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Portrait 2

Version 3
www.dgs-net.it

Texture-mapping for bi-dimensional images





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1 INTRODUCTION AND GENERAL INFORMATION

Portrait is a texture-mapping software designed to realize catalogues and present fashion collections or room decorations without any need to produce before the respective films, cylinders or weave the fabric. Portrait allows you to dress any object of your choice with any design you like. The work with Portrait starts and is based on the digital image. In order to achieve realistic results the software retains the lighting and shadowing effects of the original image and takes account of the perspective and surface structure of the respective objects (e.g. pleats, creases, distortion).

Portrait is an excellent marketing tool for apparel, fashion and home-textile. Presentations of the same dress in different colors and/or designs or of room decorations in different styles become easy and cost effective. PORTRAIT 2 is DGS' newest release with a more flexible and simple user interface. You can define in an efficient way the areas to be texture-mapped, the fabric movement and the mapping itself.

This manual refers to version 3.x of Portrait 2.

1.1 ABOUT THE INSTALLED SOFTWARE LICENSE

1.1.1 Software version

With **About Portrait 2** from the **Help** menu you can control the installed software version.

1.1.2 License type

DGS - as the exclusive holder of the property rights on the software - grants licenses or sub-licenses for the usage of the software. A software activation key protects these licenses. The software key permits the user to activate the purchased modules. The license type or the activated modules can be controlled inside the **License manager** in the **Help** menu.

1.1.3 Extent of usage

As a licensee you are not entitled to reproduce, copy, sell or cede the software license without DGS' prior written authorization. You are also not entitled to duplicate the user manual.

1.1.4 Warranty and liability

DGS warrants that the software conforms to the published specifications in effect on the date of delivery. DGS points out, that the software may not satisfy all application fields and that the use of the software may not be uninterrupted or error-free. Above all, DGS does not warrant that the software meets customer specific requirements. The customer only is responsible for installation, usage and intended results of the software.

DGS continues to develop the software, but does not warrant for modified versions in the sense of the above paragraph, unless it will not be proved, that existing errors are due to done modifications.

DGS shall under no circumstances be liable to the customer or third parties for any direct, indirect, special, punitive or incidental damage arising from the usage or non-usage of the software, including lost profits, lost savings, increased costs, goodwill or stoppage of other work. DGS shall be exclusively liable for the functionality of the software. DGS shall not be liable for direct or indirect damages, which arise from DGS' intervention or non-intervention at the installation site.

DGS also shall not be liable for the partial or total loss of data. DGS recommends to make every day data backups and in particular before DGS' intervention at the installation site.

DGS shall not be liable for damages arising from corrections, customizations or other modifications of the software done by third parties not authorized by DGS.

The customer is responsible for the environment, its security and the observance of the norms in vigor.

1.2 TECHNICAL NOTES

Windows 2000/XP are the suggested OS. It is possible to use the software also with Windows 95/98/NT.

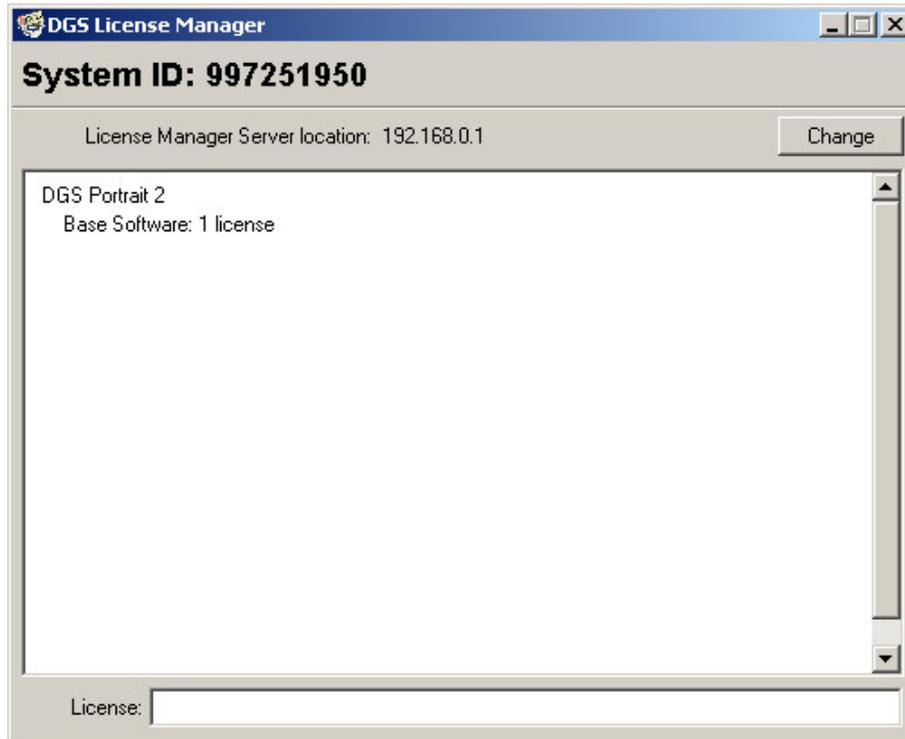
To have good performance it's important to work with a resolution not higher than 1280x1024 pixels with 32 bit color depth.



1.3 SOFTWARE ACTIVATION

This software product is protected with a software code and an hardware key (dongle). Without these protections is possible to test many software functionality but it will not be possible to save the projects and to print the images generated. Along will be a written over the preview window.

The license check is automatic: when the program starts if you do not have the right protections, it will appear the "License manager" window where you will be able to set the dongle and the license.



The Systems ID is the **univocal** code of the dongle. It is necessary to obtain the license code contacting DGS.

The label "License manager server location" indicates where is the dongle in the local are network (LAN). If it is connected to the local coputer you will find the written "Local machine" viceversa you will find the IP address of the computer where the dongle has been connected.

At the first start, the program will check the hardware key on the local computer. To change the search setting push on the "Change" button and write the right IP address.

In the list you will see all the license registered in the dongle. **Actually** each hardware key can contain more software licences.

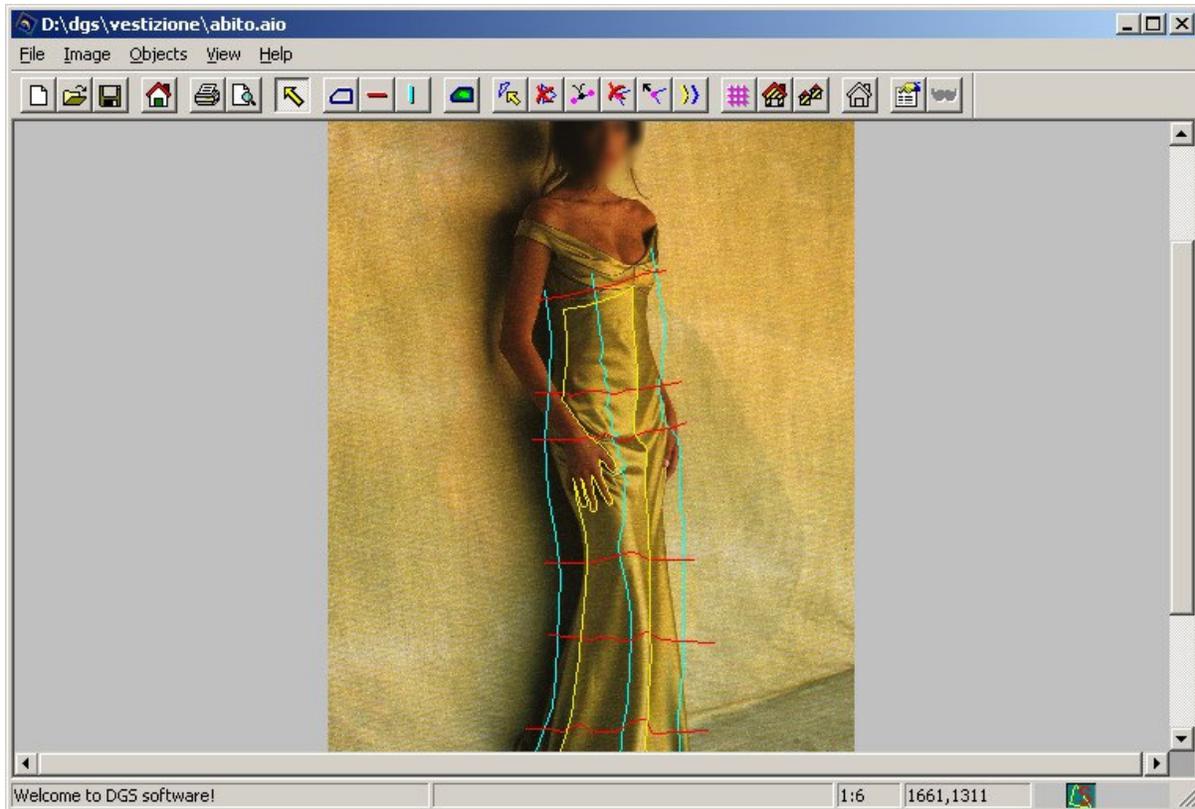
To insert a new license you have to write a code, that DGS will give you, in "License" text box.



In the status bar of the program there is an icon like a semaphore. It will be green if there is a valid license, yellow when the software is looking for the license, red when the software is not activated. In the last case it is possible to use the program like a demo.

2 USER INTERFACE

The user interface of Portrait 2 is divided in the main menu with the main window shown in the figure below and the relative toolbar.



Portrait 2 manages two types of documents: images (in various formats) and the so-called files portrait. Images are original e.g. scanned images (hereinafter called original images) and mapped images (hereinafter called modified images). The files portrait are the core of the software, as they contain all the information necessary to determine which pattern shall be mapped onto which object in which way. Thus, a file portrait contains the link to the original image and the link to the pattern. It is recognizable by its file format *.aio.

2.1 MAIN MENU AND TOOLBAR

This paragraph describes briefly the commands of the main menu and the toolbar.

2.1.1 Commands of the main menu

The commands of the main menu are indicated in the following way: “*MainMenuitem*->*SubMenu*”

MainMenuitem refers thereby to one of the items in the main menu, while *SubMenu* refers to the commands that appear when selecting the menu itself.

File->*New* - 

deletes the current objects and control vectors in order to apply new modifications to the loaded image
loads a file portrait

File->*Open file portrait* - CTRL+O - 

File->*Save* - CTRL+S - 

saves the current modifications as file.

File->*Save file portrait As ...*

saves the current modifications as file under a new name

File->*Open Image ...* - 

loads an image to be modified

File->*Save Image ...*

saves a modified image

File->*Print ...* - CTRL+P - 

prints a modified image



File->Print preview - 
File->Exit

shows the print preview of the modified image.
closes PORTRAIT 2

Image->Rotate ...
Image->Resize ...
Image->Crop ...
Image->Color balance ...

rotates the image
resizes either the image as the gridlines
re-cuts / crops the image
changes the gamma, contrast and brightness of the loaded image

Image->Define meter

applies the real / true-to-scale dimensions to the selected image content.

Image->Reset meter

cancels the setting of the real / true-to-scale dimension for the selected image content.

Image->Activate masked area 

Enable/disable the masked areas

Objects->Select - 
Objects->Add new - 
Objects->Masked area 
Objects->Share bound
Objects->Create grid->Trace... 

Selects an object.
Adds a new object.
Defines areas inside an object, which shall remain un-mapped
Makes two objects share a part of the bound in common.
Generates the control vectors, which define the movement of the pattern to texture-map.

Objects->Properties - 
Objects->Apply - 
Objects->Unmap current object - 
Objects->Smooth bound
Objects->Modify...

Characterizes the modifications to apply to the object.
Applies the pattern to texture-map to one or more objects.
Un-maps the selected object.
Smooths the bound of the selected object.
The different options are listed in paragraph 3.9

View->Show/Hide bound - F1 
View->Show/Hide vectors - F2 
View->Show/Hide masked area - F3 
View->Show/Hide grid - F4 
View-> Show/Hide meters
View->Zoom all - F8
View->Zoom out - F9
View->Zoom in - F10
View->Toolbar
View->Options...
View->Properties...

Shows / hides the bounds of the objects
Shows / hides the control vectors just of the objects
Shows / hides the masked areas
Shows / hides the grid
Shows / hide the meter for each group
Shows the entire image
zoom -
zoom +
Shows / hides the toolbar
Defines the color to assign to the control vectors
Informs about the current modifications

Help->About Portrait II
Help->License manager
Help->Manual

displays information regarding Portrait 2.
visualizes the activated software modules.
The present manual is separately supplied from the software and it can be downloaded from our web site www.dgs-net.it in downloads section.

2.2 STATISTICS

Selecting **Properties** from the **View** menu informs you about the modifications carried out on the loaded image. In particular the statistics contain the name and the path of the **original** image, its dimensions (in pixel and millimeters), the name of the created objects, the name of the group to which they belong, the respective pattern to texture-map, the used memory and the total memory available.

2.3 APPLICATION'S COLORS

With **Options** from the **View** menu you can choose the application colors. In particular you can decide the color to assign to the bounds, gridlines and control vectors. You can also decide on the color, which will appear in the moment you select a bound or a vector. Click on the colored fields inside the **Options** window and select the desired color from the displayed color palette.

It is also possible to set the default directories where the software can find the files to use: images, patterns and *.aio files.

3 PROCEDURE

This chapter describes the standard procedure to follow in order to map patterns onto an original image:

- 1) load an image.
- 2) enter the real dimension of the image components with *define meter* in order to assure a true-scale mapping of the pattern.
- 3) draw a bound around the objects you want to texture-map or redress.
- 4) trace the control vectors to define the movement of the pattern onto the object.
- 5) control the movement of the pattern by visualizing the respective mapping gridline.
- 6) set the mapping parameters.
- 7) apply the pattern to the object.
- 8) save the settings described in point 2) to 7) as file portrait (file format .aio).
- 9) save and print the modified or mapped image.

During this procedure it is always possible to create, delete, group or regroup objects, modify the mapping parameters and apply new patterns.

3.1 IMAGE LOADING

With **Open Image** from the **File** menu or by pressing on the  button you can search in the various directories for a specific image to load. The choice of the file format (e.g. tiff) and the file name can serve thereby as selection criteria. You get of every selected image a preview and other image specific information such as resolution, dimensions, size in terms of space occupied on the hard disk and unit of measurement.



The supported format image are:

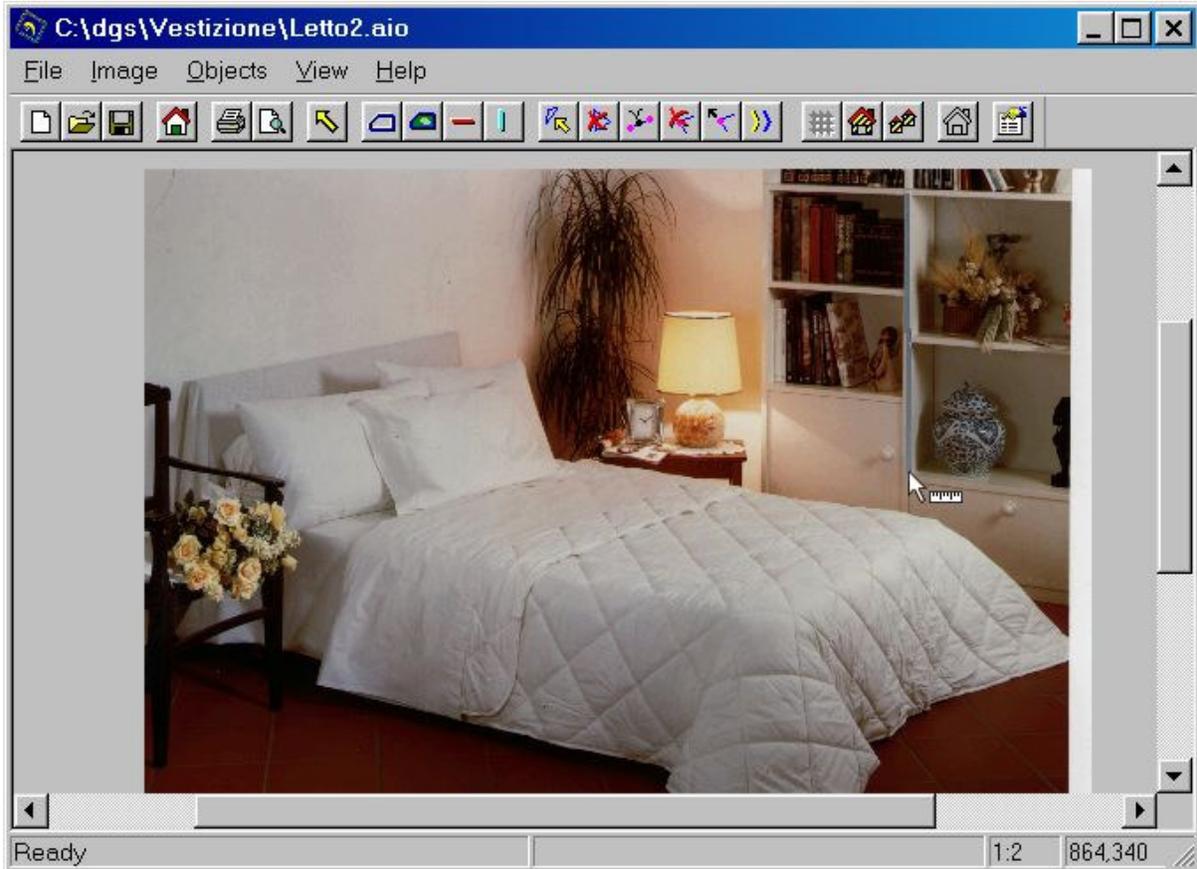
- JPG (high compressed raster image with low resolution);
- TIFF (compressed raster image with high resolution);
- XPF (high compressed image with high resolution and step information, Ramsete III format);
- PSD (Photoshop images, also multichannel);
- SCN (Btree images).

The "File type" setting works like a filter. So in the list will appear only the right files.

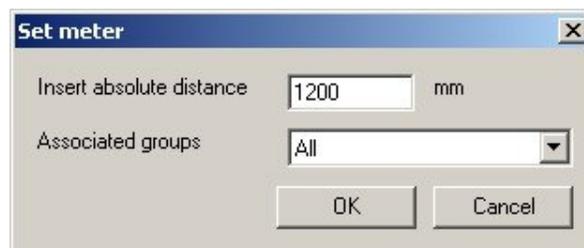
You can also chose the "All supported files" to see all the images present in the folder that the program can loads.

3.2 REAL OBJECT DIMENSIONS

With **Define Meter** from the **Image** menu you may enter the real dimension of the image components. The software compares the entered value to the real dimensions of the pattern and calculates automatically the respective scale factor in order to assure the true-scale mapping of the pattern.



Trace the desired image component with the mouse or pen and define its dimension in millimeters. It is possible to set the meter just defined also for single groups of objects. The remaining object will be mapped according to the single setting. Selecting "All" in the Groups label the same meter will be set for everything. After having confirmed the entered value you will find the chosen scale for reference above the main window.

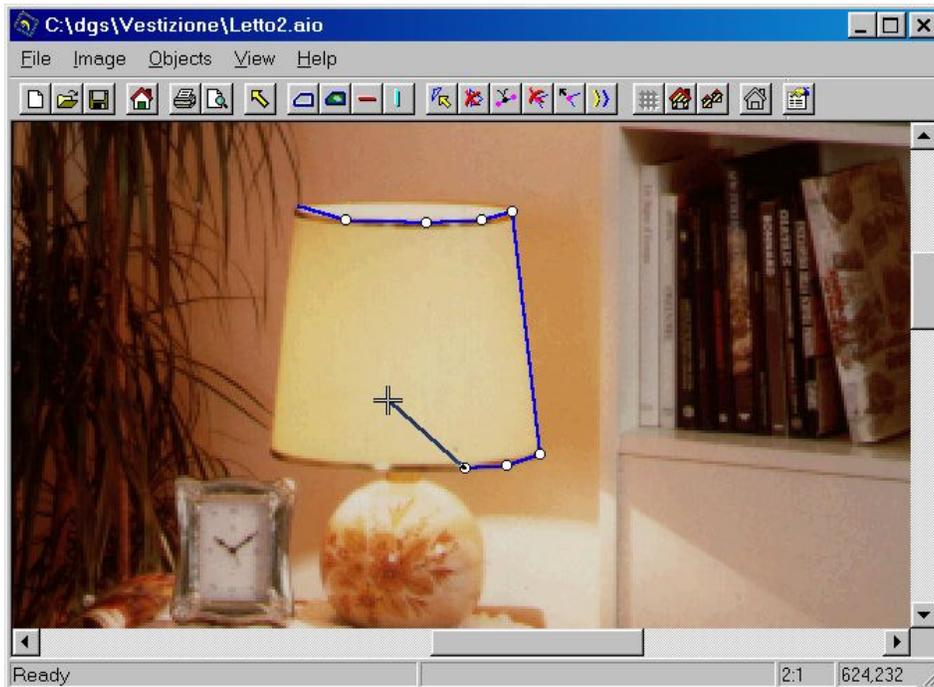


With **Reset meter** from the **Image** menu you can cancel or undo the set dimension.

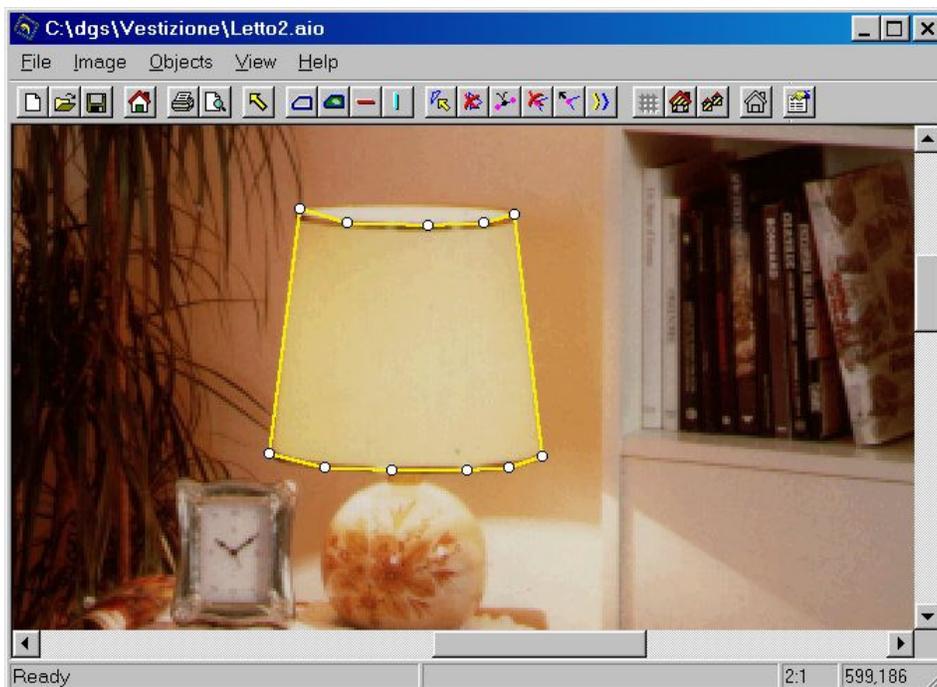
- ⦿ Do not apply 'Define meter' to a perspective part of the image. Choose always a "flat" part. Otherwise the scale factor for the pattern will not be calculated properly and accurately and thus the mapping result becomes unrealistic.

3.3 BOUNDS

The software recognizes only those areas of the image as areas to be texture-mapped, which are identified by a drawn bound as objects. In order to draw a bound select **Add new** from the **Objects** menu or press the  button. The cursor becomes a cross. Trace the bound using the left mouse key, the “Enter” key on the keyboard or the pen. Every click corresponds to a single point. If you want to draw smooth bounds then keep the left button of the mouse pressed or the key of the pen while drawing the bound.

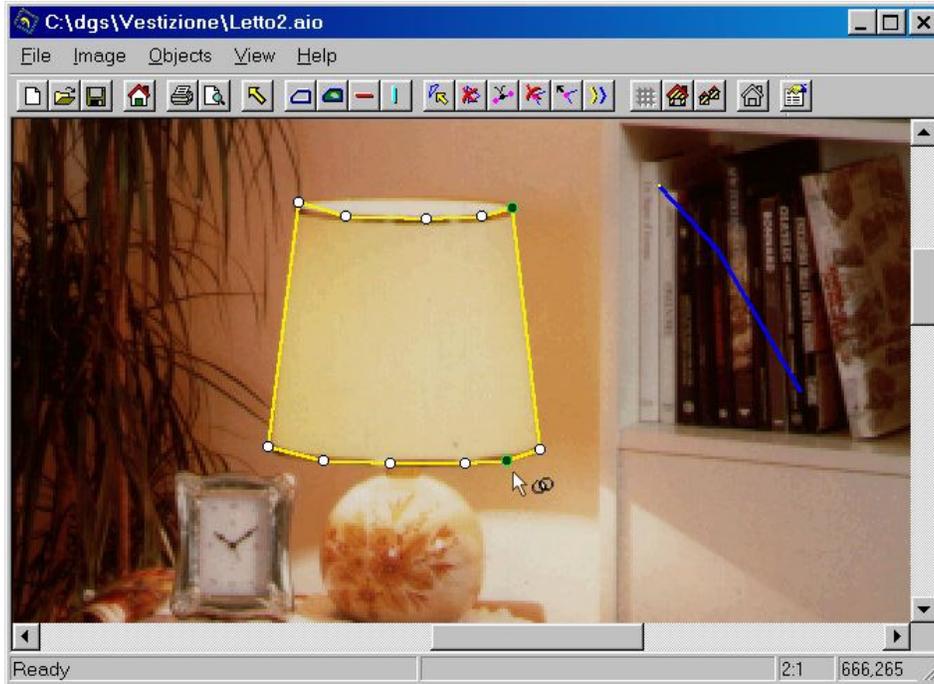


To finish the drawing, press **the right mouse key** or the pen key. In order to facilitate the tracing of the bounds use the “End” key to center the image view on the position of the cursor.

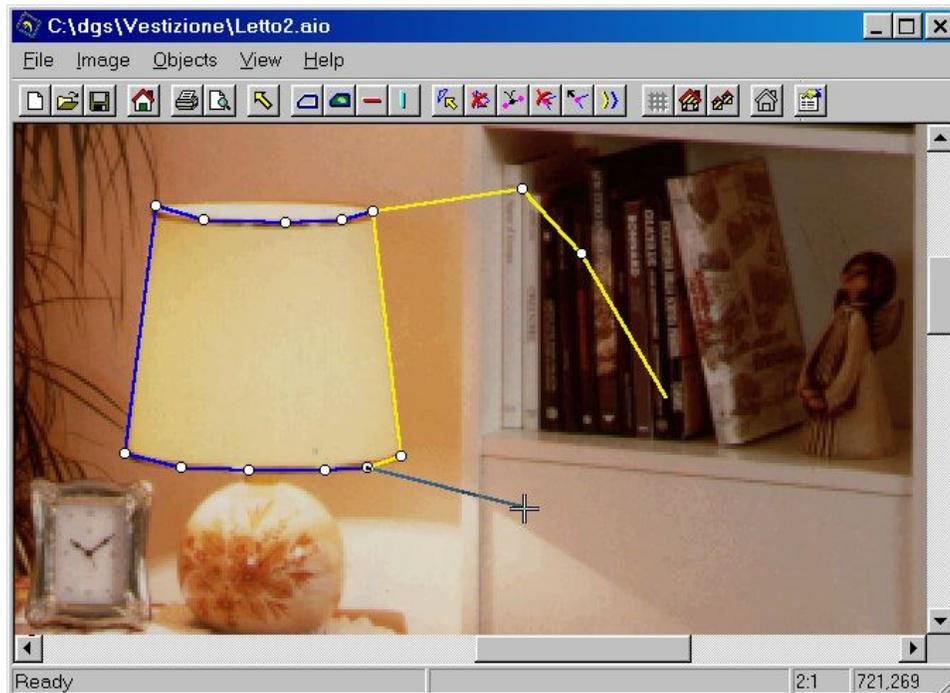


3.3.1 Share bound

The function **Share bound** from the **Object** menu or the pressure of the “Space” key on the keyboard allows you to make two areas share the same bound. This function is indispensable for an accurate tracing of the bounds and thus avoids that some parts of the image remain unmapped. Select the given bound (press on the  button) and identify the part to share by clicking on its first and last point (these points become green).

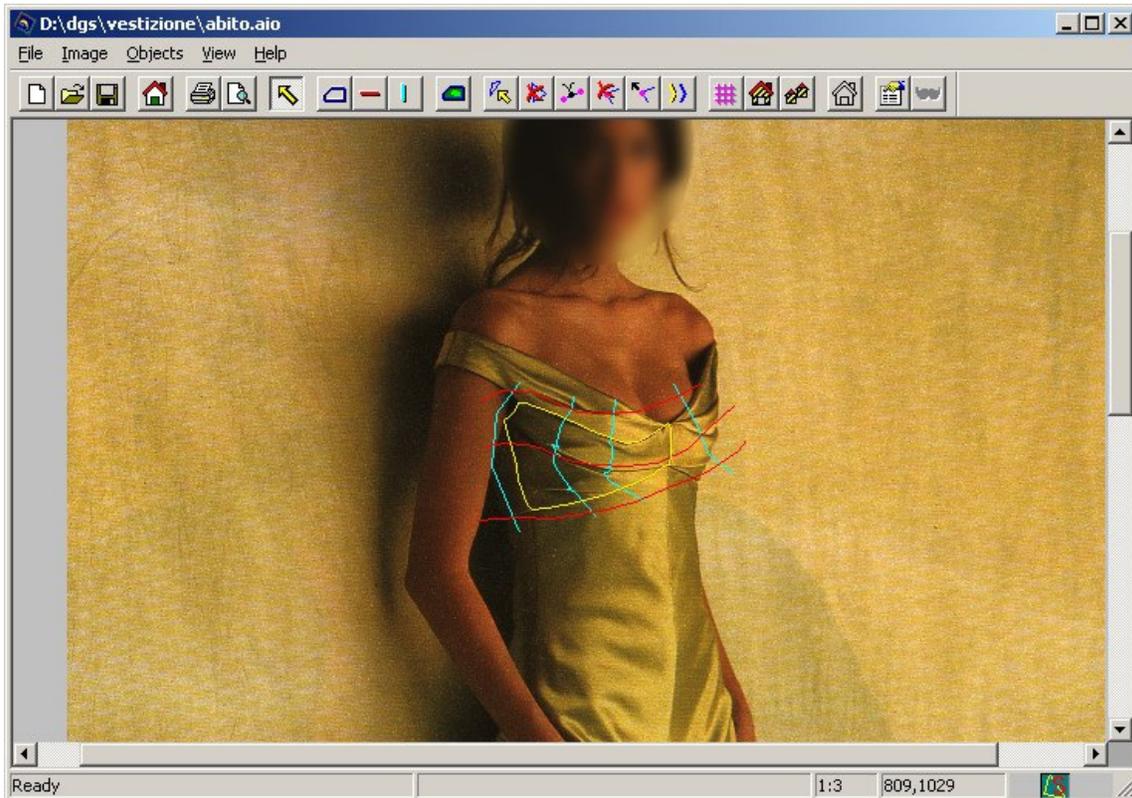


Confirm this selection by clicking again on the shared bound, now you can continue to draw the new bound.

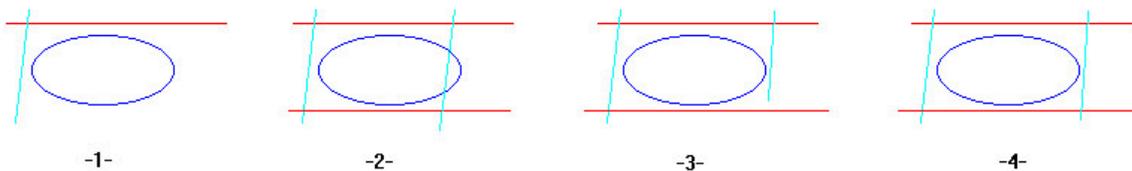


3.4 CONTROL VECTORS

On the basis of the control vectors the software builds up the gridline, which determines the way the pattern will be mapped onto the object. The more accurately the control vectors follow the shape of the object (e.g. creases, pleats) the better and more realistic become the mapping result. Control vectors must be drawn for every bound by the  or  button or with **Trace horizontal vectors** or **Trace vertical vectors** from the menu Object->**Create grid**.

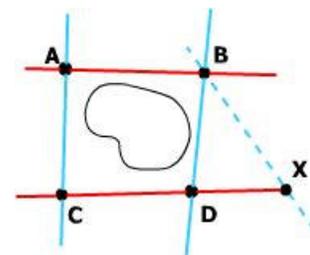


The vectors are generated in the same way as the bounds (see chapter 3.3). A minimum of two *vertical* and two *horizontal* vectors is required. Draw the vectors outside the bound and make sure that they cross each other in the correct way (see fourth figure below).



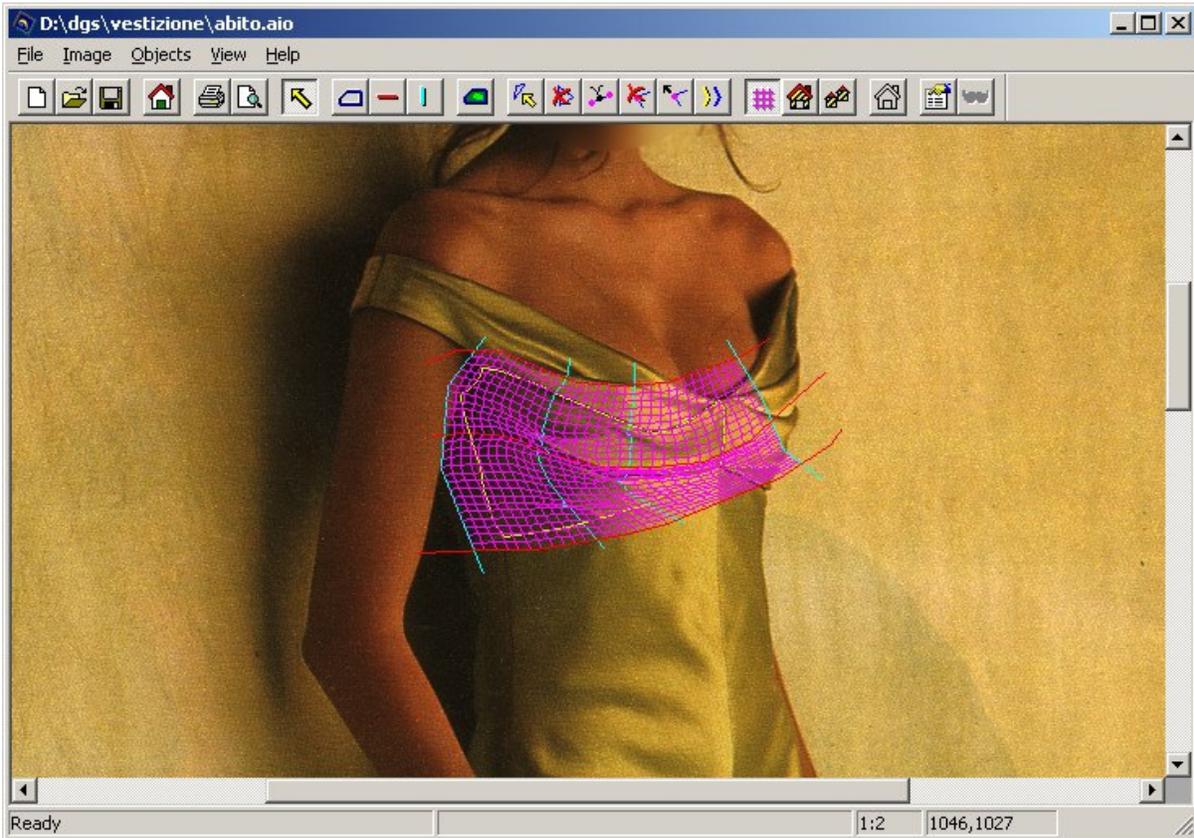
- 1) Wrong: insufficient number of vectors
- 2) Wrong: one vector overlaps the bound.
- 3) Wrong: the vectors do not cross each other.
- 4) Correct.

In order to avoid undesired distortions of the mapped pattern keep the distance between the intersection points of the vertical vectors and also the distance between the horizontal vectors more or less constant. ($AB \approx CD$ and $AC \approx BD$).



3.5 GRIDLINE

Visualizing the gridline helps you to control whether it follows correctly the shape of the object. Select **Create grid** from the menu Objects->**Generate Grid** or click on the  button. If the gridline seems to be deformed or distorted make sure that the distance between the intersection points of the vertical vectors and the one between the horizontal vectors is kept constantly (See figure 3.4).



3.6 MAPPING PARAMETERS

For every object (created bound) you can define parameters, which characterize the mapping. Select therefore **Properties** from the **Objects** menu or click on the  button:

Name: the object name must be univocal.

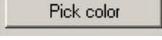
Group: a group refers to a range of objects, which shall be texture-mapped at the same time.

Pattern – Color: in this section you will see the pattern or the color connected to the object. Clicking with the left button of the mouse on the box it possible to change it. If you load an XPf image (Ramsete format) like a pattern, you will be able to use all the colorways registered in the image. Clicking with the right button of the mouse it will appear the colorways list.

Mapping Mode: you can choose between the following *mapping modes*:

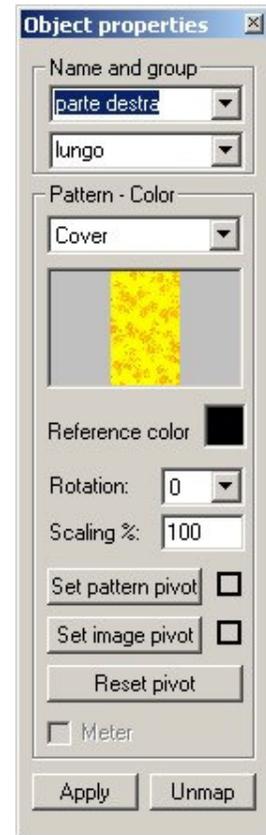
Cover: maps a pattern onto the object and retains thereby the lightness of the original image.

Reference color: serves to reduce or increase the lightness of the mapping result. The lighter the chosen reference the darker becomes the mapping result and vice versa. 

Color: maps one color onto the object and retains thereby the lightness of the original image. 

Flat: maps a pattern without taking account of the light and dark shadings of the original image. The result is a pure two-dimensional object.

Light: with this command is possible to change the lightness of the pattern. Moving the indicator to right means more light, moving to left means more dark. 



Rotation: enter the rotation or mirroring degree of the pattern.

Scaling %: enter the scaling factor (in percentage) of the pattern to apply to the real dimension of the object.

Set pattern pivot: activates the defined setting of the pivot on the pattern (see paragraph 3.7).

Set image pivot: activates the defined pivot to position the pattern on the object (see paragraph 3.7).

Reset pivot: erase the pivot associated with the pattern.

Meter: enables the meter associated with the pattern.

Apply: applies the pattern or color to the object (see paragraph 3.8).

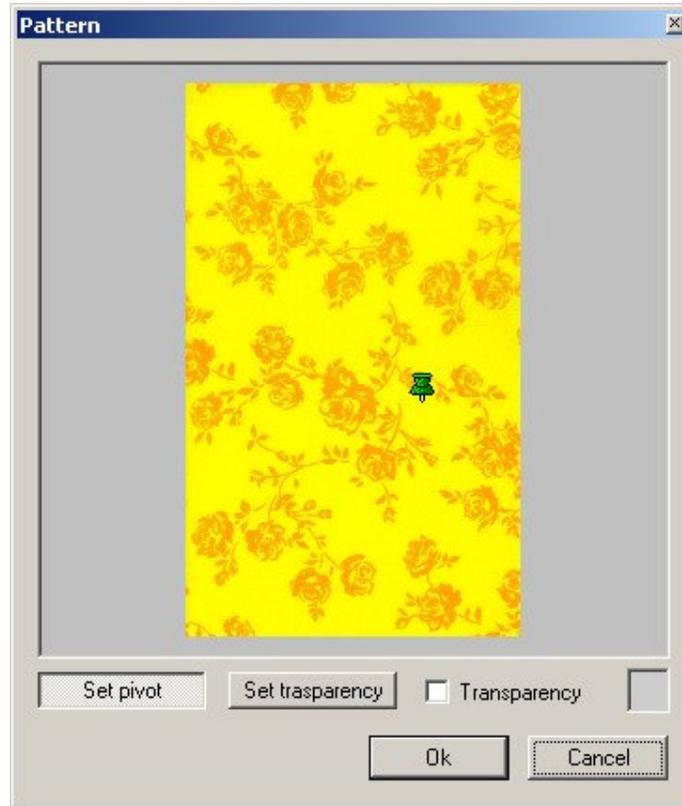
Un-map: un-maps the object (see paragraph 3.8).

3.7 PIVOT & TRANSPARENCY

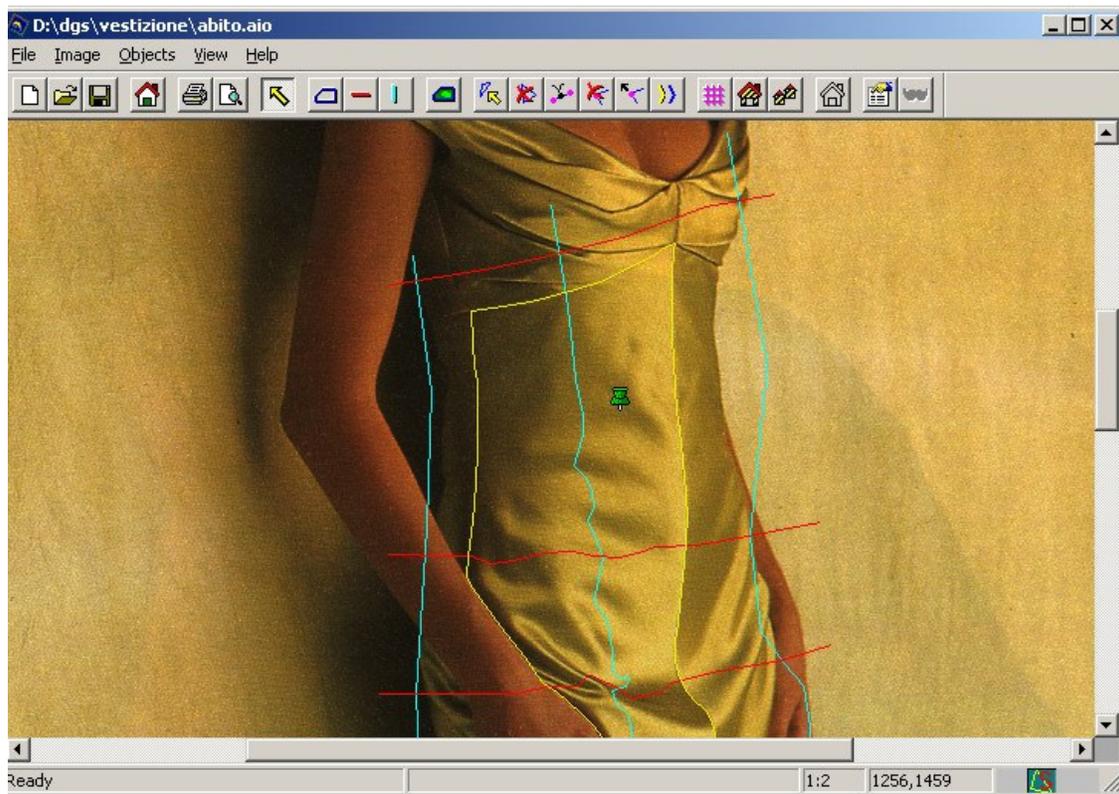
The pivot serves to position and map the pattern in a precise way on the object. This can be useful in case that you want to center the pattern on the object or you want to apply the same pattern in a continuous way over several objects.

First identify with the mouse or pen a pivot as reference point inside the pattern. Click on **“Pivot pattern”** and choose the reference point inside the Pattern window (see figure) with a single click.

Additionally, you can also define a color, which shall be considered as transparent during texture-mapping. Therefore, activate the field color mask and then click on the button **“Set transparency”**.



Now define where to position the reference point of the pattern on the object. Therefore, identify with **"Pivot image"** the according reference point on the object. Attention: the pivot must be located inside the bounds of the selected object.



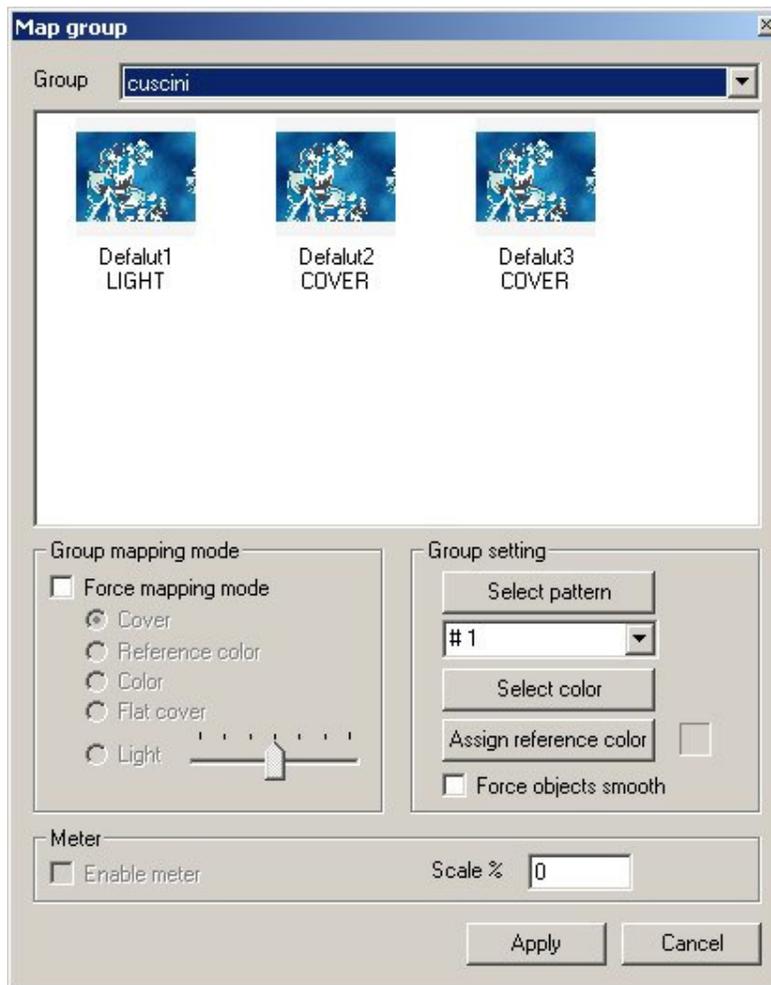
3.8 MOTIVE APPLICATION

In general there are three ways to apply the pattern to the objects .

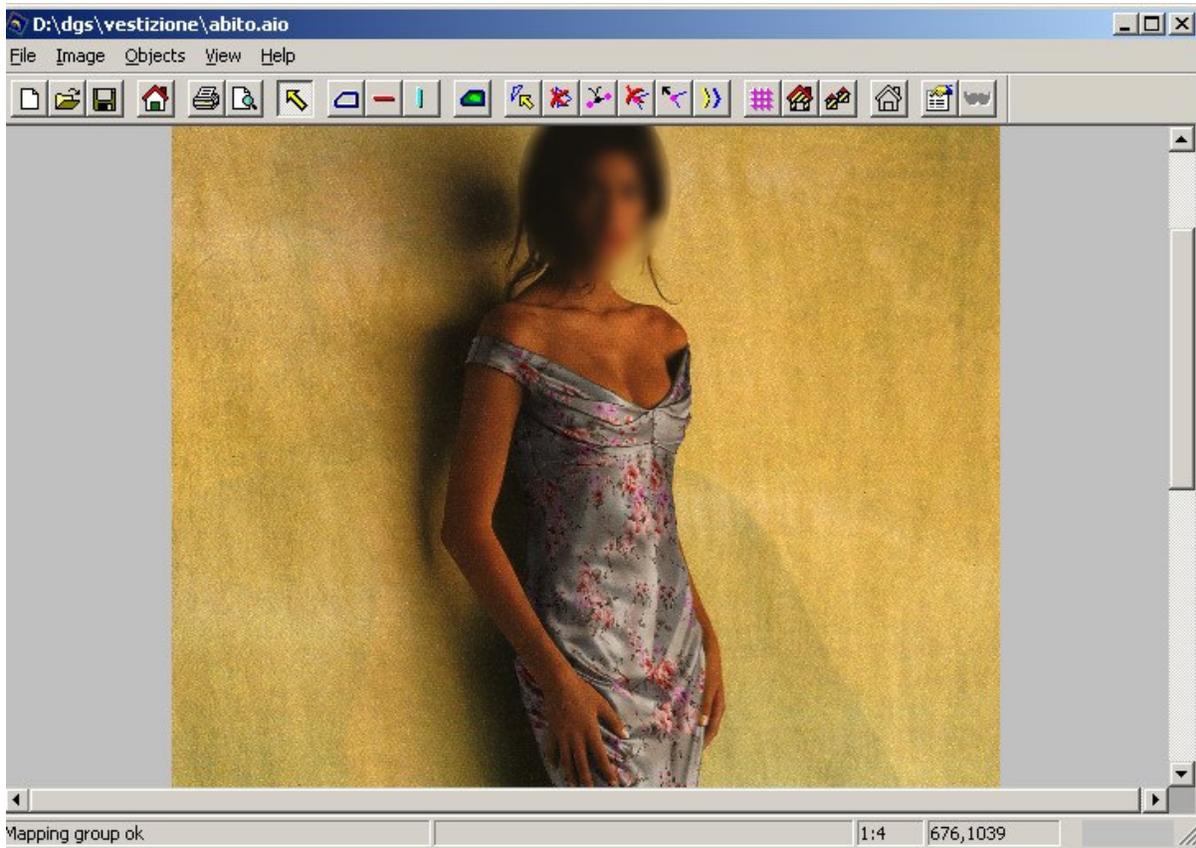
Application to the current object: applies the pattern to a single object; select **Current** from the **Apply** menu (submenu of **Objects**), click on the  button or press on “**Apply current**” in the object properties window.

Application per groups: select **Group** from the **Apply** menu (submenu of **Objects**) or click on the  button. With this function is possible to modify the settings of **all the objects** of the selected group. These are the possible operations:

- Load a new pattern with the “Select pattern” button;
- Choose the colorways in the combo box;
- Choose the color with the “Select color” button;
- Change the reference color with the “Assign reference color” button;
- Apply the smooth with the “Force objects smooth” check button;
- Select the mapping mode in the “Group mapping mode” section;
- Set a scale factor (percentage). The 0 value means the each object will be scaled according to its own setting. The maximum value is 500;
- Enable the meter setting;



Total application: applies the pattern to the entire image. Select **All** from the **Apply** menu (submenu of **Objects**).



☞ *It is possible to apply step patterns (only XPF) for the mapping without rotation (rotation angle 0).*

☞ *The maximum size of the pattern to load is about 5000x5000 pixels.*

3.8.1 Undo mapping

In order to undo the mapping select the object bound and **Un-map current object** from the **Objects** menu, click on the  button or click on “**Un-map object**” inside the object properties window.

3.8.2 Smooth bound

The function **Smooth bound** from the **Objects** menu integrates the mapped object more smoothly and more continuously into the background image, as it reduces the contrast between bound and background colors.

☞ *Once Smooth bound has been applied the shadings of the bound do not correspond any more perfectly to the mapped area. This becomes a problem when you intend to restore the original image. In this case it is better to reload the original image.*

3.9 MODIFICATION OF BOUNDS AND VECTORS

You can modify bounds and control vectors of an already defined object with the following commands:

-  selects the desired control vector, which can be moved with the cursor.
-  deletes the selected control vector; in case of bounds this function deletes additionally to the bounds also the related vectors.
-  inserts a point.
-  deletes a point.
-  moves a point.
-  duplicate a vector

3.9.1 Undo set modifications

In order to undo the last modification carried out press the keys “CTRL+Z” at the same time (see also Exhibit A “Shortcuts”).

⦿ *ATTENTION: The function Undo does not have any effect if you delete an entire bound. The bound will be definitely lost.*

3.10 IMAGE MODIFICATIONS

The commands **Rotate**, **Resize**, **Crop** and **Color balance** from the **Image** menu' modify the original or background image as well as the created objects. You can save the carried modifications under the same file or a new one.

3.10.1 Rotate, Resize, Crop

Rotate rotates the whole image according to a chosen degree. Positive degrees result in clockwise rotations while negative degrees in anti-clockwise rotations.

Resize re-dimensions the whole image according to a scaling factor (percentage). As default the software retains the original proportions during scaling. But you can also enter different scaling factors for the x and y axis after having deactivated the field “Maintain aspect ratio”.

Crop cuts the selected area including its bounds.

3.10.2 Color balance

With **Color balance** you can do same last color corrections by setting the gamma, contrast and lightness of the original or background image.

3.11 MASKED AREA

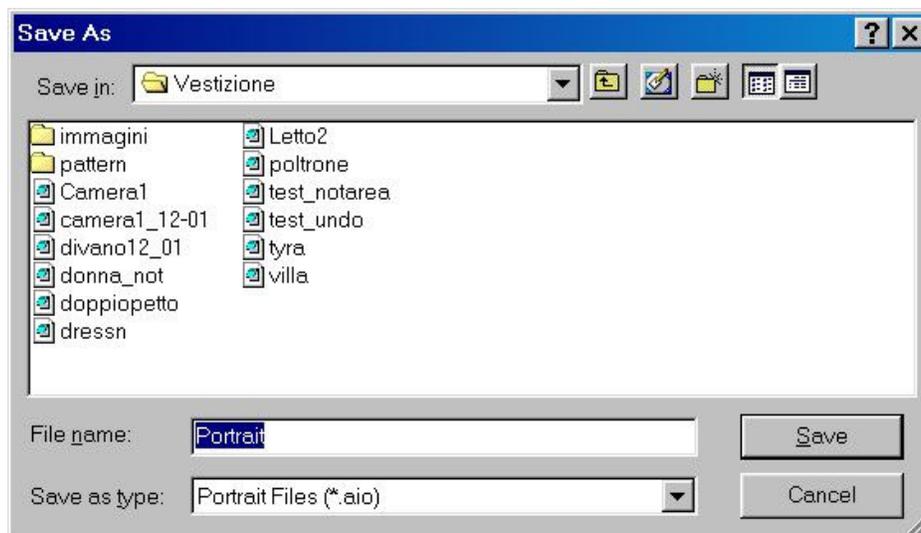
A *Masked area* is an area, which should not be mapped (e.g. the button of a jacket). To create this object press the  button, draw the according bound around the area. During the creation of a *Masked area* the bound are hidden.

To activate the *Masked area* it's necessary to chose the “Image->Activate masked area” command or push the  button on the toolbar. Otherwise the *Masked area* will be ignored.

3.12 SAVE MODIFICATIONS AS FILE PORTRAIT

Save file portrait As from the **File** menu allows you to save the modifications to apply to the respective original image as file indicating thereby file name and the directory where to save the file.

⦿ *In order to avoid partial or total data losses save the modifications continuously.*

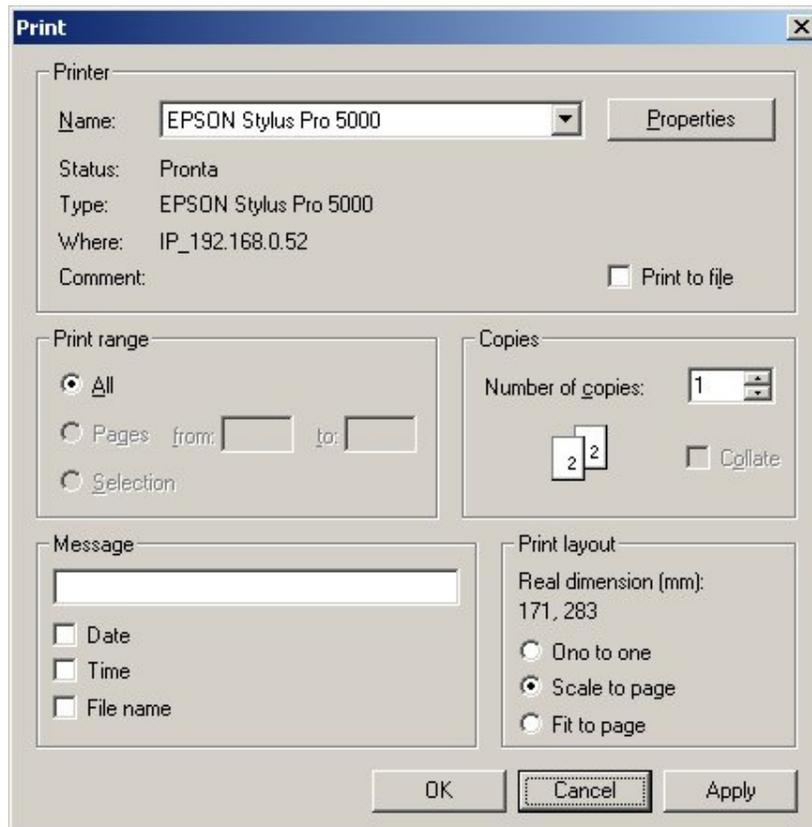


3.13 SAVE MODIFIED IMAGE

Selecting **Save image** from the **File** menu allows you to save the modified or mapped image indicating the file name and the directory.

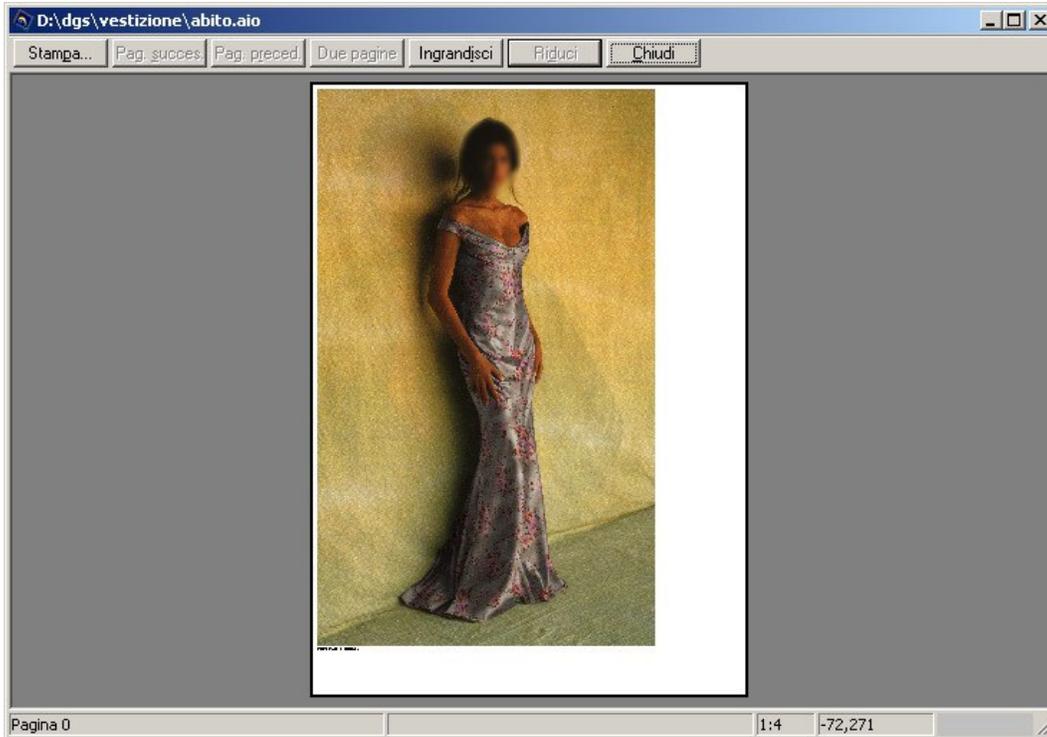
3.14 PRINTING PARAMETERS

Print setup from the **File** menu allows you to define the printing parameters. You can decide on the print layout, enter a comment and decide whether date, time and file name shall also appear on the print out.



3.15 PRINT PREVIEW AND PRINTING

With **Print preview** from the **File** menu or by clicking on the  button you get a print preview of the image. To print the image press **Print** from the **File** menu, click on the  button or press at the keys "CTRL+P" at the same time (see also Exhibit A "Shortcuts").



3.16 LOAD A FILE PORTRAIT

If you want to apply to another image the modifications defined in one of the previously saved file portrait, then select **Open file portrait** from the **File** menu or press the  button. The software loads automatically also the related image and displays the defined bounds and vectors, which can be modified according to the descriptions in the previous paragraphs.

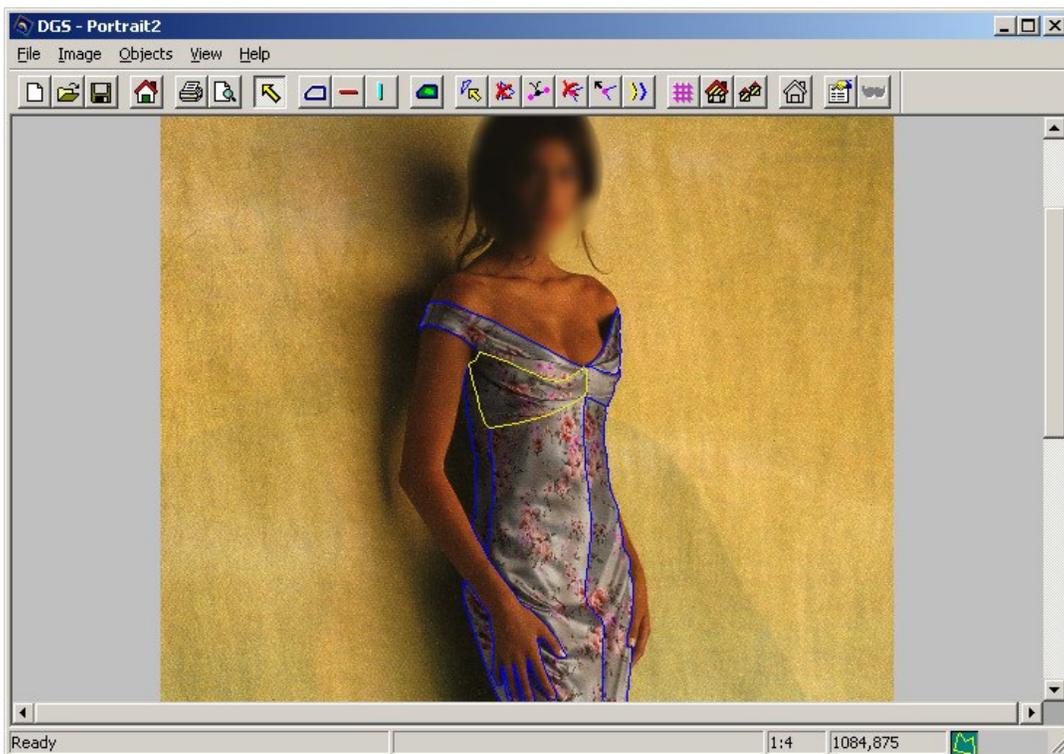




EXHIBIT A - SHORTCUTS

Keys combination	Description
F1	Enables/disables visualization of all bounds.
F2	Enables/disables visualization of a single bound with its vectors.
F3	Enables/disables visualization of the Masked areas.
F4	Enables/disables visualization of the grid of the selected object..
F8	Visualizes the entire image centered on the screen.
F9	Zooms out (-).
F10	Zooms in (+).
ENTER	Inserts a new point when you create bounds or vectors.
SPACEBAR	Enables/disables the point sharing during bound creation.
END	Centers the image visualization.
BACKSPACE	Deletes the last insert point.
CTRL+Z	Undoes the last modification carried out and restores the object in the way it has been before.
CTRL+O	Opens a Portrait 2 document
CTRL+S	Saves quickly the Portrait 2 document
CTRL+P	Activates printing
Arrows	To move the background image

EXHIBIT B – PATH

- The program Portrait.exe will be installed in the standard directory **c:\program files\dgs\portrait**
- Given a file portrait the software searches for an image associated with this file first in the memorized link/path, then in the *.aio file directory.
- The software searches for the patterns first in the memorized links/paths and then in the subdirectory “PATTERN” of the *.aio file.