of the bounding box (1) but can be placed anywhere else (2). The rotation at the right was made with the second center.

Scaling (Ctrl + w) (Alt + w)

With this function you change the size of characters, contours or contour groups. It is also possible to select individual points. In general scaling can be done either using the mouse or a numerical input via the keyboard.

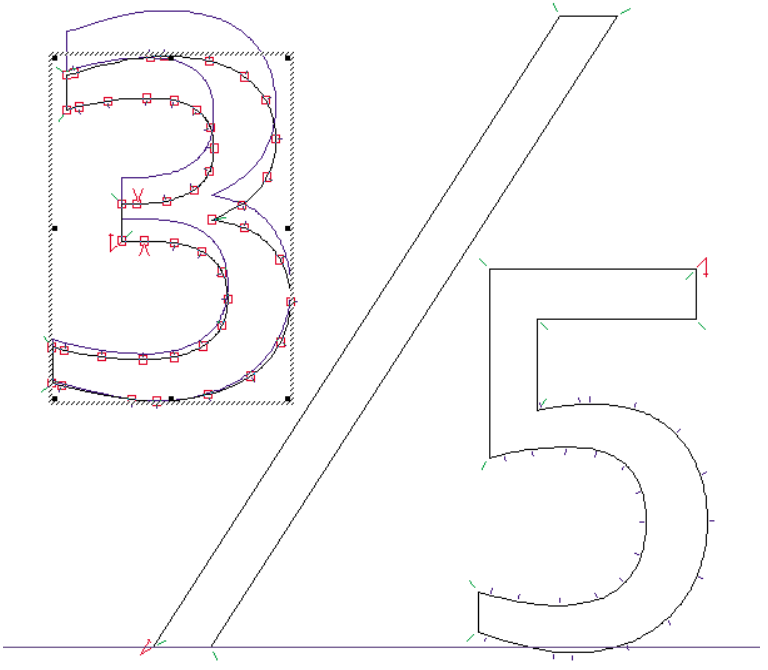
The selection of this function generates a rectangle around the selected points. You can then either scale or shift this rectangle depending on the way you drag the mouse. Selecting certain magic points of this rectangle enables different funtions:

– Diagonally to the upper left side
– Vertically to the upper side
– Diagonally to the upper right side
– Horizontally to the left side
– Central equal to all sides
– Horizontally to the right side



– Vertically to the lower side
– Diagonally to the lower right side

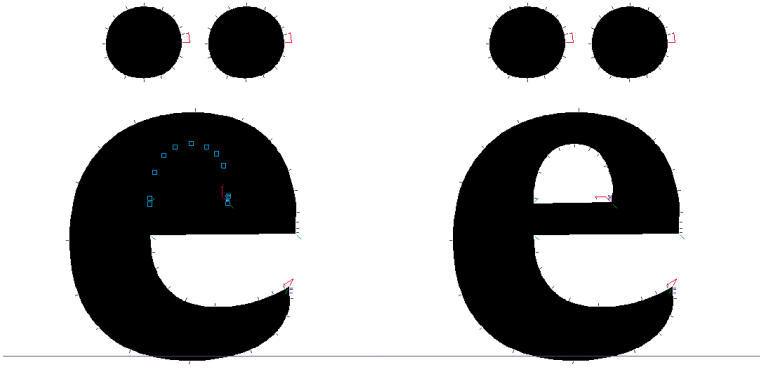
After the direction and factor of the scaling have been selected, execute the function finally by clicking again.

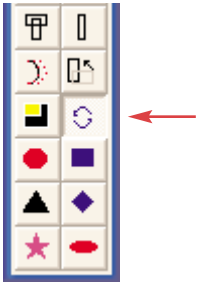


After selecting the points, objects can be scaled in several directions.

Change Sense of Rotation

This function allows you to change the path direction of a contour. Just click on an outline point of a contour to change its sense of rotation. Changing the sense of rotation affects the fill of inner and outer contours.

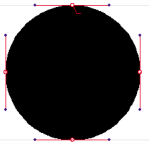




If the direction of the inner contour is not properly set, it will be filled also (left). After changing the sense of rotation this problem will be solved

Circle

This function allows you to create a circle. Select the function, click at a position you wish and drag the mouse. The circle will be generated on the fly and can be changed as long as you hold the mouse button pressed.

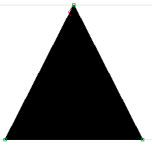


Rectangle

This function allows you to construct a rectangle. It will be generated on the fly and can be changed as long as you hold down the mouse button.

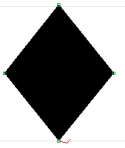
Tri-Edge

This function allows you to construct a triangle. Select the function, click at a position you wish and drag the mouse. The triangle will be generated on the fly and can be changed as long as you hold down the mouse button.



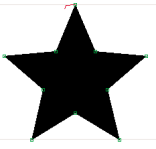
Polyline

This function allows you to construct a polygon. The number of corners for a Polygon can be set in the *Settings* function of the **Config** menu. Select the function, click at a position you wish and drag the mouse. The polygon will be generated on the fly and can be changed as long as you hold down the mouse button.



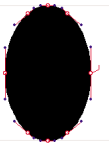
Star

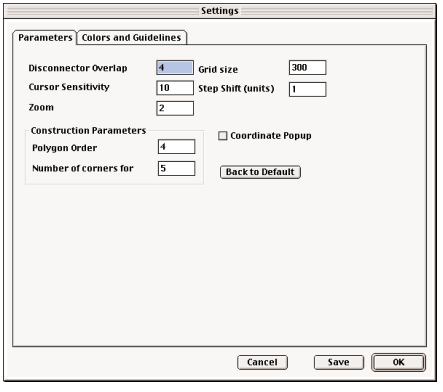
This function allows you to construct a star. The number of corners for a star can be set in the *Settings* function of the **Config** menu. Select the function, click at a position you wish and drag the mouse. The star will be generated on the fly and can be changed as long as you hold down the mouse button.



Ellipsis

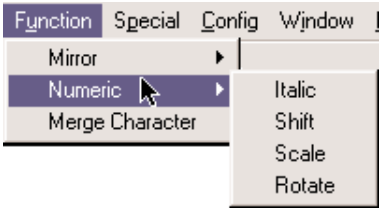
This function allows you to create an ellipsis. Select the function, click at a position you wish and drag the mouse. The ellipsis will be generated on the fly and can be changed as long as you press the mouse button.





The number of corners of the Polygon and Star functions can be set in the Settings function of the ***Config*** *menu.*

FUNCTION MENU

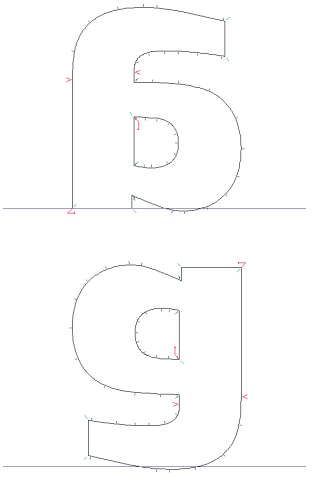


Mirror Left <–> Right

This function mirrors the selected contours or the whole character horizontally around the center of the selected parts.

Mirror Top <–> Bottom

This function mirrors the selected contours or the whole character vertically around the center of the selected parts.



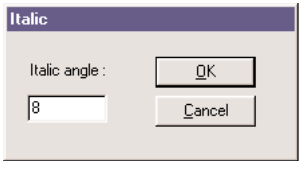
The a on top is mirrored Left <–> Right and the other Top <–> Bottom.

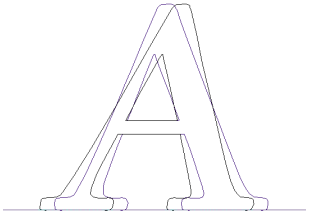
Numeric

Several functions can also be used with numerical input: *Italic*, *Shift*, *Scale*, *Rotate*. Select the contours to be modified, choose the numeric function, for example *Scale*, and then fill in the numeric values (your desired parameters) into the pop-up window, which will appear on the screen.

– *Italic*

Use this function to slant the character electronically. A special selection mode is not required. In this funtion the character mode is always used. After selecting the function a pop-up menu appears. An angle between –45 and +45 degrees is recommended. A positive angle slants to the right.

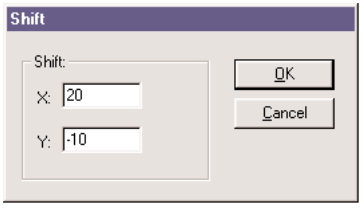


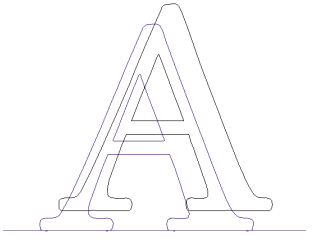


The smallcaps a in this example was slanted to the right.

– *Shift*

This function works on all levels, for selected points, contours or the complete character.

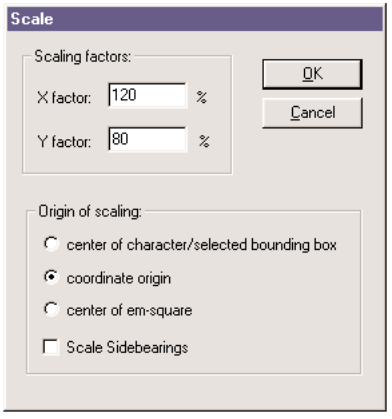


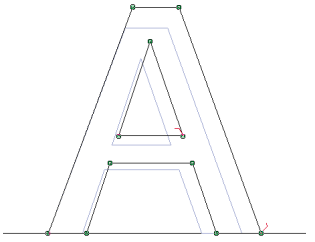


The smallcaps a in this example was shifted over the X- and Y-axes.

– *Scale*

After having selected contours or the whole character, input the scaling factors in X and Y direction in %. You can also determine the origin of the scaling and whether or not you will scale the sidebearings simultaneously.

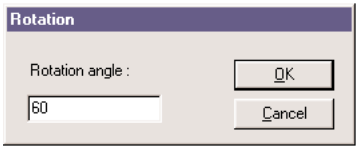


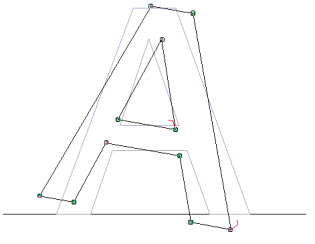


The smallcaps a in this example was scaled 110 % for the X and Y factors with the option 'coordinate origin' selected.

– *Rotate*

The rotate function works for selected contours or the whole character. Input a value in *Rotation angle:* a positive angle rotates clockwise.





The smallcaps a in this example was rotated ten degrees clockwise.

Merge Character

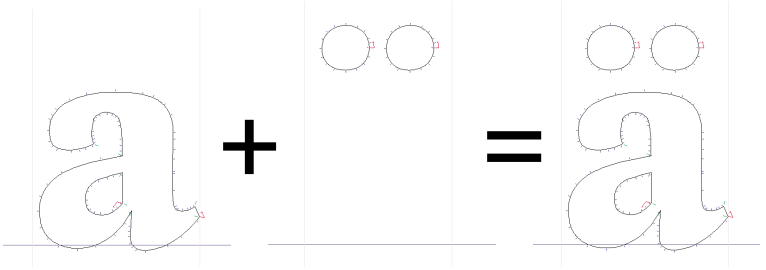
This function allows you to merge another character with the currently edited one. To do so you select this menu option. It allows to select a typeface, from which you can copy a character into your current character. You must select the character number in this typeface and afterwards fix the position for merging.

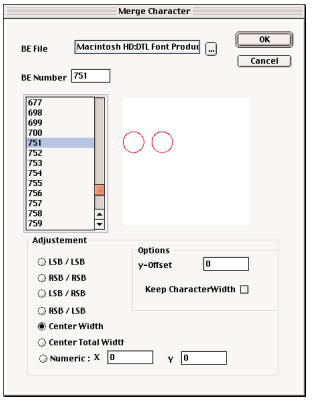
The dialog box allows different options for adjustment, which might be used for different purposes like merging accents or creating fractions or other composite characters. The options are:

– Left side bearing (LSB) / left side bearing (LSB)
– Right side bearing (RSB) / right side bearing (RSB)
– Left side bearing (LSB) / right side bearing (RSB)
– Right side bearing (RSB) / left side bearing (LSB)

– Center Width (center in the Bounding Box)
– Center Total Width (center between the sidebearings)
– Numeric: x, y

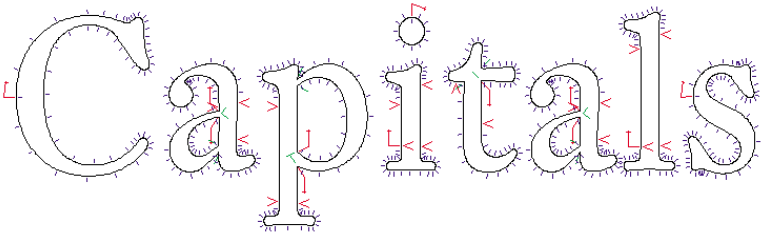
Furthermore there are the options *y-offset* and *Keep CharacterWidth*.





The Merge Character function can for instance be used to place accents.

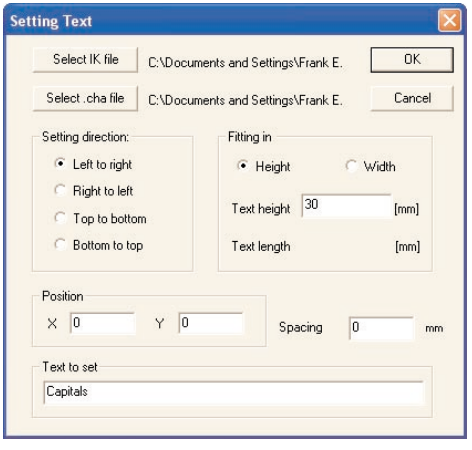
Be aware that to preserve the width of the base character the *Keep CharacterWidth* option must be switched on, otherwise the width of the composite character will differ from the original.



TIP: The merge Character function works only for the active Character Edit Window. To add accents to more than one character the Merge Composites function from Batch menu can be used in combination with a text file that describes which glyphs have to be combined.

Set Text

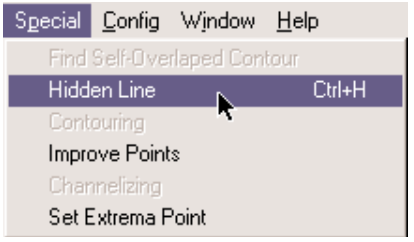
With this function text can be set in the Character Edit Window. Any IK database can be chosen and a range of options is available to control the output. This function is especially useful for the creation of logos.



There are several options in the Setting Text dialog for controlling the output in the Character Edit Window.

SPECIAL MENU

The pulldown menu shows the following options.

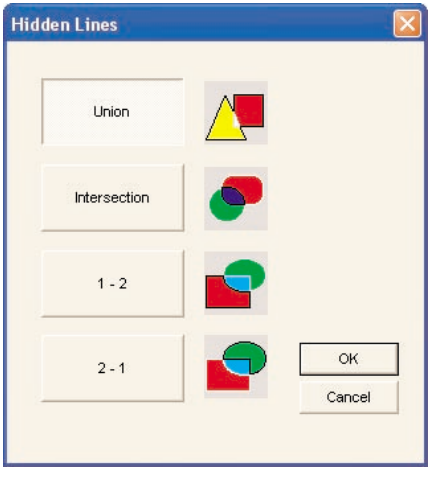


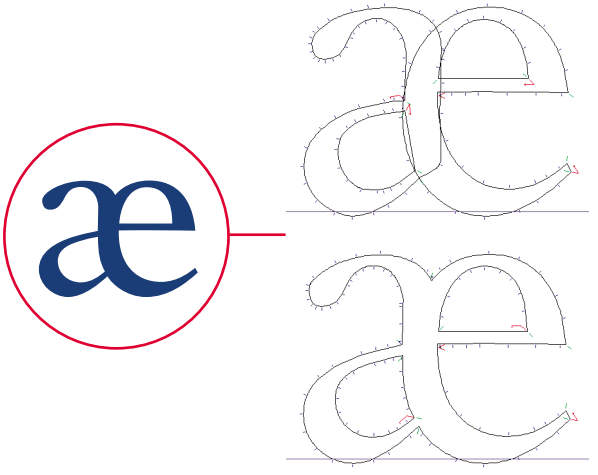
Find Self-Overlapped Contour

The location of this function has been moved into 'Improve points' in this menu.

Hidden Line (⌘ + H) (Ctrl + H)

This function, which is also could have been named *Remove overlap*, merges overlapping contours. It currently works always on the complete character.





The 'Union' option merges the overlapping contours

– *Union*

Merges the contours.

– *Intersection*

Creates the intersection. Only the overlapping parts remain. The rest of the contours are deleted.

– *1-2*

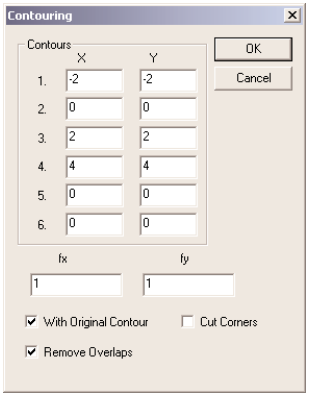
Deletes the second contour and the part of the first contour that was overlapped.

– 2-1

Deletes the first contour and the part of the second contour that was overlapped.

Contouring

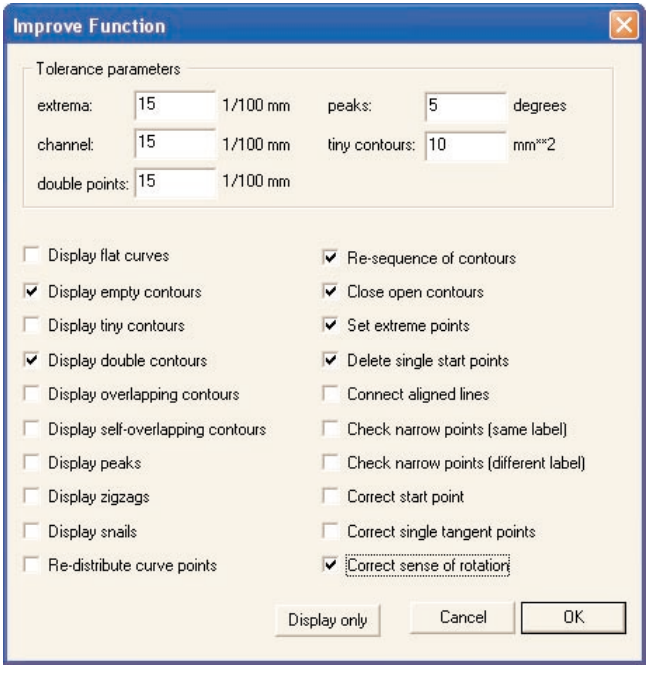
This function is used to create additional contours automatically, so-called outlined characters. It can also be used to bolden a typeface or make it thinner. Input up to 6 values in mm into the menu to create up to 6 additional contours. A positive value of for example 2 adds a contour with 2 mm distance from the original contour to the outside. A negative value works to the inside.

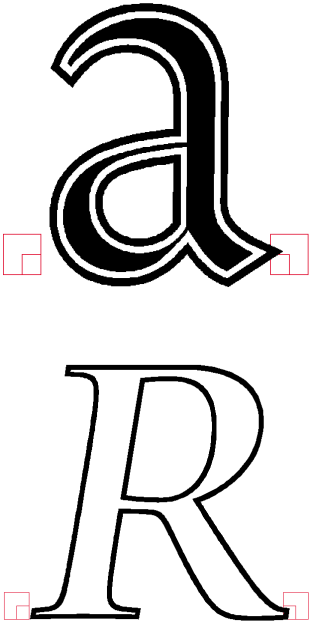


Up two six contours can be generated using the Contouring function from the ***Special*** *menu.*

Improve Points (⌘ + 1) (Ctrl + 1)

This function improves the Ikarus outline if necessary. Certain problematic digitization features can be removed and corrected, as listed in the popup menu below. You can specify certain parameters which govern the determination of the digitization errors.





Two examples of contouring. The outline of the capital R was made with different values for the horizontal (slightly thinner) and the vertical lines.

– Display flat curves

Shows curve points which can only be regarded as straight from the Ikarus algorithm. These curve points are marked with a blue circle.

– Display empty contours

Shows contours, which consist out of less than four digitizations. The start point of such a contour is marked with an olive square.

– Display tiny contours

Shows contours, which areas are smaller than the *tiny* tolerance. The start point of such a contour is marked with a fair brown square.

– Display double contours

Shows pairs of contours, which digitizations are nearly identical. This kind of mistake is sometimes produced during manual digitization. All digitizations of such contour pairs are marked with dark red circles.

– Display overlapping contours

Shows the overlap of overlapping contours. The overlaps of such contours are marked with a violet square.

– Display self-overlapping contours

Shows overlap within a single contour. The overlaps of such contours are marked with a red square.

– Display peaks

Shows peaks (edge points) whose angle is smaller than the *peaks* tolerance. The peaks are marked with a fair brown square. A recommended value is ten degrees.

– Display zigzags

Shows parts of the contour which have the shape of a zigzag smaller than the *double points* tolerance. This kind of mistake is sometimes produced during manual digitization. The zigzags are marked with a yellow square.

– Display snails

Shows contours where the digitization goes further than the start/end point. This kind of mistake is sometimes produced during manual digitization Such contours are marked with a fair red square at the position of the start point.

– Re-distribute curve points

Tries to re-distribute the curve points in curves, so that the tangents between them are 30 degrees. There is no marking.

– Re-sequence of contours

Sorts the contours regarding the IK rules, which means outer contours get a lower contour number than the inner ones. There is no marking. **Re-**

TIP: The Improve Points function works only for the active Character Edit Window. To check and improve all characters of a font database DTL ContourMaster can be used. The options in this programme are comparable to these in the Improve Points function.

– Close open contours

This function closes open contours. After correction of such a contour a green circle will mark the start point.

– Set extreme points

Moves curve points, which are located near an extreme point onto the exact position of the extremum. If there is no curve point within the *extrema* tolerance, a new curve point will be inserted onto the extremum. There is no marking.

– Delete single start points

Deletes start points which are the only digitization of its 'contour'. A blue circle will mark the (former) position of the deleted start point.

– Connect aligned lines

This function checks two connected straight lines and unifies them to one straight line, if they only differ within the *channel* tolerance and within an angle of ten degrees. A brown circle marks the position of the deleted point.

– Check narrow points (same label)

Deletes one of two neighbored IK points (the one with the higher digitization number) of the same label in case the two points are located closer to each other than the *double points* tolerance. An olive circle will mark the (former) position of the deleted point.

– Check narrow points (different label)

Deletes one of two neighbored IK points (the one with the higher digitization number) of any differing label in case the two points are located closer to each other than the *double points* tolerance. An olive circle will mark the (former) position of the deleted point.

– Correct start point

Corrects wrongly located start points. This kind of mistake is sometimes produced during manual digitization. There is no marking.

– Correct single tangent points

Converts tangent points without edge or tangent as neighbor into a curve or edge point, depending on the neighbors. A fair-violet circle will mark the position of the point with the changed label.

– Correct sense of rotation

Corrects the sense of rotation of contours, which means outer contours will turn clockwise and inner ones will turn counter-clockwise. A fair-red circle will mark the position of the start point of the corrected contour.

CONFIG MENU

Function Settings: Parameters

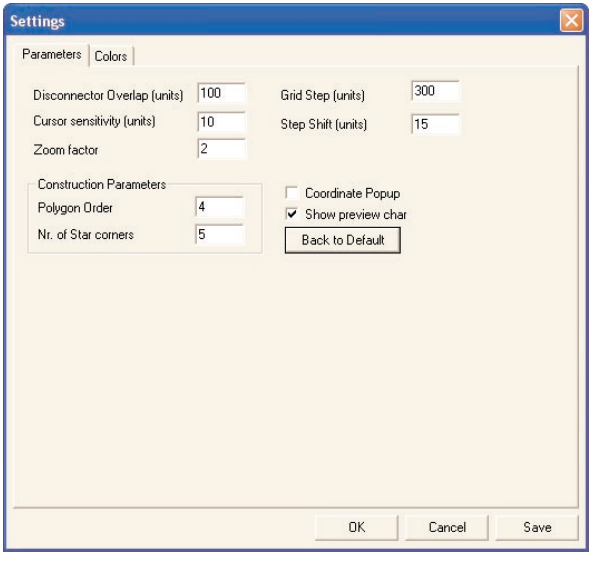
In the **Config** menu *Function Settings: Parameters* you can set different parameters:

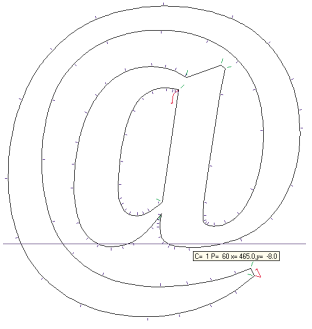
Function	*Default value*
Disconnector Overlap	100 (units, 1/100 mm)
Cursor Sensitivity	10 (units, 1/100 mm)
Zoom	2 (factor)
Grid size	300 (units, 1/100 mm)
Step Shift	15 (units, 1/100 mm)

Please adjust these parameters if the bodysize of your font is not 15000 (units), which is the default setting. The basic idea behind the 15000 units is, that a high resolution of the database means a greater control over the details in the design and also a relatively small loss of quality when the resolution is scalled down for the generation of PostScript Type 1 and OpenType (CFF) fonts (1000 units) or TrueType fonts and OpenType (TTF) fonts (2048 units).

The construction parameters determine the number of corners of a polygon and a star.

If the *Coordinate popup* option is enabled, then the coordinates of the point nearest to the cursor will be shown in the Character Edit Window.





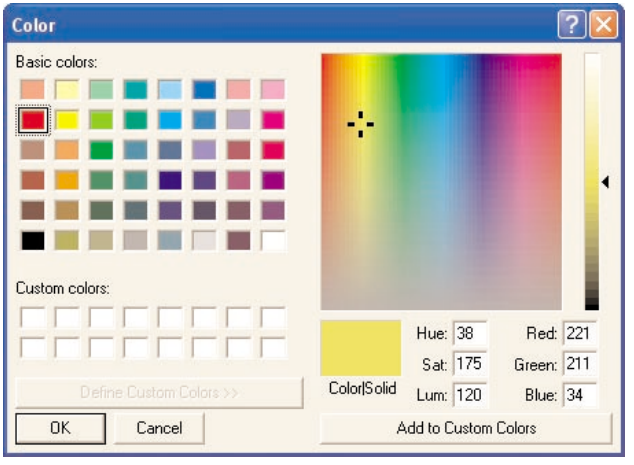
If the Coordinate popup option is enabled, the coordinates of the point nearest to the cursor will be shown.

Function Settings: Color

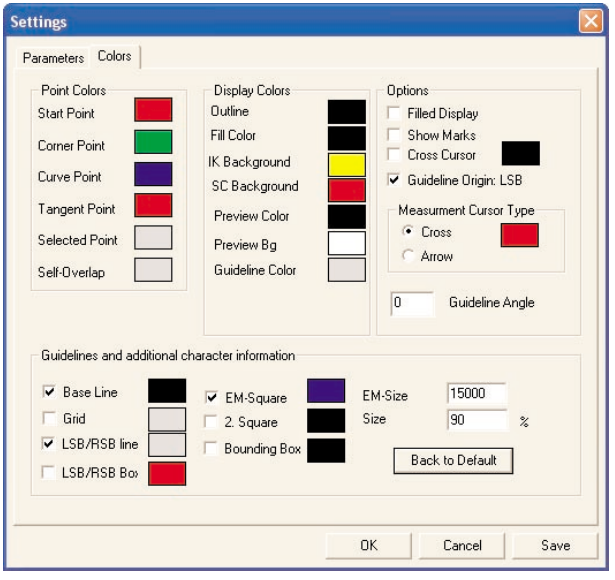
In the **Config** menu *Settings: Color* you can set the colors and the guidelines which shall be shown or not.
The meaning is mostly self-explaining:
X minimum / X maximum
Y minimum / Y maximum
Base Line (at Y position: 0)
Grids (Grid distance can be set in the Parameters menu above)
LSB / RSB line = Left side bearing / Right side bearing
EM-size (standard IK-bodysize = 15000 (1/100 mm))
Cross Cursor (shows a crosshair cursor instead of an arrow)

Marks: Colors (default)
Start point *red*
Corner point = Anchor point *green*
Curve point = Control point *blue*
Tangent point = Smooth Anchor point *red*
Outline color *black*
SC background *red*
Selected point *grey*
Fit to guide *grey*
Self-overlap *grey*
IK background *yellow*
Preview Text Color *black*
Preview Background Color *white*

Just double click on the colors to change them.



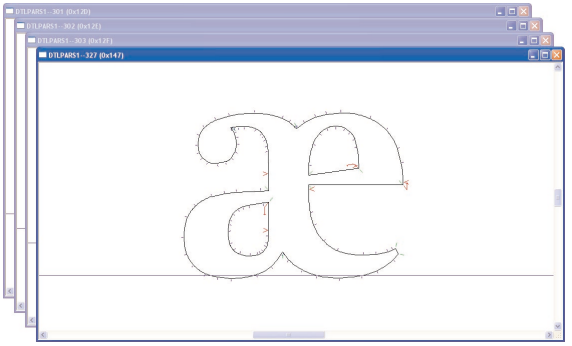
Arbritary colors can be selected.



WINDOW MENU

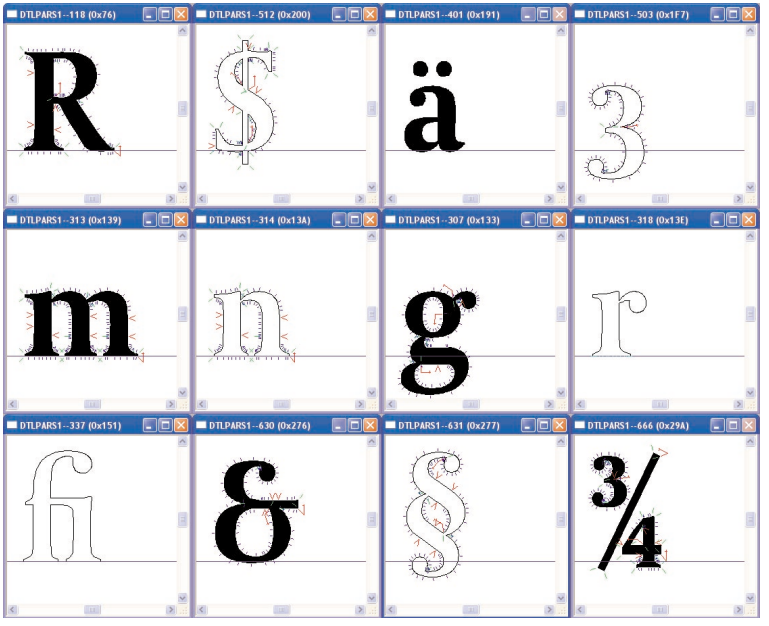
Cascade

When more than one Character Edit Window is opened, they overlap each other. By choosing *Cascade* they are ordered in cascading windows that can be moved to the foreground by clicking them.



Tile (⌘ + J) (Ctrl + J)

By choosing *Tile* all opened Character Edit Windows are placed in a tile pattern.



All open characters are placed in a tile pattern.

Close all windows

When this function is chosen, all Character Edit Windows are closed. The Character List Window remains opened.

Function	Mac OS	Windows
Arrow	(Space) (⌥Alt + A)	(Space) (Alt + A)
Background on/off	(Ctrl + B)	(Alt + B)
Background chars on/off	(⌘ + B)	(Ctrl + B)
Change Character Header	(⌘ + I)	(Ctrl + I)
Change Font Header	(⌘ + ⇧Shift + F)	(Ctrl + ⇧Shift + F)
Change Label	(⇧Shift + 3)	(⇧Shift + 3)
Close	(⌘ + W)	(Ctrl + W)
Copy	(⌘ + C)	(Ctrl + C)
Copy into Background	(⌘ + Ctrl + C)	(Ctrl + Alt + C)
Cut	(⌘ + X)	(Ctrl + X)
Delete character	(← Backspace)	(Delete)
Delete Point	(⇧Shift + I)	(⇧Shift + I)
Digitizing Number	(⌥Alt + D)	(Alt + D)
Display Marks	(⌘ + M)	(Ctrl + M)
Edit Coordinates	(⌘ + E)	(Ctrl + E)
EM Square on/off	(⌘ + D)	(Ctrl + D)
Exit	(⌘ + Q)	(Ctrl + Q)
Fill Color	(⌘ + F)	(Ctrl + F)
Font Administration	(⌘ + U)	(Ctrl + U)
Grids	(⌘ + G)	(Ctrl + G)
Hidden Line	(⌘ + H)	(Ctrl + H)
Horizontal Guidelines	(⇧Shift + H)	(⇧Shift + H)
Improve points	(⌘ + I)	(Ctrl + I)
Insert Point	(⇧Shift + 2)	(⇧Shift + 2)
Measurement	(Ctrl + S)	(Alt + S)
Metrics Editor	(⌘ + K)	(Ctrl + K)
Move Screen	(W)	(W)
New	(⌘ + N)	(Ctrl + N)
Next Character	(⌘ + →KeyRight)	(Ctrl + →KeyRight)
Open	(⌘ + O)	(Ctrl + O)
Paste (with offset)	(⌘ + V)	(Ctrl + V)
Paste (without offset)	(⌘ + ⇧Shift + V)	(Ctrl + ⇧Shift + V)
Paste from Background	(⌘ + Ctrl + V)	(Ctrl + Alt + V)
Pen Tool	(Ctrl + Q)	(Alt + Q)
Previous Character	(⌘ + ←KeyLeft)	(Ctrl + ←KeyLeft)
Print	(⌘ + P)	(Ctrl + P)
Print Options	(⌘ + ⌥Alt + P)	(Ctrl + Alt + P)
Print Setup …	(⌘ + ⇧Shift + P)	(Ctrl + ⇧Shift + P)
Redo	(⌘ + Y)	(Ctrl + Y)

Function	Mac OS	Windows
Replace by Background	(⌘ + Ctrl + R)	(Ctrl + Alt + R)
Reset	(⌘ + R)	(Ctrl + R)
Rotate	(Ctrl + Z)	(Alt + Z)
Save	(⌘ + S)	(Ctrl + S)
Save as	(⌘ + ⇧Shift + S)	(Ctrl + ⇧Shift + S)
Scaling	(Ctrl + W)	(Alt + W)
Second EM Square on/off	(⌘ + ⇧Shift + D)	(Ctrl + ⇧Shift + D)
Select all points	(⌘ + A)	(Ctrl + A)
Select Background	(⌘ + ⇧Shift + B)	(Ctrl + ⇧Shift + B)
Shift smooth	(Ctrl + X)	(Alt + X)
Tile	(⌘ + J)	(Ctrl + J)
Undo	(⌘ + Z)	(Ctrl + Z)
Vertical Guidelines	(⇧Shift + V)	(⇧Shift + V)
V/H Guide Lines	(⌘ + ⇧Shift + L)	(Ctrl + ⇧Shift + L)
Zoom +,–	(E)	(E)