SmartDesigner™

User Guide



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Chapter 01. Look into SmartDesigner™

1. What is SmartDesigner™?



SmartDesigner[™] is a computer design (CAD) system software for professionals in textile and fashion designing, which allows them to design clothing material, textile, and apparel easily and conveniently.

These days, there has been development in work efficiency for textile and fashion design as the technology has developed. With the attempt to minimize an effort and time spent for quality design, their tools has changed from pencil and brush to lettering and airbrush, and currently it is inevitable to use computer technology to catch up with mass designing and small production process. The word 'computer' implies the meaning of 'calculating'.

However, computer means more than just calculation these days. It is able to perform in a wide range of field such as literature, arts, and design and is able to compare, analyze, predict, and decide as humans.

With the flow of this phenomenon, CAD(Computer Aided Design) has been developed and it is a computer supported design system. It assists a user to express his/her creativity in various ways and gives them technological support for efficient editing and saving the design. Thus, textile and fashion design CAD refers to all kinds of technologies that are related to make, edit, save, and print Image data for textile and fashion design with the help of a computer. More than that, textile and fashion design CAD system is a computer system that optimizes work environment for production, edition, and analysis of textile and fashion design. The system is composed of hardware and software, and all the interfaces that connect each other.

2. What are some special features of SmartDesigner™?

- 1) Since it is online based software, anyone can log in everywhere.
- 2) It is easy to create new form of design since it is easy to save and share a completed design.
- 3) You can search fast and easily among vast amount of data, and make database with categories.
- 4) It is 100% compatible with Window, so you can link the software with various input/output systems. For example, you can connect with DSL camera, colour spectrometer, mobile, and etc. to utilize the program.
- 5) It is easy to partially adjust, zoom in/out, move, copy, and edit. Also, it can also be linked with various drawing tools to create new design.
- 6) Design can be saved to CD, hard disk, external hard drive, and etc. for permanent storage.
- 7) Since it is 100% compatible with Window, it is possible to link with numerous utility programs such as 3D utility program. In addition, it is easy to create worksheet by using OA programs for postprocess and reduces working period for efficiency.
- 8) You can exhibit your work in 3D graphics and can cope with problems or improvement requirement efficiently.

Like this, **textile and fashion design program**not only expresses as designers requested but also it shows them other possibilities in the process of idea development which allows them to think in different perspectives as well. Furthermore, detailed Image created by simple adjustment and change may lead to better and more creative design of which designers never thought. Thus, many national/foreign designers now tend to use textile and fashion design program(CAD system) insteadof hand drawing in order to be more competitive. As consumers became sensitive to overseas trend and cycle of consumer demand and expectation have shortened yet diversified, SmartDesignerTM is a must have software for creative design development that

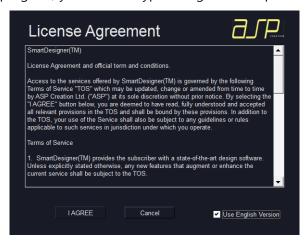
enables designers to differentiate from others. Furthermore, it assists designers to quickly respond to supply/distribute various kinds of products to SPA brands.

Chapter 02. SmartDesigner™ composition

1. SmartDesigner™ installation

SmartDesigner[™] is the one and onlyASP(Application Service Provider), meaning that it is a leasing based software and it runs online so anyone can log in anywhere and share ID(One ID One user) To install the program, follow the instruction below.

- 1) Click the address linked to program launching file. The link is different for every users so be sure to note on the address. You can also check the address from reference room¹ at our website.
- 2) If you accessed to our website, go to 'reference room' section.
- 3) Find the relevant 'SmartDesigner™installation file' in reference room and download the file.
- 4) Start the downloaded file².
- 5) If you click on the icon, you will see the window shown in [Image 1-1] and click "Agree" to start the program³. (Make sure to check 'Use English Version' to show English)
- 6) When you start the program, you need to type in login ID and password.



[Image1-1]Agreement on license based user

¹Our website is www.okmodern.com

²Follow the instruction give in the installation program.

³You need to agree on the contract on license to use the program. If you want to use an English version, click "Use English version".

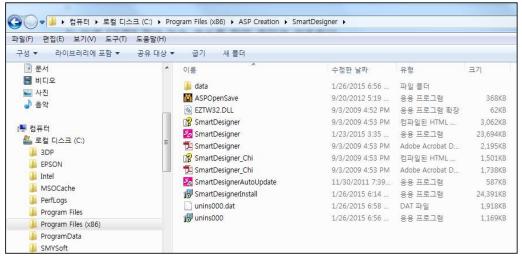


[Image1-2]Login screen

2. SmartDesigner™ Auto update

Generally, all programsare updated regularly or irregularly with new function or with a bug fixed. SmartDesigner™provides'Auto Update'function so users can simply update the program. To update the program, follow the instruction below⁴.

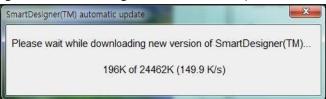
- 1) Find the file below as in [Image1-3].
- Go to <u>C:\Program Files\ASP Creation\SmartDesigner\SmartDesignerAutoUpdate.exe</u>and look forSmartDesigner-AutoUpdatethen double click it.



[Image1-3]Direction to update the program

⁴Generally, to do auto update, it is better to set SmartDesignerAutoUpdate.exe to automatically update the software regularly. For more information, please contact technical service support team.

2) You will see this loading screen as in [Image1-4] and it starts update.



[Image1-4] Update loading screen]

3) You can identify the update by version written at the top of the program.



[Image1-5]Check on update status

3. Starting SmartDesigner™

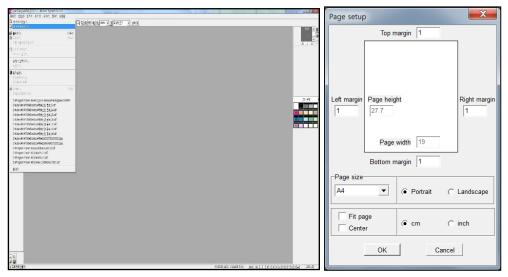
Type in your ID and password provided at thescreen shown as in [Image1-2]and double click 'online login'⁵.

1) Project mode

- 1) Select 'Create new project' from file.
- ② Set the size of work area from page set up window, as shown in [Image1-6], and click $OK = \binom{1}{6}$

⁵Ask for help to admin if you lost your login ID and password. Admin ID must not be told to anyone outside or lost, and the company should be notified that the responsibility lies on them when loss is made due to their fallacy. When Admin ID or password is lost, please contact technical support service team.

⁶Size of the work area is same as the size of window, and you can adjust the size and margin of the page, and change the size, measurement and direction of window.

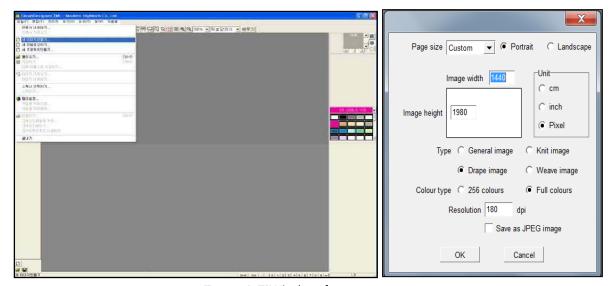


[Image1-6]Window for page setup

3 Click okay button.

2) Image mode

- ① Select 'Create new Image' from file.
- ② Set as you like on page setup window[Image1-7], and click OK



[Image1-7]Window for page setup

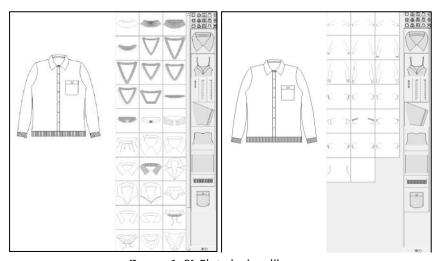
※ For your information, general Image is a general graphic mode or bitmap mode, kintImage is a mode for designing knit, drape Image mode is to express 3D effect, and weave mode is to create fabric. Therefore, a designer can select any mode among these for his/her use, and for colour mode, 256colour and full colours are supported but for better compatibility with Images from external sources it is better to select full colour mode. Furthermore, basic resolution is 180DPI but you can select high resolution regarding the completeness of your design. One of the special features of SmartDesigner™ is that it is a combination package which includes all the modes for creating weave, knit, and general graphic.

4. Working on each mode with SmartDesigner™

1) Create new project(Vector Image mode)

If you master this one of the best functions SmartDesigner[™] has, you can easily import Images created with other programs such as Illustrator, or import other internal functions such as generalImage, knit, weave, and drape.

Furthermore, you can edit conveniently in various ways by adjusting nodes, which is the characteristics of vector mode.



[Image1-8] Flat design library

SmartDesignerTM is compatible with other programs. For example, it is possible to import and export works to and from IllustratorTM of Adobe.

The flat design library in SmartDesigner[™] provides you with basic designs of clothes and you can choose from the diverse ready-made designs. It is also possible to add more of your own design into the library for later use.

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2) General Image mode

[Image1-9] General Image mode

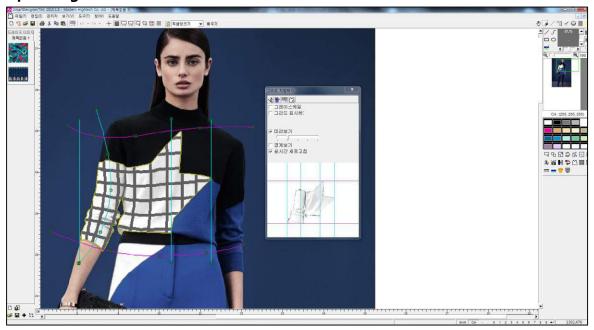
It is a graphic design mode for drawing various print patterns. It includes more than 300 functions for designing, including drawing lines, pattern repeat, colour combo. In addition, it is possible to use library colour and Pantone™ together. On general mode, textile and fashion design and Image edition is possible.

3) Knit Image mode

[Image1-10] Knit Image mode

It is a mode for designing knit by applying various kinds of knit structures and stitches. It includes functions such as automatic change to knit design and etc.It is possible to print the knit pattern in real size and to analyze the amount and the density of yarns used. It is also shown in knit symbols so a designer can conveniently create his/her own knit design. Furthermore, knit structure library with more than 100 structures such as cable, diamond, tuck and etc. is provided to make knit design easier than ever.

4) Drape Image mode



[Image1-11] Drape Image mode

It is a mode that allows you to apply designed pattern to a real product Image. It is useful for product planning or for presentations. You can utilize this mode for apparel, interior, textile fashion, and accessories field to create various product Images.

The state of the s

5) Weave Image mode

[Image1-12] weave Image mode]

It is a mode for designing fabrics, and you can select types and colours of yarns and easily apply those as you would like to design. It is also possible to edit the density of yarns and easily change colours. The library for frequently used structures such as twill, herringbone, and diamond is provided to reduce time for sampling and to make the work easier. Furthermore, you can save fabric you created with specific information.

5. SmartDesigner™ Menu icon explanation

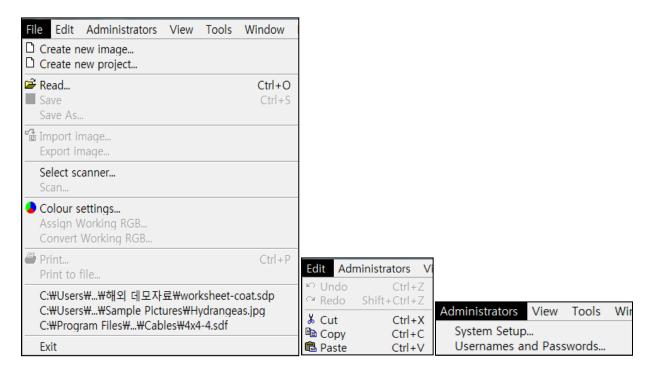
1) Basic tools of SmartDesigner™

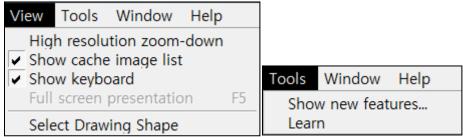
Icon	Name
File Edit Administrators View Tools Window Help	Menu bar
	Shortcut icons
N + CM +	Undo / Redo
+	Cross cursor

95,000	
VX.	ruler
	Transparent mode
点が	Select window
	Auto repeat mode
④ □ 100% ▼	Zoom in/out
	Art kit
	Navigator
C5 : (236, 0, 153)	Colour palette
	toolbox

①Menu bar:

File Edit Administrators View Tools Window Help







[Image1-13] Menu bar

② Shortcut icons:



(From left to right: create new file, import Image, open, save, print, cut, copy, and paste.)

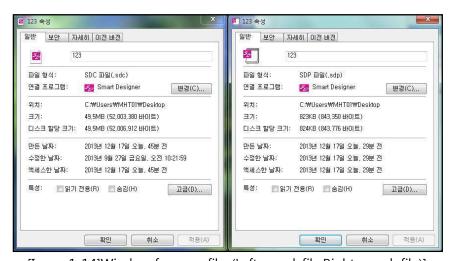
- ③ Undo, Redo: To move to previous state or to redirect to the next state.
- 4 Cross cursor: To see the location of Image at once

- ⑤ Ruler: To measure the size of you work both vertically and horizontally.
- **(6)** Transparent mode: To make a background of Image transparent when you want to overlap the Image onto another one.⁷
- ② Select window: You can select the area that you are going to work in.
- (8) Auto repeat mode: It automatically repeats motif to create pattern.
- Zoom in/out:To expand or to reduce the window
- 10 Artkit: Group of basic tools for drawing
- ① Navigator: It shows you where you are looking on the monitor, and you can move around on navigator.
- ② Colour Palette: It is a composition of colours and you can add colour or add new palette.
- Tool box: Group of tools for main functions and effects.

Chapter 03. SmartDesigner™ File management

1. Flat design library and Image list (xxx.sdc)

xxx.sdpandxxx.sdc : xxx.sdp is a saving form of Smart project File, and it is a basic form based on layers of a program.xxx.sdc is a saving form of SmartImage list and is to save list of Images.

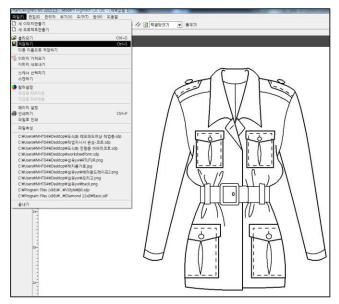


[Image1-14]Window for save files(Left:xxx.sdcfile,Right:xxx.sdpfile)]

⁷ It is only possible on bitmap file on general Image mode or drape mode. However, this function does not apply to all kinds of Images but the background needs to be deleted beforehand. When you import from Image list, the background shows as white but once you select transparent mode, the background becomes transparent instead of white.

2. Open and save file

①xxx.sdp:You can save it through **file→save** on a menu bar.



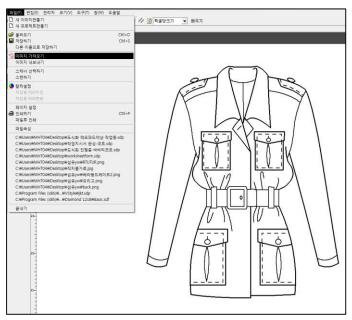
[Image1-15]Save

② Compatible file: If you want to save your work other than a basic format SD provides, save it through **file→export Image**⁸.



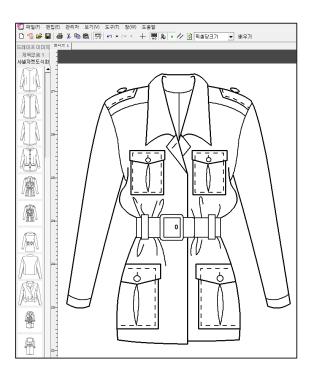
[Image1-16files that are compatible with SD]

⁸When you want to open files saved as other format, select 'import Image'.



[Image1-17]Import/Export Image]

③xxx.sdc: As in [Image1-18] you can save your work on the Image list which is placed at the left hand side of a screen. When you want to save or import as Image list file, click on icons at the bottom of the Image list window.



[Image1-18] Some Images imported as Image list format, xxx.sdc]



[Image1-19]Save as or import xxx.sdc file]

3. Exit SmartDesigner™



[1-20 종료하기]

Whenever you wish to exit the program, click at the very upper right side of the window. If you have not saved your wok, the pop up window will appear and ask if you wish to save or not [Image1-21].



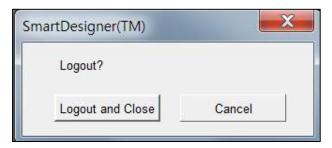
[Image1-21] Pop up window appears when you have not saved your work]

Even if you have saved in the middle of your work, if you have not saved it before you quit, save as different file is automatically done. If you do not want to, click 'no'. When you do not want to quit, click 'cancel' to get back to your work.



[Image1-22]When exiting from previously saved file]

To log out, you will see this window below pop up and select 'log out and quit' to completely exit from the program. If you click 'cancel', the program will not end and you will remain on your worksheet.



[Image1-23]Asking to logout

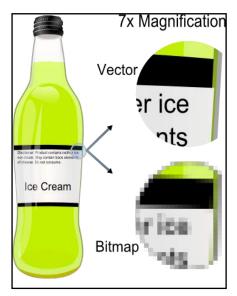
Chapter 04. Understanding Images and getting ready

1. Vector Image and BitmapImage

1) Vector mode

A vector Image showsImages based on mathematical equations such as points, lines, curves, polygons and etc.It is also called 'object-oriented graphics'. It is a substitution for raster graphics(=bitmap), which represents Images made with pixels.

A vector format processes an object with lines and figure byusing mathematical principle(differential) so its compressibility is outstanding, and the resolution is not affected when it is zoomed in/out. On the other hand, a bitmap Image gets to process more information when it is enlarged since it needs to process graphics in a pixel unit. The simplest way to classify a vector and a bitmap Image is when zoomed in, a bitmap Image has rough edge and a vector Image has smooth edge.



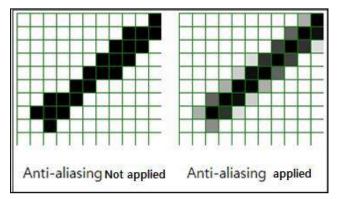
[Image1-24] Difference between a vector Image and a bitmap Image

2) Bitmap format

A bitmapImage is also called 'RasterImage', and expresses an Image with grid using an element of Image (pixel). Each pixel is allocated with specific position and colour. That is, when working on a bitmap Image, you work on each pixel, not the whole object or a figure. A bitmap Image is good forexpressing subtle gradient of colours and shades so a bitmap Image is generally used for picture Images. Number of pixels used in a bitmap Image is fixed so the Image is shown differently depending on the resolution. Thus, when the Image is enlarged on a screen or printed with lower resolution, the Image is shown unclear and rough. A bitmap Image sometimes require big space to save, and you may have to compress a file to make it smaller.

2. Aliasing&Anti-aliasing (Bitmap)

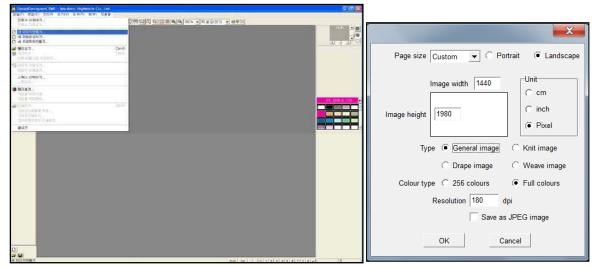
- 1) Aliasing: When high resolution is shown on low resolution, an Image tend to break. For example, when you enlarge a small picture, you can see broken pixels or jaggies. That is called aliasing.
- **2) Anti-aliasing**: One of the ways to reduce aliasing is to mix some colours nearby to make a boundary look vague. Then, it makes jaggies look smoother.



[Image1-25]With and without Anti-aliasingapplied

3. Create new Image(Bitmap Image)

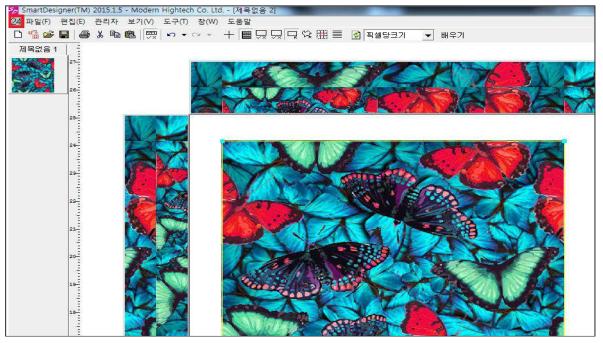
- **1) General Image mode**: Select 'Create new Image' from file on menu bar. As shown in [Image1-26], set up a screen as you like and click on OK.
- 2) Page set up window: As shown in [Image1-26], you can select among 4 types of mode.



[Image1-26] Page set up window

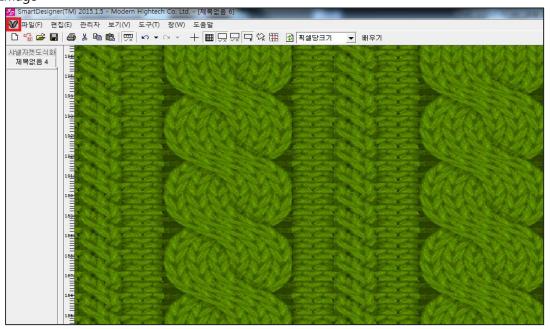
Function Explanation		
Page size	Set up size and direction of work sheet	
Unit	Set up a unit of page	
Туре	Set up a type of Image mode	
Colour mode	Set up colour mode	
Resolution Set up resolution for work sheet		
Compress and save as JPEG	To save work in JPEG file, you need to compress and save it	

① General Image



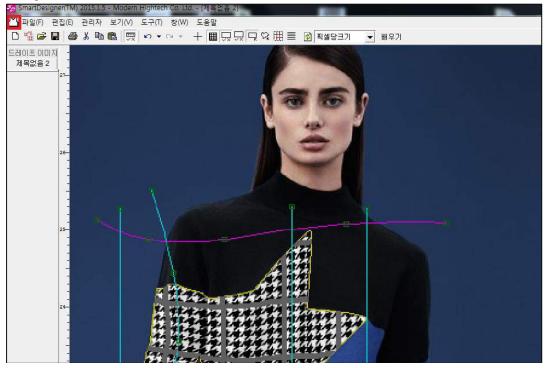
[Image1-27] General Image

② Knit Image



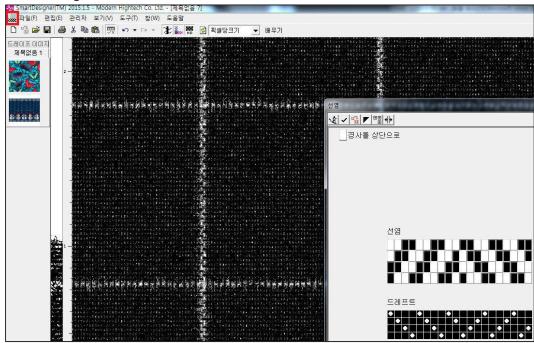
[Image1-28] Knit Image

③ Drape Image



[Image1-29] Drape Image

Weave Image



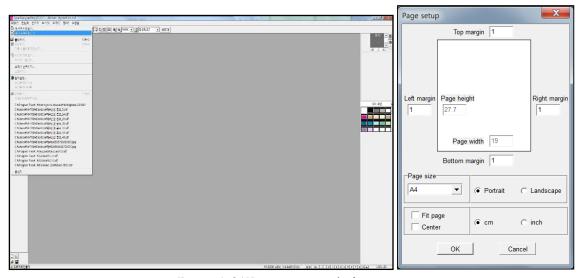
[Image1-30] Weave Image

4. Create new project (Vector Image)

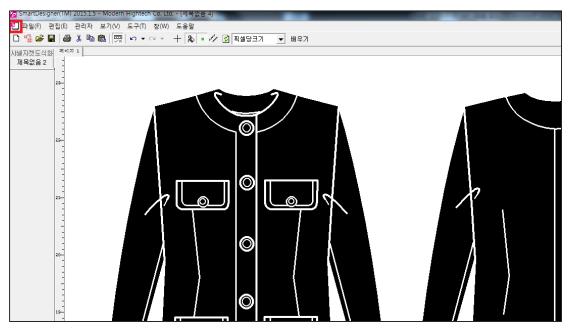
1) Project mode

①click on 'Create new project' from file on menu bar.

② As shown in [Image1-31], set up a screen as you like and click OK.



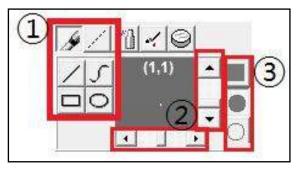
[Image1-31]Page set up window



[Image1-32]Starting page of project Image

Chapter 05.Pen tools

1. Various pens

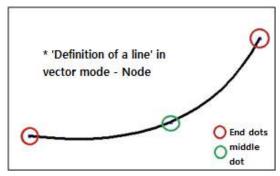


[Image1-33] Various pen tools

- ①It is a function to draw on a work sheet by selecting either a pen or a stitch. You can utilize line, curve, square, and circle tools to work efficiently.
- 2) You can adjust length and width of a pen.
- ③You can choose pen styles among squared, round, or hollow.

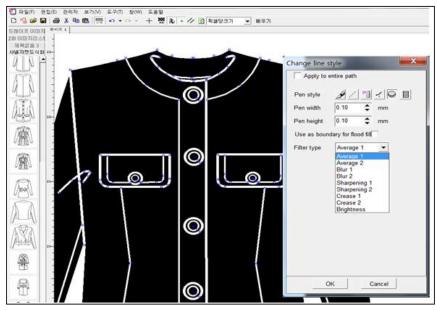
2. Change line style (project mode)

①Definition of a line in vector mode: As shown in [Image1-34], when you draw a curve on vector mode, you will see dots at each end and on the middle⁹. This each dot is called 'node'.



[Image1-34]Concept of a line

- ②Change line style: Select the line that you wish to change style¹⁰, and <u>click right button of a</u> mouse on the line and select 'Change line style'.
 - Filter effect: You can express wrinkles or sharpening with filter effect from change line styles.



[Image1-35] Adding wrinkles and sharpening with line style effect

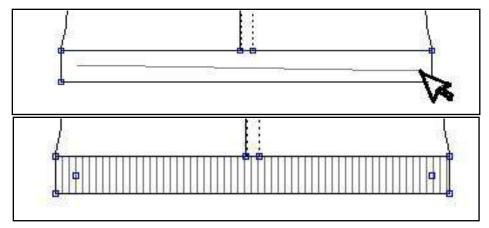
⁹Middle dot is only made on curves, not on lines.

¹⁰You can select more than one lines by selecting with **shift key**.

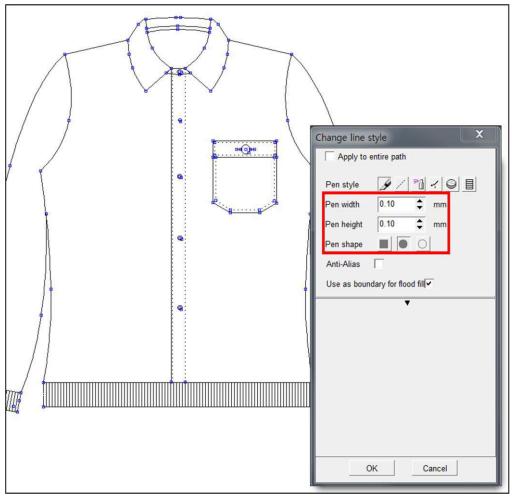


[Image1-36]Wrinkles, Sharpening effect

•Rib pen effect: You can draw a curve at the middle of necklines or sleeves and change the line with <u>'change line style'</u> function to express rib effect. As shown in [Image1-37], draw a line in vertical way and it changes to rib style.



[Image1-36]Changing a line into rib style.

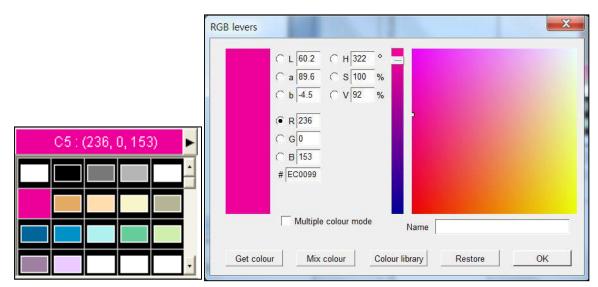


[Image1-38] Generating rib with a rib pen

Chapter 06. ColourPalette

1. Show palette information (Bitmap Image)

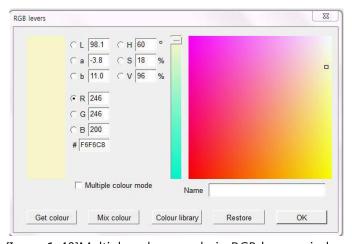
It is a function to select various colours for use. Double click the left hand button on the colour you wish to use, and you will see RGB levers window as shown in [Image1-39].



[Image1-39]Colourpallette& RGB levers window

Multiple colour mode

It is a function that allows you to change all the colours listed on your work sheet at once. If you check 'multiple colour mode' on RGB levers window as shown in [Image1 -40], it is activated.



[Image1-40]Multiple colour mode in RGB levers window

•Once you select colours you want to change on [Image1-40], multiple colour mode is activated as shown in [Image1-41].



[Image1-41]Activated multiple colour mode

• Add Colour mode and delete colour mode function: You can add or delete colours.

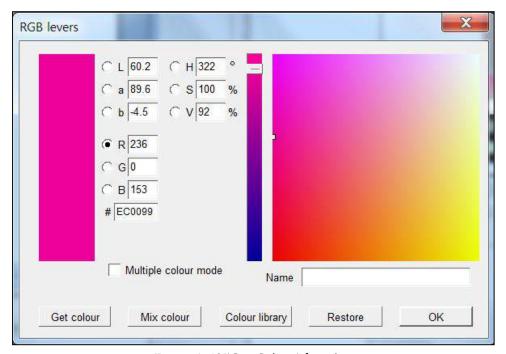


[Image1-42]Changing colours with multiple colour mode

• Depending on a user, colour can be changed through LAB, RGB, HSV as shown in [Image-1-42].

If you want to restore the previous colour click Restore, and if you want to save the colour you have changed click button.

• Get colour : You can get new colour.



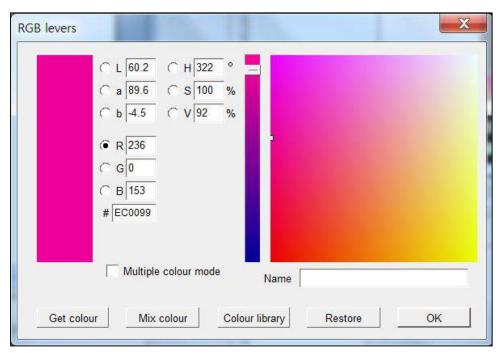
[Image1-43]'Get Colour' function

- •Control RGB, Lab, HSV on RGB levers window as you wish like shown in [Image1-43]. When you click on Get colour button, the changed colour is added on to colour palette so click on and close RGB levers window.
- Mix colour

 You can make new colour with mixture of selected colours. For example if you want to mix yellow and blue, double click yellow from colour palette.

 Then RGB levers on yellow will be activated. Click blue and select

 Mix colour

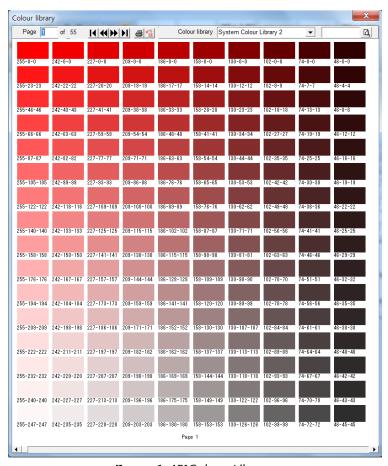


[Image1-44]Mix colour

•To apply mixed colour on color palette, click Mix colour , and select OK button.

2. Import/Export palette

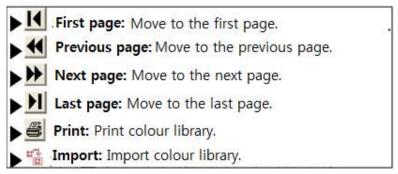
- 1) Colour library :You can use various colour library.
- ①Double click specific color and activate RGB levers window.
 - ②Click Colour library on RGB levers and you will see color library window as in [Image1-45].



[Image1-45]Colour Library

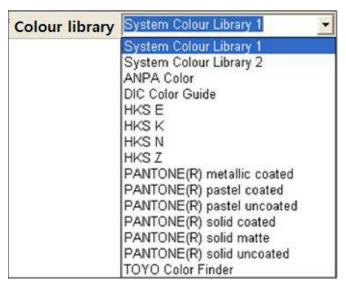
3 The function of Colour library is shown in [Image1-46].

Page of of 55 : It shows which page you are on and a total number of pages.



[Image1-46] Functions of colour library

⑤Colour Library: You can import other color library.



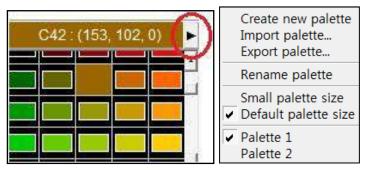
[Image1-47]Lots of libraries added to colour library

- 6 Search: You can search colour by typing in colour name.
- Restore: You can restore the previous color. You can get back to the original color before applying 'Get Colour' function.

When using 'Get Colour' or to restore, click Restore or click

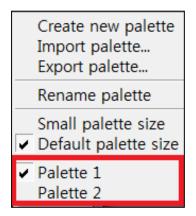
Restore to cancel order.

- **?**Save color palette: You can save colour palette you made.
- •Click icon on colour palette and you will see the activated functions as shown in [Image1-48], to import and export palette.



[Image1-48] Saving colour Palette

• Create new palette: You can add new color palette. The newly added palette is created as palette 1, palette 2 and so on as shown on [Image1-49].



[Image1-49] New palettes created

- Import palette: You can import previously saved palette.
- Export palette: You can save a palette you created.
- Rename palette: You can change the name of newly added palette.
- Small palette size: A palette is shown in a smaller window as in [Image1-50].



[Image1-50] Small size palette

• Default palette size: It is a basic palette you can see on original work sheet.

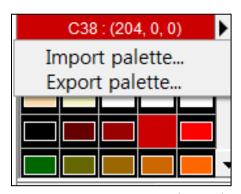
3. Lab, RGB,HSV

- 1) Lab: It is a range of colors which appear independently from monitors or printers and includes both ranges of RGB and CMYK. It is generally used as a middle step when changing from RGB to CMYK or from photo CD to RGB.
- 2) RGB: Those are the three primary colors of light. R stands for red, G for green and B stands for blue. It is on additive color mixture method. 3) HSV: It is a model of colors which expresses with hue, saturation, and value.

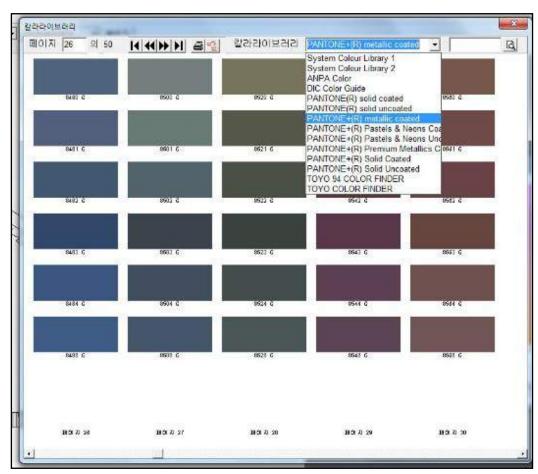
4. Add Colour library

- 1) Beside the basic colours provided by SmartDesigner[™], users can always **import colour** palette from Adobe or Pantone[™].
- 2) When you click on an arrow button at the upper right corner of color palette, click import palette or export palette as shown in [Image1-51].
- 3) Generally, you can import it from the path below.

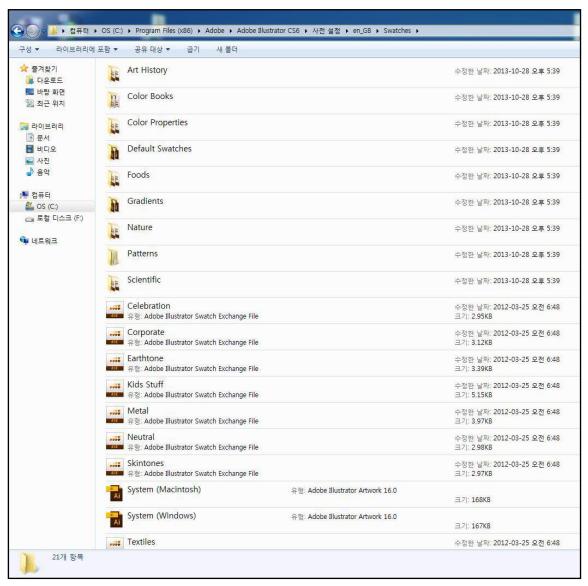
C:₩Program Files₩AdobeWAdobe Photoshop CS6WPresetsWColour Swatches



[Image1-51] Import/export colour palette



[Image1-52] Colour library imported from Adobe / Pantone $^{\text{\tiny TM}}$

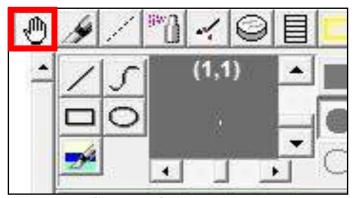


[Image1-53] Colour library located at the path above

1. General Image Mode

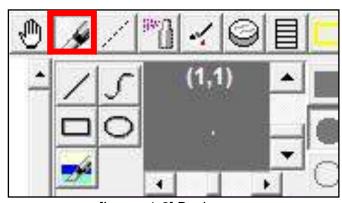
1) Drawing

- 1) Basically you are able to design simple sketch or print design.
- ②Work with art-box shown in [Image 1-1].
- 3 It does not support nodes since it is bitmap file.
- ④When moving the board with palm shaped cursor, click the left mouse button and it appears like it holds the board, then you can move the board.



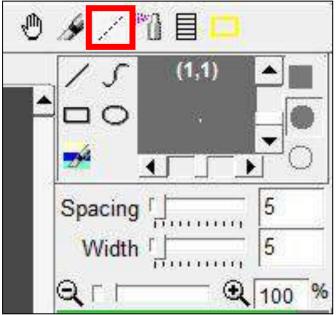
[Image1-1] Moving screen

⑤ You can adjust height and width of pen and draw straight and curved lines with basic tools of art-box.



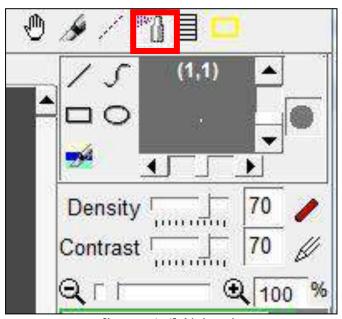
[Image 1-2] Basic pens

6 When drawing stich line, you can adjust the interval space between a stitch line and height and width of pen together to draw effective lines.

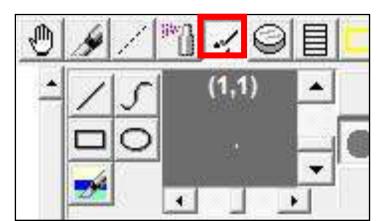


[Image 1-3] Stich line

7) Adjust density and contrast with spray brush.

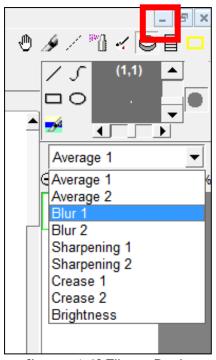


[Image 1-4] Air brush



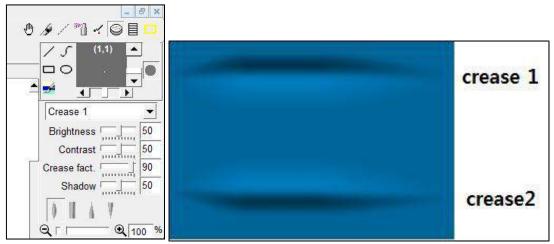
®When you assign 100 of translucence of image, you can use it as an eraser.

[Image 1-5] Translucency



[Image 1-6] Filter - Basic

① You can represent creases of clothes and shades ect. with Crease 1, Crease 2. You can also show the crease of brightness and darkness combined.



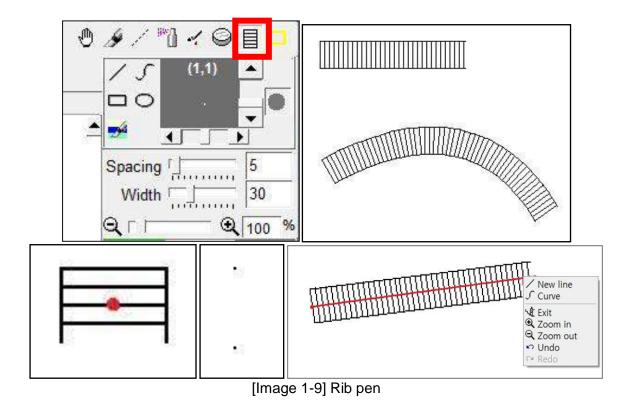
[Image 1-7] Filter – set up Crease 1, Crease 2

(1) Adjusting brightness gives shadow effect.

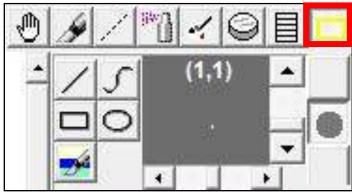


[Image1-8] Filter-brightness set up

②You can describe shirring of sleeve and neck line. First click the starting point and click direction arrow key centering the red dot and you can see the two points. Placing direction button and drag out, you can see equal rib pen effect. When clicking the right mouse button before clicking the end point, you can see the menu including drawing new lines, leave curve lines etc. as shown in [Image 1-168]. If you don't follow this, rib pen image may not be drawn equal or be broken.



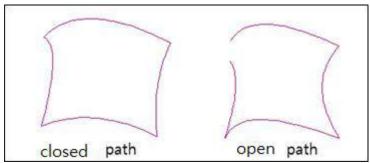
³After clicking image you want and click image pen, you can draw with image you selected.



[Image1-10] Image pen

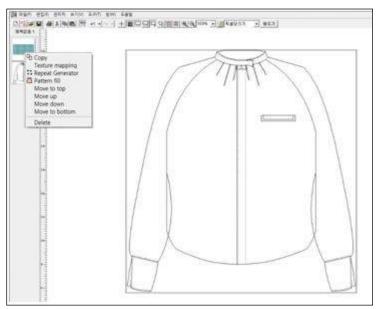
2) Fill

- (1) Colour filling and pattern filling
- ①Colour filling: After selecting a colour, click the flood fill and click inside of closed path.But, if it is opened path, the colour fills both in and out of the path.

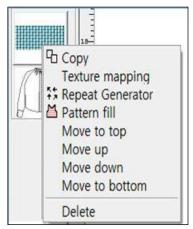


[Image1-11] closed path and open path

②Pattern filling: First, add pattern image on image list and then sketch design or draw image with lines. Then, as shown in [Image 1-12], [Image 1-13], click image list and click pattern fill. The pattern will come with the cursor and click inside of the closed path and the pattern will be applied. Also, the menu is appeared by clicking right mouse button. You can rotate the direction with rotate button before filling in.



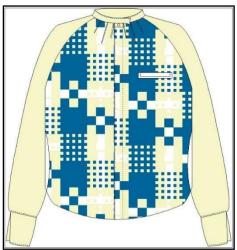
[Image 1-12] Click pattern with the right mouse button on Image list



[Image 1-13] Menu when clicking the pattern with right mouse button.



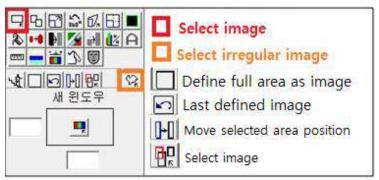
[Image 1-14] Menu when clicking the pattern before placing on board with right mouse button.



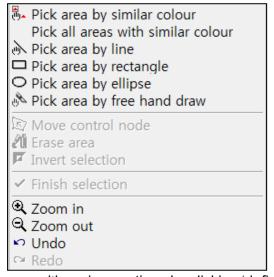
[Image 1-15] Filling pattern and colour on sketch.

3) Define window.

- 1) Window is a tool to select the place you want to work in.
- 2) Basically it is set up to define with square shaped window.
- ③You can see the tools below as shown in [Image 1-15] when clicking 'select image'. If you click 'Define irregular image' and click the right mouse button on board, you can select menu as shown in [Image 1-16].



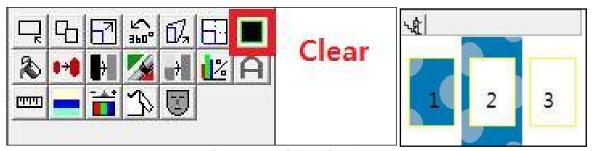
[Image1-15]tools of 'select image'



[Image1-16] pick areas with various options by clicking 'define irregular image'

- 4) Define full area as image: select the whole workarea
- ⑤ Last defined image: you can select the window you selected previously.
- 6 Move selected area position: move selected window.
- Select image: take back to window you selected during working.

4) Delete

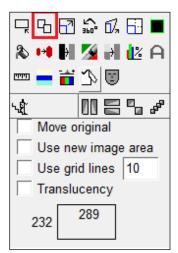


[Image1-17] Tool for clear

- ①Delete out of defined area.
- 2) Delete inside of defined area.
- ③Delete all.

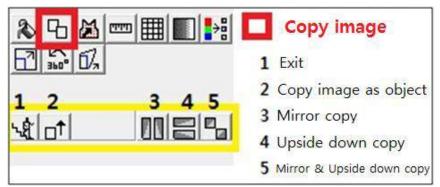
5) Move/copy

①Move: define image you want to move with 'select image' button. Click 'copy' button and marked 'Move original' then you can move the image. Or you can also use Ctrl + x(cut) and Ctrl + v(paste).



[Image 1-18] move image with copy tools – Move original

②Copy: define the image you want to copy and click 'select image'. Then, click the copy and select a tool you want.



[Image 1-19] Various copy function in a 'copy' tool

- ③Exit: select if you do not want to run selected function.
- (4) Copy image: copied image will be created on separated layer.
- 5 Mirror copy: copy reverse from left to right.
- 6 Upside down copy: copy reverse up and down.
- Offset copy: copy reverse on diagonal direction.

6) Colour Mask

it supports simplifying the number of colours you want of the image which includes colours such as picture and allow you choose particular colours and change them.

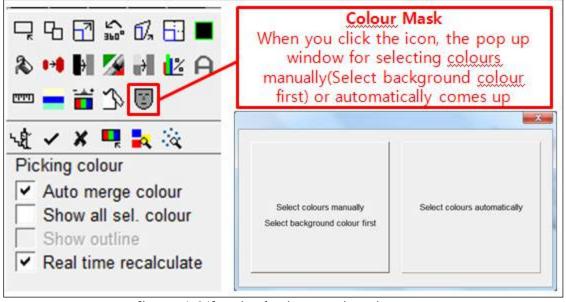
(1) Change colour of bitmap image

Bitmap image has numerous colours so it's not easy to change particular colours or apply colour combination. So, simplifying the colours using colour mask, you can easily change the colours.

- ① Import image with the icon.
- ②Click 'select image' and click 'define irregular image' and then define the outline you want to change the colour.



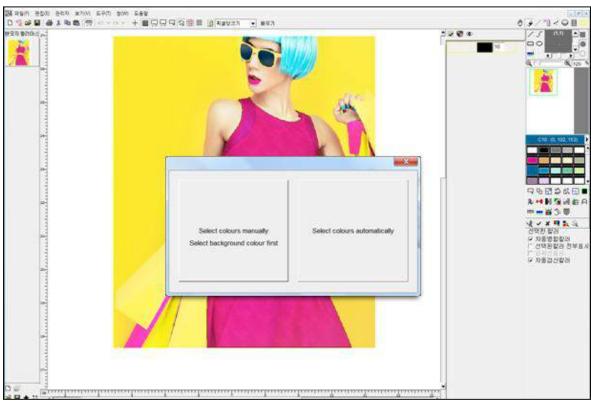
[Image 1-20] Original image and defined image with 'define irregular image'



[Image1-21] tools of colour mask and pop-up

$\[\]$ Tool box \rightarrow click colour mask and then select 'select colour manually' or 'select colour automatically'

- Select colour manually: you can see the colours you selected are added on colour list on the right hand side.
- Select colour automatically: you can see colours in the image are added automatically.



[Image1-22] tools for colour mask and pop-up

④It would not recognize all colours no matter you select manually or automatically as shown in [Image 1-23], so click 'group remaining colours (i), then you can select all colours.

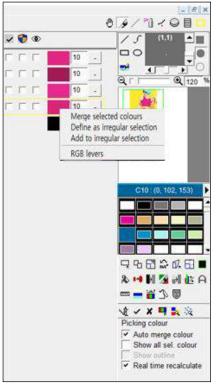


[Image 1-23] some colours still left after clicking 'select colour automatically'



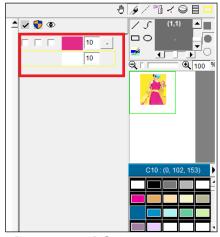
[Image 1-24] left colours are clearly added with 'group remaining colours '

⑤Click the right mouse button on the added colours as shown in [Image1-25] and <u>click</u> <u>'merge selected colours' then click the colour you want to merge</u>.

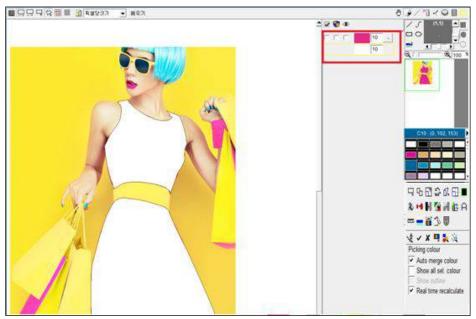


[Image1-25] Merge selected colours.

⑥ Merge all colours into one colour as shown in [Image1-26]. You can merge two colour, firstly by clicking the right mouse button on the first colour and select 'Merge selected colours' and then click the other colour you want to merge.



[Image 1-26] Colour merge



[Image 1-27] merged all colours into one

Then, the software will recognize that the colour of dress has only one merged colour even though it seems the same with original image.



[Image 1-28] OK button in tool box and auto merge colour has been applied

® Click 'change colour' in tool box to change colour.



[Image 1-29] change colour button

① Click the dress to change colour



[Image 1-30] click 'change colour' and choose inside of colour first

(1) You can see one colour is chosen below the tool box.



[Image1-31] the originally merged colour has been selected

Now, click colours you want at colour palette then the colours have been applied to defined area.



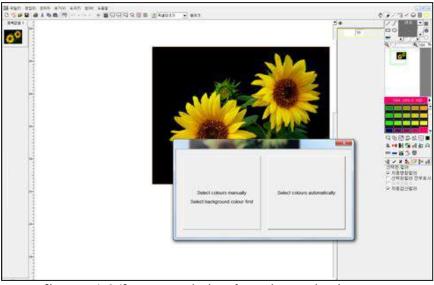
[Image 1-32] change colours with colour mask

7) Colour grouping

Colour grouping is available in general image mode, but not in drape image mode.

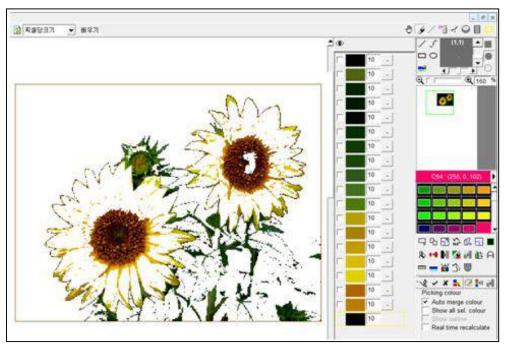
- (1) colour grouping
- ①You can define work area.
- ②When clicking 'colour grouping' in a tool box, you will get a pop-up of 'select colour manually' or 'select colour automatically'.





[Image 1-34] pop-up window for colour selection

- 3) You can select background colours first, after selecting colours manually.
- 4) After grouping left colours, merge particular colours to leave several colours you want.



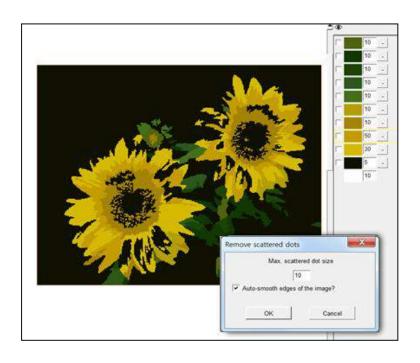
[Image 1-35] merge colours by 'merge selected colours'

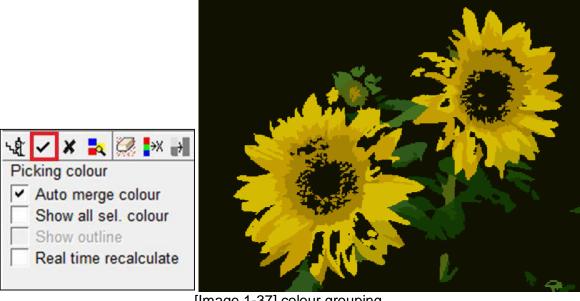
⑤ Assign colour range and mark in left box.



[Image 1-36] mark in the left box of colour lists.

⑥Once you click Ok button, colour grouping is applied as shown in [Image 1-37].





[Image 1-37] colour grouping.



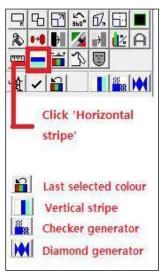
[Image 1-38] apply colour grouping further.

8) Pattern generator

You can create random innumerable patterns of stripes, plaids and diamond by simply selecting colours.

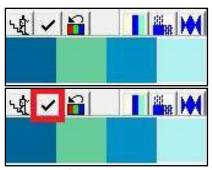
(1) Stripes

① Click 'horizontal stipe' in tool box and you can select pattern you want.



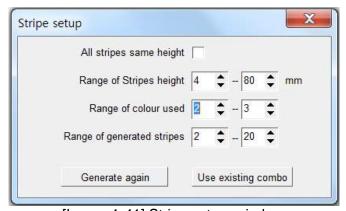
[Image 1-39] pattern generator tool

② Select colours →click ok button¹¹ → type set value at set-up window.



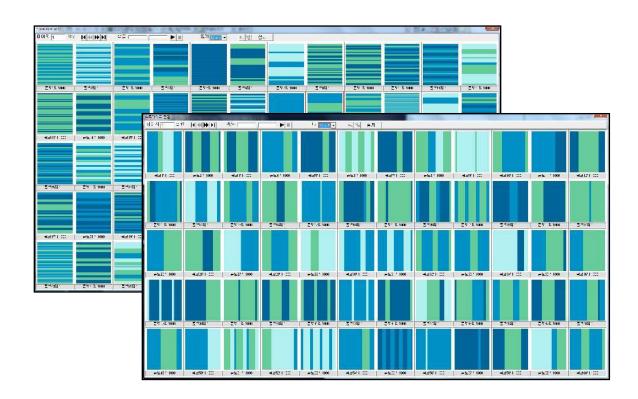
[Image 1-40] Pattern generator

(2) Set horizontal and vertical stripes

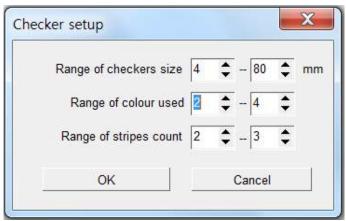


[Image 1-41] Stripe set up window

¹¹ ast selected colour: imports colour lists that you selected previously.



(3) Set up plaid patterns.

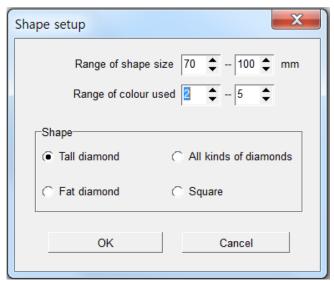


[Image 1-42] set up plaids window

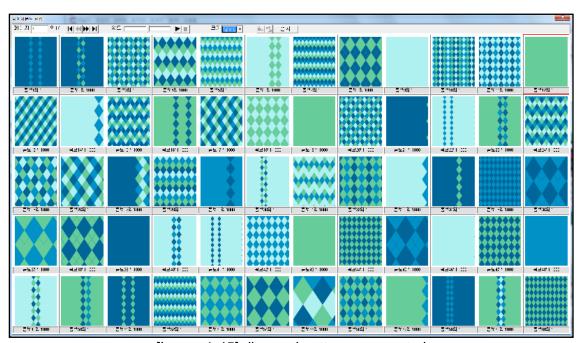


[Image 1-43] plaid pattern generated

(4) Set up diamond patterns.

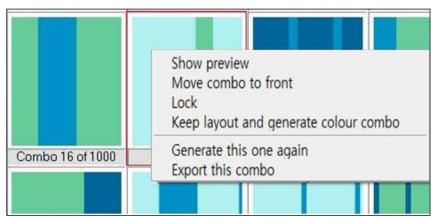


[Image 1-44] diamond pattern set up window



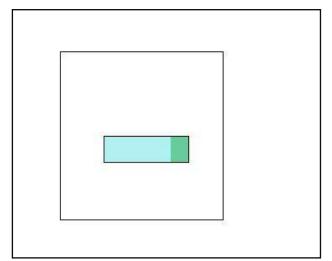
[Image 1-45] diamond patterns generated

- (5) Export one of the patterns to board.
- ①Click right mouse button on the pattern and click 'show preview'.



[Image 1-46] 'show preview' in pattern generator

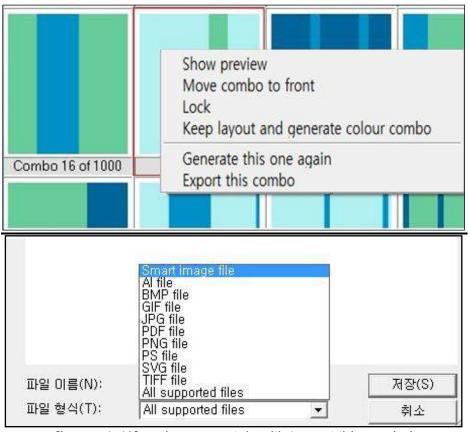
Click OK button upper left side of screenand place in on board as shown in [Image 1-47].



[Image 1-47] Import the generated pattern to work board

- (6) Save sole or multiple patterns.
- ① Save solely: Click right mouse button on the pattern and click 'export this combo' 12.

 $^{^{12}}$ Click save button after typing in file name and selecting format as shown in [Image1-48].



[Image 1-48] saving separately with 'export this combo'

②Multiple save: click right mouse button and lock button, then click 'export locked combo' as shown in [Image 1-49].



[Image 1-49] multiple saving using 'lock'

- 3 Preview locked combos: see locked combos all together.
 - Export locked combos: save sole or multiple locked combos together.

9) colour combo

Click 'import image' 13, progress following from [Image 1-51] to [Image 1-54] Once you are done, click Ok, then colour combo appears as shown in [Image 1-55].



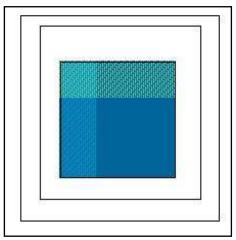
[Image 1-50] click 'import image'



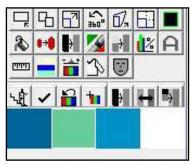
[Image 1-51] click colour combo

¹³Simple images such as illustration is not difficult to apply colour combo, but images like a real photograph are better to apply colour grouping or colour mask first before applying colour combo.

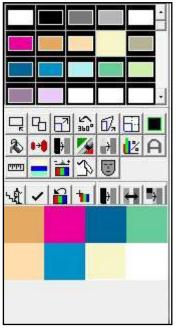
¹⁴It is important that if you want to leave for example, black and white in case of colour grouping of sketch, you have to delete that colours by clicking them.



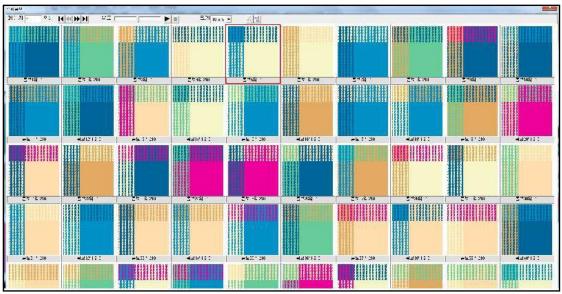
[Image 1-52] drag and select the whole image



[Image 1-53] automatic colour selection of the image.



[Image 1-54] adding more colours



[image 1-55] colour combo

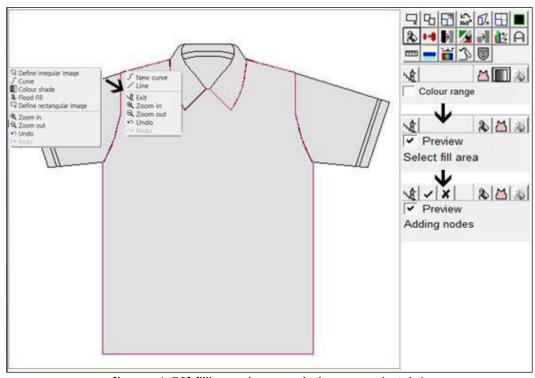
10) Gradation

You can simply fill the patterns in and gradation is also available on flood fill 🔊 and adjust the interval ratio between gradation colours.

Import a sketch and activate curves and have an irregular window along with outlines.

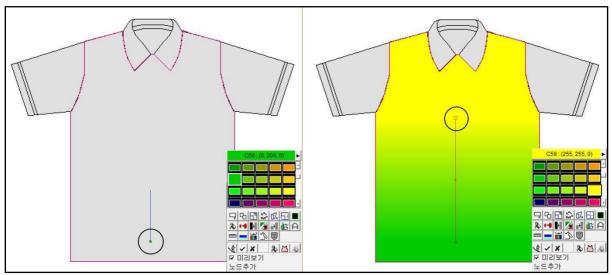
Then, Click **lood fill** → **lood click irregular window**, then finish selecting work area.

Click right button afterwards, then you can add nodes.[Image 1-56].



[Image1-56] filling colour gradation on a sketch1

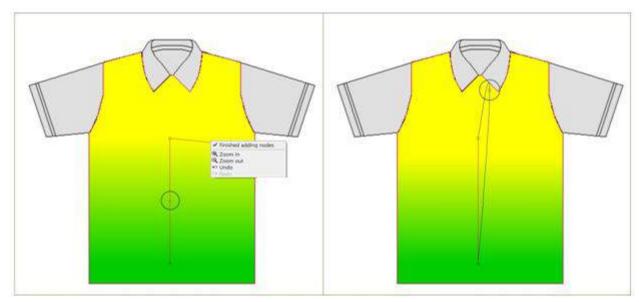
Select the colour you want to start colour gradation and click any place on sketch. Click right button and select the last colour for the gradation, then colour gradation is appeared as shown in [Image 1-57].



[Image 1-57] filling colour gradation on a sketch2

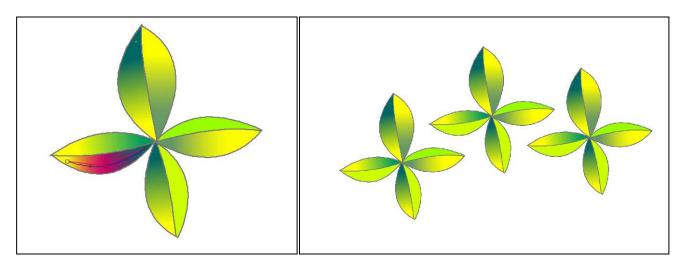
the center point.

® Once you are done with [Image 1-57], click the right button and 'finished adding nodes' The line dividing gradation areas still exist in the middle. The center point(circle on [Image 1-58]) is where you can adjust range of colours. If you see that it is asymmetric, you can adjust the distribution of colours by moving



[Image 1-58] adjusting the range of colour gradation.

You can fill in colour gradation not only for sketch but also other image you
 drew by yourself.

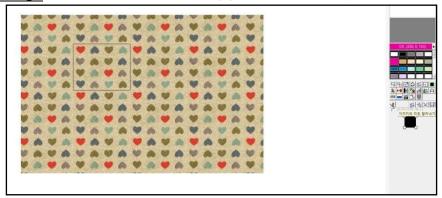


[Image 1-59] fill gradation colour in image drawn by yourself

11) Set one-repeat format

You can easily use as a pattern with the image you want by setting up one-repeat. 15.

- (1) cutting off repeated part.
- ①Import image in and define the boundary you will set one-repeat.



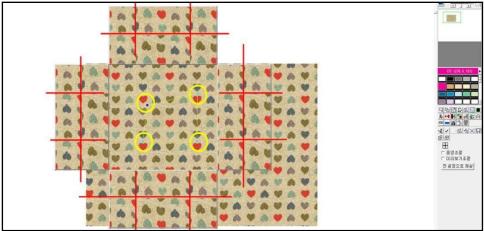
[Image 1-60] define the boundary you will set one-repeat.

- 2) **Tool box** \rightarrow **rotate**: keep horizontal formation.
- 3Tool box → distort → Extract repeat from the image:.
- : Place four points checking up down left right side and click ok. Then you can copy the selected part to the screen. Add it to the image list and utilize for 'pattern fill' on sketch.

As you can see in [Image1-61], the red line is where six of one-repeat are matched.

¹⁵You can also use to fill the pattern in the sketch by setting one-repeat of scanned textile or image.

Check the yellow circles that it matches with the red lines' intersections and create one-repeat.

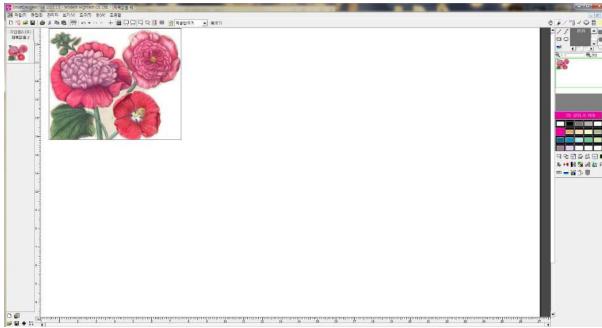


[Image 1-61] Generation of one-repeat

12) Repeat patterns

This is a function that you can repeat one-repeat patterns which you made on SmartDesigner™ or other programs such as Photoshop or Illustrator.

①Draw on the board with lines or curves orimport images using 'import image' button.



[Image 1-62] Import an image to repeat.

 $^{^{16}\}mbox{We}$ are going to use jpg image file worked in Photoshop or Illustrator in this manual.

② Click select image' button and define the area you want to repeat and click repeat' button.

Then you will see the set up box on the bottom left side as shown in [Image 1-63]. You can see the pattern has automatically generated along with mouse cursor.



[Image 1-63] set up box of repeat (left) and screen after clicking repeat button.(right)

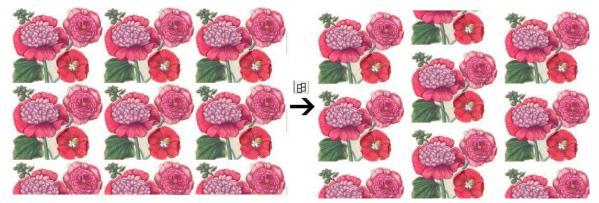
3 you can adjust the width and height based on original pattern by clicking **EXITILE** repeat¹⁷.



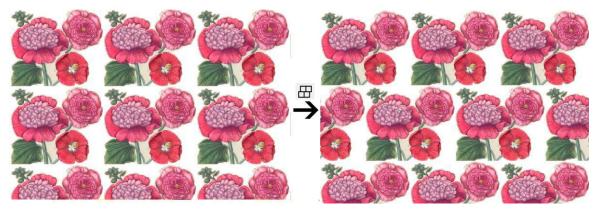
[Image 1-64] Tile repeat mode

¹⁷ It is different clicking 'repeat' button and clicking 'tile repeat' button after clicking 'repeat' button. When you click 'repeat' button, the repeated screen stretches out along with the mouse cursor, but tile repeat button stretches out with a rule based on one-repeat unit such as 3X2 or 2X1.

④you can change the direction of repeat using half drop and half shift. You can see the variation of interval space as shown in [Image 1-65] and [Image 1-66].



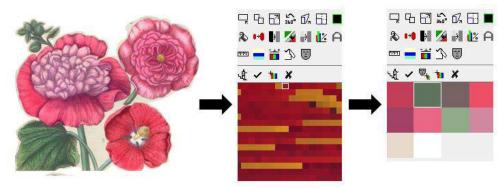
[Image 1-65] half-drop



[Image1-66] half-shift

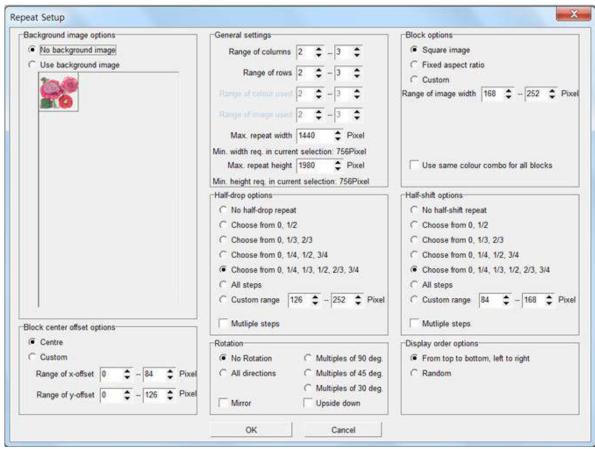
⑤Using repeat generator, you can repeat with changed colours.

However, when you select the whole colours, selected colours might be different depending on the image. So if the colours of an image are too many as shown in [Image 1-67], select the full image and click colour mask to simplify the colours.

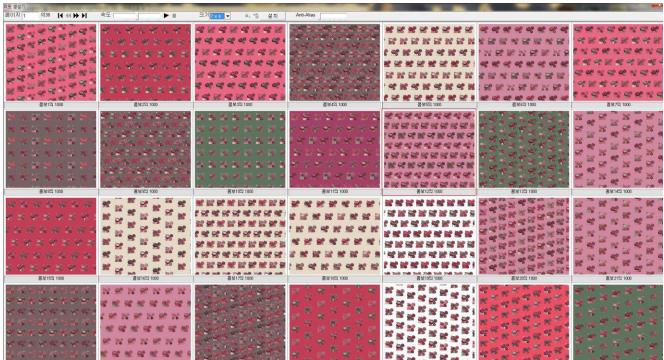


[Image1-67] Selecting several main colours with repeat generator,

⑥ Once you finished the process of '⑤', you will get a pop-up window as shown in [Image1-68]. After selecting options and click ok, you will have a result as shown in [Image 1-69] and select one you like the most.
Check the image with pre-view screen and click ok. Then, you can place it on your work screen to utilize.



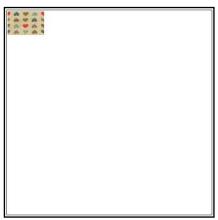
[Image 1-68] pop-up window for repeat generator set up



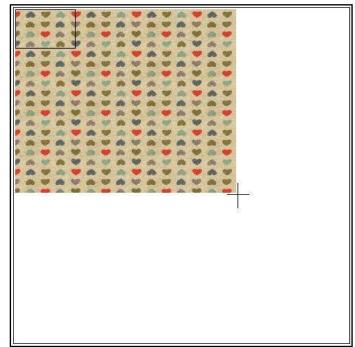
[Image 1-69] repeat has generated

(2) Repeat pattern

- $\ensuremath{\text{\textcircled{1}}}\xspace$ we will create one-repeat image using the image you want to repeat. Start by clicking
- import image' or create one-repeat image by using 'distort image' function.
- ②select the wider window than the original boundary with !! 'select image'.



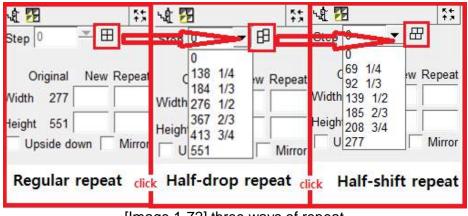
[Image 1-70] select the wider window than the original boundary.



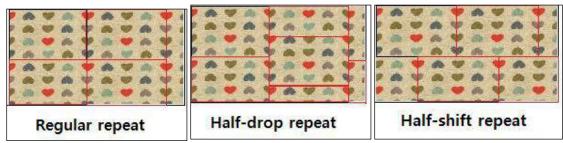
3 clicktool box \rightarrow repeat, then the image will be repeated as shown in [Image 1-71].

[Image 1-71] repeated image.

4) When you click the icons below the tool box as shown in [Image 1-72], the arrangement of repeat will be changed. It is shown in [Image 1-73] from left to right.

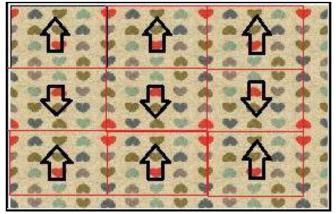


[Image 1-72] three ways of repeat

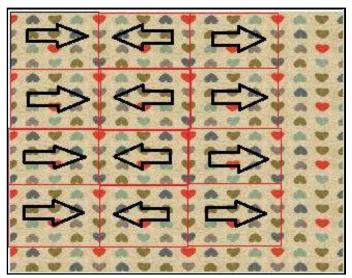


[Image 1-73] general repeat, half drop(42 1/2), half shift(64 1/2)

(8) you can use following functions clicking box.
Upside down or Mirror below the tool



[Image 1-74] repeated image using 'Upside down'.

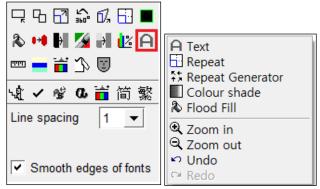


[Image 1-75] repeated image using 'Mirror'

13) Add text

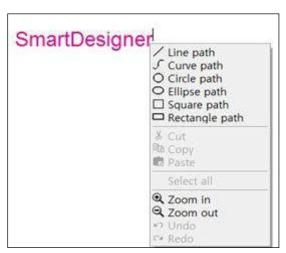
You can add a brief description adding text.

- (1) text path
- ① <u>click 'text' in the tool box and click the place you want to add texts</u> or click directly on the work screen and click right button then you will have a menus shown in [1-76].



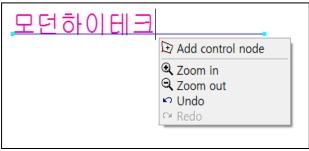
[Image 1-76] text tools and a menu

② <u>Type texts and click the right mouse button</u> then you will have a menu as shown in [1-77].

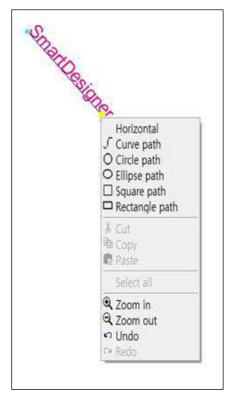


[Image 1-77] change paths of inserted texts.

③the path of a text will be changed along with your options. When you click 'line path' and click right mouse button in the middle of the line, 'add control nods' is available as shown from [Image 1-78] to [Image1-83].



[Image 1-78] click 'line path' and click right mouse button in the middle of the line



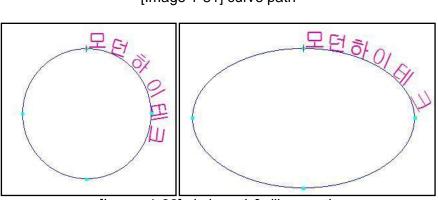
[Image 1-79] you can change the other path.



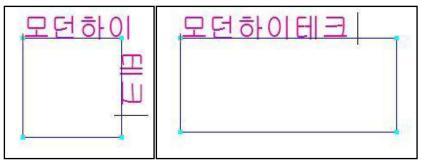
[Image 1-80]add control nods



[Image 1-81] curve path



[Image 1-82] circle path&ellipse path

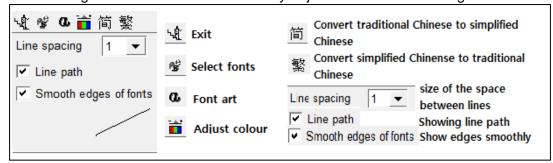


[Image 1-83] Square path&Rectangle path

4) the tool box of text is as follows.

- Exit: cancel editing texts.
- OK: complete editing texts.

- Select fonts: change fonts you want.
- Font art: give shade effet or adjust outline on your texts.
- Adjust colour: adjust text's colour
- Convert traditional Chinese to simplified Chinese
- · Convert simplified Chinese to traditional Chinese
- Line spacing: adjust a space between lines when you inserted texts more than twon lines.
- Line path: this title will be changed depending your option such as curve path or square path. Click if you would like to add control nodes then, the line will be shown.
- Smooth edges of fonts: It will automatically adjust to show smooth edges of fonts.

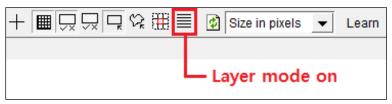


[Image 1-84] Tool box of 'text'

14) Layer

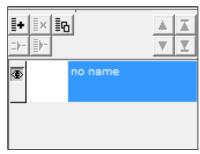
you can work bitmap image with layers unlike vector mode.

- (1) Layer mode
- ①Click 'layer mode on'.



[Image 1-85]Layer mode on

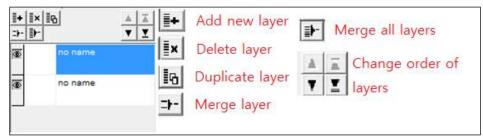
②When you click 'layer mode on', new layer has been appeared.



[Image 1-86]new layer has been appeared.

3 Layer upper buttons

- Add new layer: you can create new layer.
- Delete layer: click the layer you want to delete and click 'delete layer' icon to remove.
- Duplicate layer: click the layer you want to copy and click 'duplicate layer' icon to get copied layer.
- Merge layer: click the first layer and click the one you want to merge. Notice that you can merge two layer at one time. 18.
- Merge all layers: merge all layers in the layer list.
- Change the order: you can change the order of layers. The layer on the top is foremost layer on the screen.¹⁹.



[Image 1-87] The upper buttons are activated when you add more than two layers.

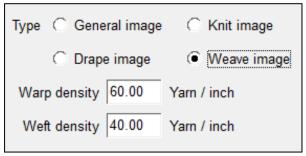
_

 $^{^{18}}$ Be noticed that the order of image could be changed up and down when you change the order of layer.

¹⁹The top layer listed is the very first layer and the layer on the bottom of the list is the rearmost layer.

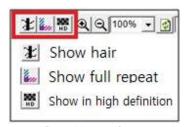
2. Weave Image mode

You can design weave forming tissue of dyed yarns.



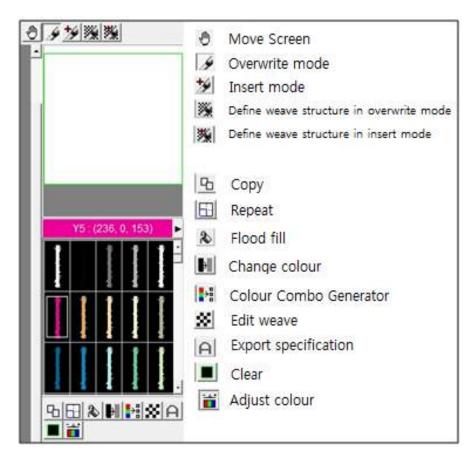
[Image 2-1] open weave image

1) Tool box of weave image



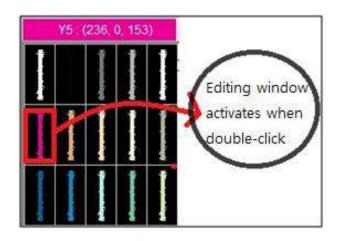
[Image 2-2] tool box of weave image

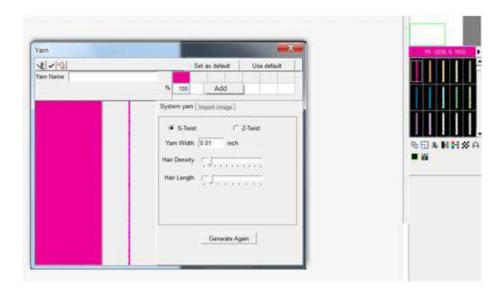
- (1) Tool box on upper left side
- ①Show hair: <u>click to set or clear</u> and It is not selected on basic set up.It will be applied on yarn's hair.
- ②Show full repeat: <u>click to set or clear</u> and It is not selected on basic set up. You can make full one-repeat of up down left right side of your work.
- ③Show in high definition: <u>click to set or clear</u> to see your work in HD mode. It is not selected on basic set up.

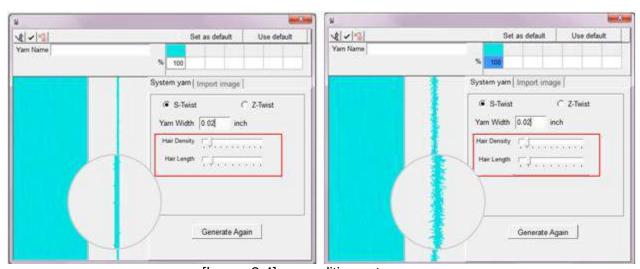


[Image 2-3] tool box on the right side

- (2) Tool box on the right side
- ① Overwrite mode: the basic mode of weave design
- 2 Insert mode: you can add weave design on original design.
- 3 Define weave structure in overwrite mode: you can overwrite weave structure on your work.
- Define weave structure in insert mode: you can add more structures on your work which already inserted a structure.
- ⑤ Edit yarn: you can edit yarn's twist, width and hair density and length on yarn palette.



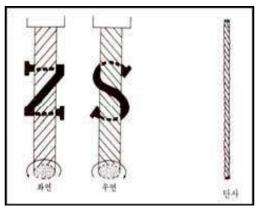




[Image 2-4] yarn editing set up

• Yarn's twist: yarn's twist

Ok. The twist will be made along with the axis from the fixed end diagonally. The amount of twist is specified by the number of twist per unit length such as the number of twist per unit /inch or twist per unit/meter. The direction of twist has S-twist and Z-twist. S-twist is twisted from the bottom right side to upper left side and Z-twist is opposite. Z-twist has been normally used for fabrics.



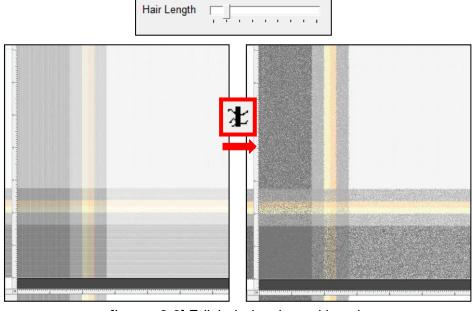
[Image 2-5] Z-twist and S-twist

• Edit yarn's width: yarn's width is basically set up as 0.01inch or 0.0254 cm.

Hair Density



• Edit hair density and length: adjust hair density and length and click ok

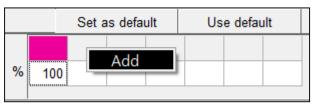


[Image 2-6] Edit hair density and length

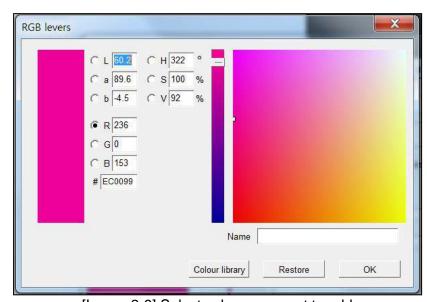
- Edit yarn's name: You can enter yarn's name on the box on the upper right side. Once you are done, click ok.
- Set as default: You can apply adjusted value on all yarn's twist and width and hair density and length. Click Set as default and click York. All yarn will be applied by this value.
- Use default: You can set back to the first value of yarn. Select Use default 'use default'→click ✓ Ok.
- Braiding: You can braid the maximum 7 colours by different percentage.
 Click the blank right beside of painted box as shown from [Image 2-7] to [Image 2-8], then you will see 'add' button. Click 'add' then, RGB window will be shown.
 Now, you can select the colour you want to braid.



[Image 2-7] setting window of braiding

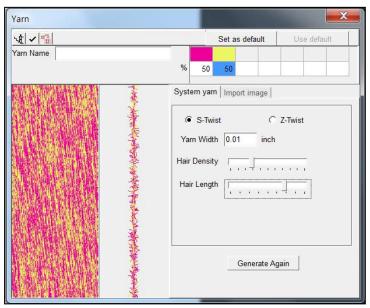


[Image 2-8] show braiding by adding colour.



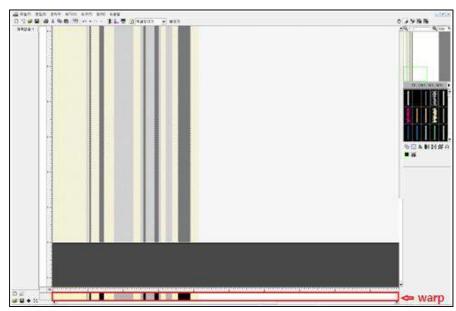
[Image 2-9] Select colour you want to add

- Once you click the colour you want and click ok, it will be appeared on the box automatically by 0%.
- Double click the box typed zero and insert percentage you want and click 'Enter'.
- Both percentages will be automatically applied as shown in [Image 2-10]. Click OK if you would like to go on with the yarn.



[Image 2-10] set percentage of yarn

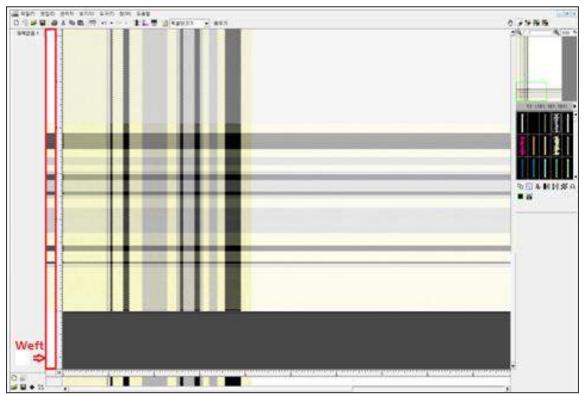
- 6 Сору
- You can copy the design drawn on the warp to the weft or vice versa.



[Image 2-11] Drawing on warp

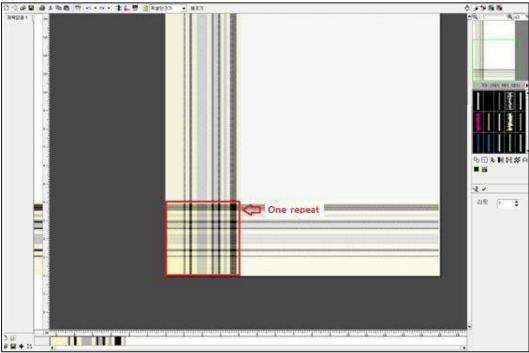
Click Copy then, the same weave design will be appeared on the other side as shown in [Image 2-12] down below.



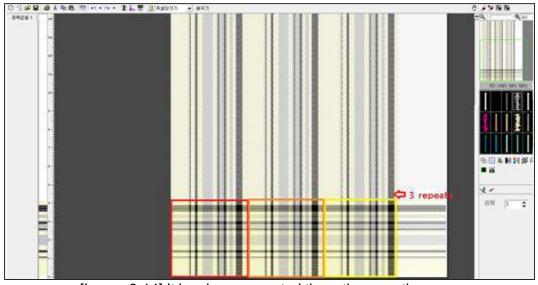


[Image 2-12] the design on the warp has been copied to weft.

- You can repeat design on the warp/weft at once.
- We will start working with ready-made design as shown in [Image 2-13]. Firstly, select the colour you are going to repeat from colour palette. Click 'repeat' and drag out the part you want to repeat on the warp. Adjust the number of repeat and click ok button, then it will be repeated on the warp as much as you selected as shown in [Image 2-15].



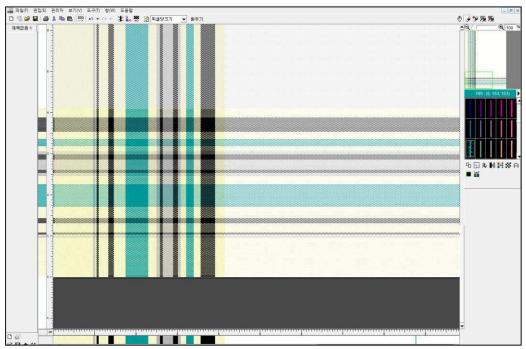
[Image 2-13] set up repeat



[Image 2-14] It has been repeated three times on the wrap

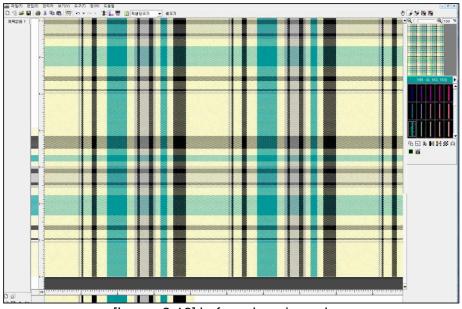
8 Flood fill

- You can fill in colour the part of design you want on the warp/weft.
 After you finish with designing, select the colour of yarn on the colour palette and click iflood fill'.
- Lastly, click the part you want to change colour then that part will be solely changed right away.

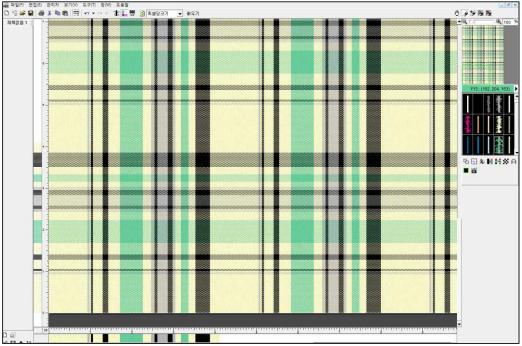


[Image 2-15] change colour with 'flood fill'

- ⊕ Change colour
- You can change all parts of selected colour at once.
- After you finish with designing, clickthe colour you want to change on the warp/weft and click <u>'colour change'</u> and select a colour on the colour palette. Then the colour will be applied on the warp/weft at once as shown in [Image 2-16] and [Image 2-17].

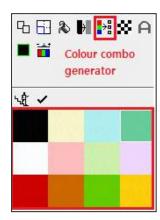


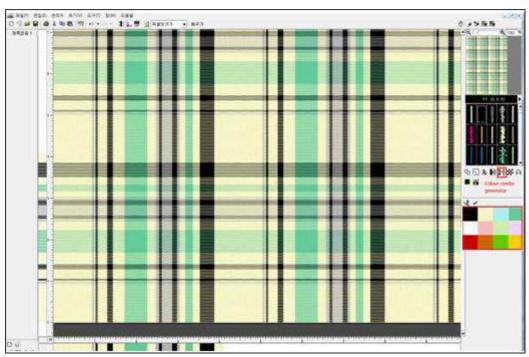
[Image 2-16] before changing colour



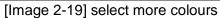
[Image 2-17] after changing colour

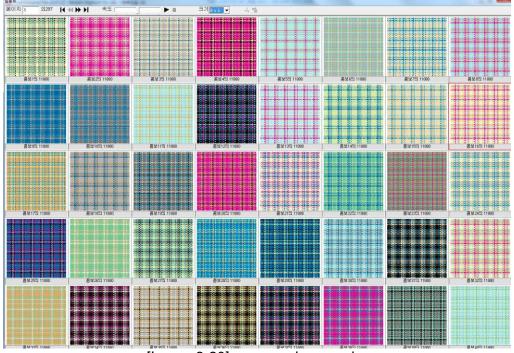
- 10 Escolour combo generator
- You can get numerous cases of colour combination with your weave design.
- After you finish with designing, click colour combo generator and click each of the original colours on warp/weft as shown in [image 2-18] then it will be add below the tool box. Then, select more colours for colour combination as shown in [Image 2-19]. Lastly, finish by clicking colour combo window as shown in [Image 2-20].





[Image 2-18] click original colours after clicking 'colour combo'



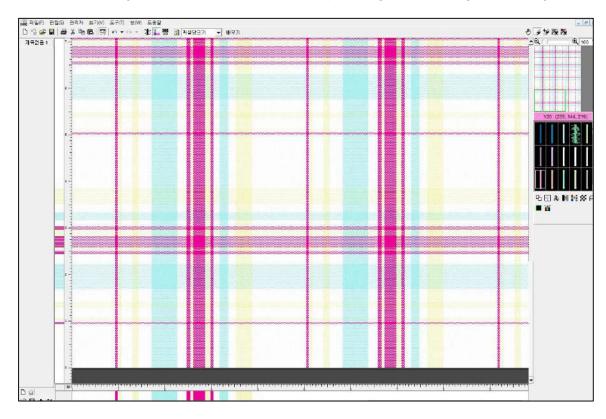


[Image 2-20] weave colour combo

<u>Click right mouse button on design you like</u>, then preview button will be available.
 <u>Click preview</u> and <u>click Ok</u>. Now, you can import one on the work screen as

shown in [Image 2-21].

• Multiple saving processes are the same with pattern generator on general image mode.

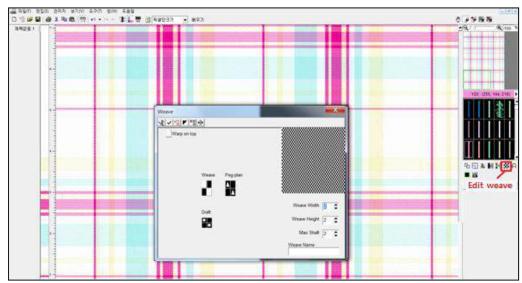


[Image 2-21] an outcome exported from colour combo's preview

① Edit weave

- You can add or edit weave structures.
- After finish with designing²⁰,click 'edit weave', then edit structure window will be activated as shown in [Image 2-22].

²⁰The basic structure of weave design is set up to plain fabric.



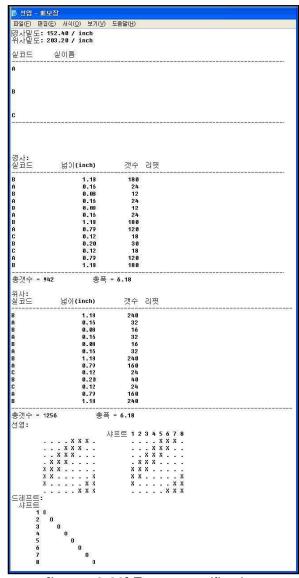
[Image 2-22] weave edit set up window

• You can edit weave width, weave height, max shaft and weave name.

2 Export specification

- You can save specification of your weave work as a text file using 'export specification'.
- After finishing with designing, click (export specification) and insert file name as shown in [Image 2-23].
- When you open the saved text file, you can see warp/weft density, size and used structure as shown in [Image 2-23].





[Image 2-23] Export specification

(13 Clear

- You can delete your weave work.
- When you click <u>'clear'</u> button, you will have three delete options as shown in [Image 2-24].



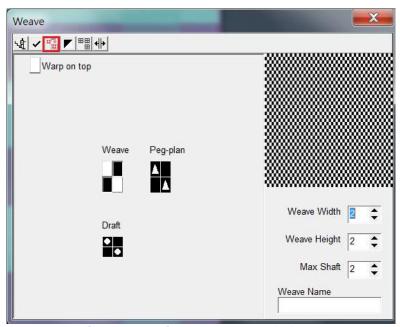
[Image 2-24] delete options

- Clear all yarns in fabric: all yarns both in and out of warp/weft will be deleted.
- Clear all weaves in fabric: weave structures will be deleted.
- Clear all yarns & weave in fabric: all yarns and weave structure will be deleted.

2) Weave library

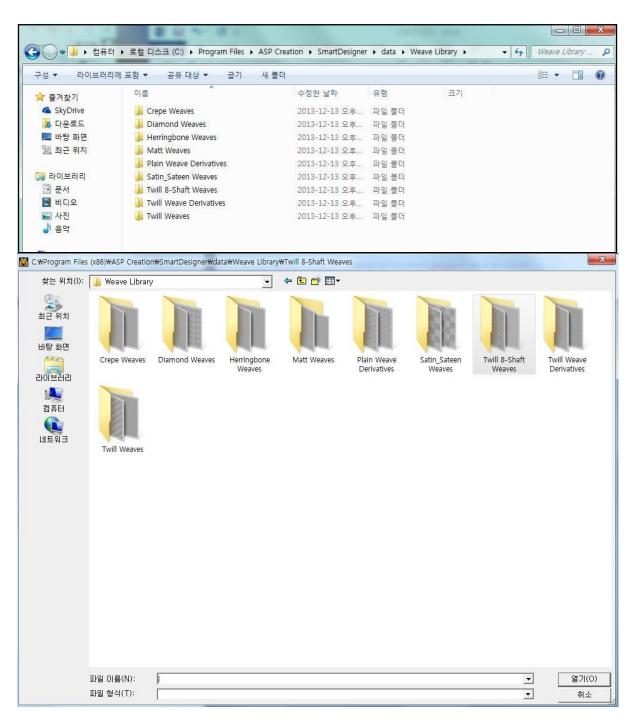
We support about 220 of library of weave structure.

Click 'edit weave' in the tool box then you will get a weave set up window. Click 'import image'.



[Image 2-25] weave set up window

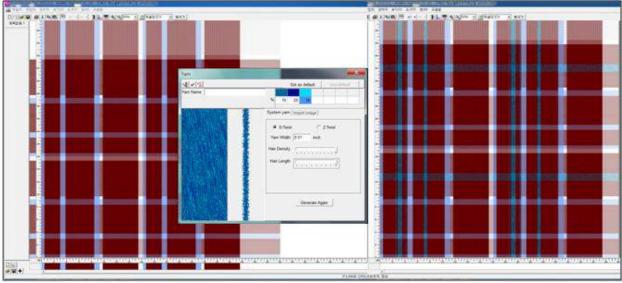
• When you go to C:\Program Files\ASP Creation\SmartDesigner\data\Weave Library, you can import weave structures and weave, then peg-plan and draft of imported weave structure will be appeared. If you click ok, the structure will be applied on warp/ weft of weave design.



[Image 2-26] library folders

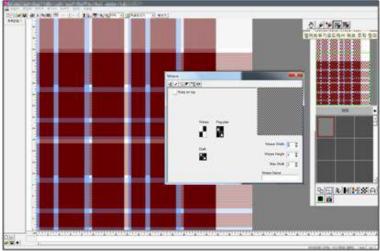
3) Change weave image mode

- (1) Weave image mode → insert mode
 - ①On **insert mode**, you choose yarn's colour first and double click on the part you want then, you can add new design as shown in [Image 2-27].



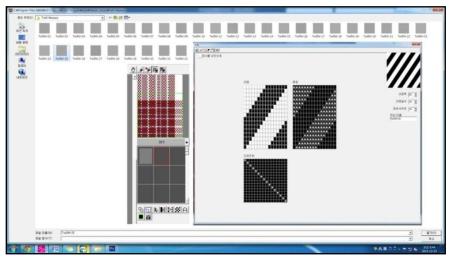
[Image 2-27] Adding weave image using 'insert mode'

- (2) Weave image mode → define weave structure in overwrite mode
- ① When you click define weave structure in overwrite mode' based on weave design we made, colour palette is changed into weave palette. You will see one weave structure you has set on basic mode. Double click on the empty palette and you will get a weave structure set up window.



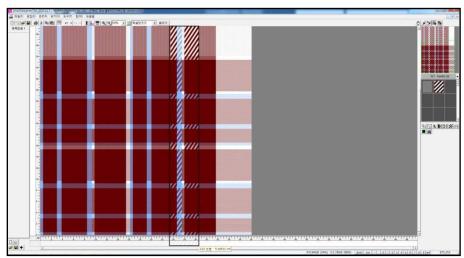
[Image 2-28] Add more structures over the original weave structure on 'define weave structure in overwrite view'1

②You can create weave structure by yourself or click ' **import image**' and import one of ready saved structures which SmartDesigner™ supports itself from **C\Program Files\ASP** Creation\SmartDesigner\data \Weave Library.



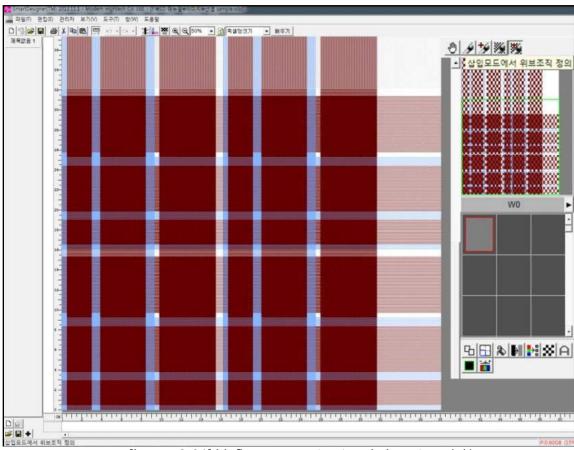
[Image 2-29] Add new weave structure on 'define weave structure in overwrite mode'2

3 Select the structure you just added and click the part you want on design then, the structure will be applied newly.

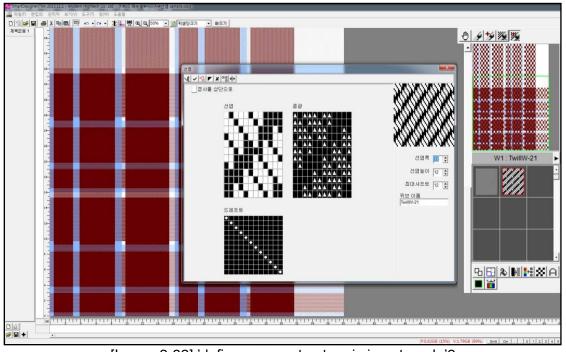


[Image 2-30] Add more structures over the original weave structure on 'define weave structure in overwrite view'.3

- (3) Weave image mode → define weave structure in insert mode'
- ① Equally with define weave structure in overwrite mode', add weave structures based on weave design.



[Image 2-31] 'define weave structure in insert mode'1



[Image 2-32] 'define weave structure in insert mode'2

repeat the weave design with the same space as shown in [Image 2-33].

**Translation between the same space as shown in [Image 2-33].

**Translation between the same space as shown in [Image 2-33].

**Translation between the same space as shown in [Image 2-33].

**Translation between the same space as shown in [Image 2-33].

**Translation between the same space as shown in [Image 2-33].

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**Translation between the same space as shown in [Image 2-33].

**Translation between the same space as shown in [Image 2-3].

**Translation between the same space as shown in [Image 2-3].

**Translation between the same space as shown in [Image 2-3].

**Translation between the same space as shown in [Image 2-3].

**Translation between the same space as shown in [Image 2-3].

**Translation between the same space as shown in [Image 2-3].

**Translation between the same space as shown in [Image 2-3].

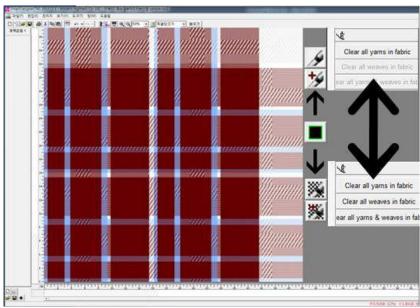
**Translation between the same space as shown in [Image 2-3].

② It is also available that you repeat the structures equally as same as you can repeat the weave design with the same space as shown in [Image 2-33].

[Image2-33] 'define weave structure in insert mode'3

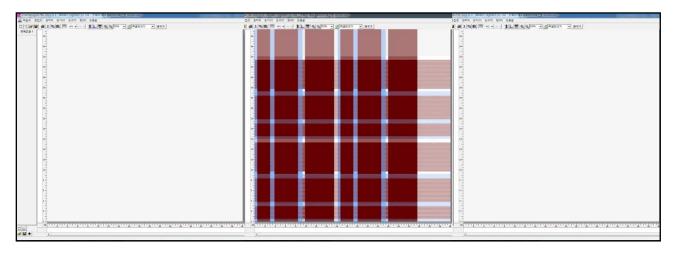
(4) Clear

① The deleting area is all different on each mode such as overwrite mode, insert mode define weave structure in overwrite view, define weave structure in insert mode. On overwrite mode and insert mode, yarn will be only deleted. [Image2-34] shows adding weave structures on insert mode and in this case, you can select what you want to delete such as yarn, weave, fabric's yarn & weave.



[Image 2-34] Clear 1

② [Image 2-35] shows clear all yarn in fabric, clear all weaves in fabric and clear all yarns & weaves in fabric from left to right. You can see that designed yarn is only deleted on the first one, on the second one, only weave is deleted and one the last one, both yarn & weave are deleted.

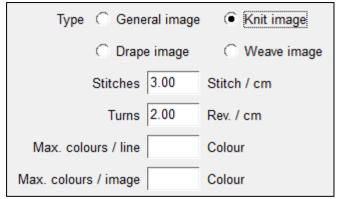


[Image 2-35] Clear 2

3. Knit Design Mode

1) Knit image set up window

You can adjust the size of knit structure on the set up window.

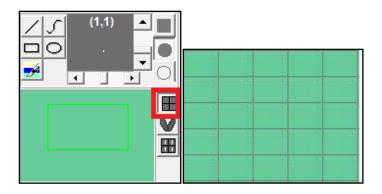


[Image 3-1]knit setting up window

2) Three view modes

(1) Graphic view

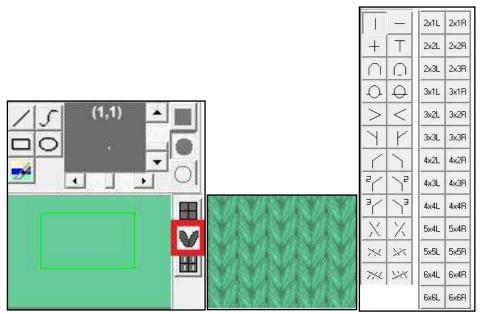
It is the most simple mode to work and It does not use graphic capacity. This mode is easy to fill color and copy.



[Image 3-2] Graphic mode

(2) Stitch view

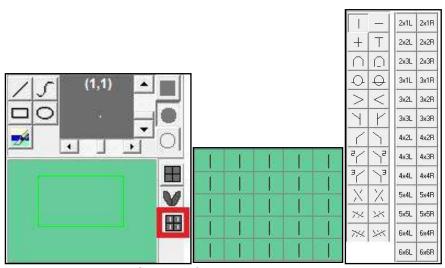
You can work on realistic-looking knit image on stitch view. It seems that you work on real samples. This mode supports knit codes so, you can apply them and check how it is appeared on real knit.



[Image 3-3]Stitch view

(3) Knit structure mode

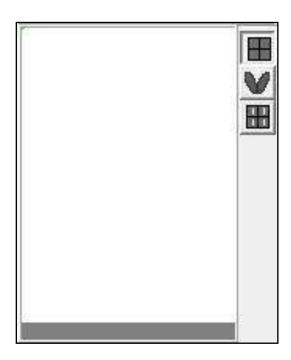
It shows knit codes on the screen so, you can easily edit design with them. When you produce samples, it will help you make them with accurate knit codes.



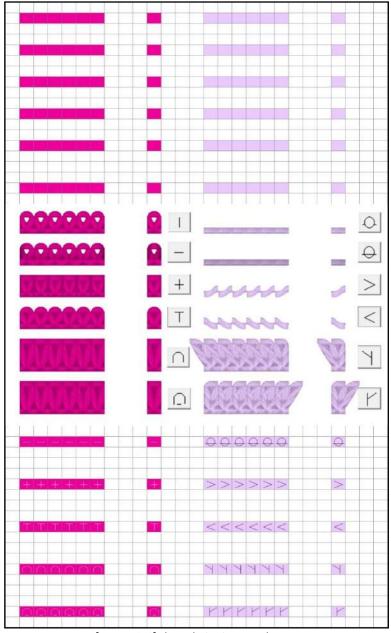
[Image 3-4]Knit structure mode

3)Basic knit codes and three view mode

There are three knit view modes: **graphic**, **stitch**, **knit structure view** and it has icons on the upper right side of tool box as shown in [Image 3-5].



[Image 3-5] three knit view modes

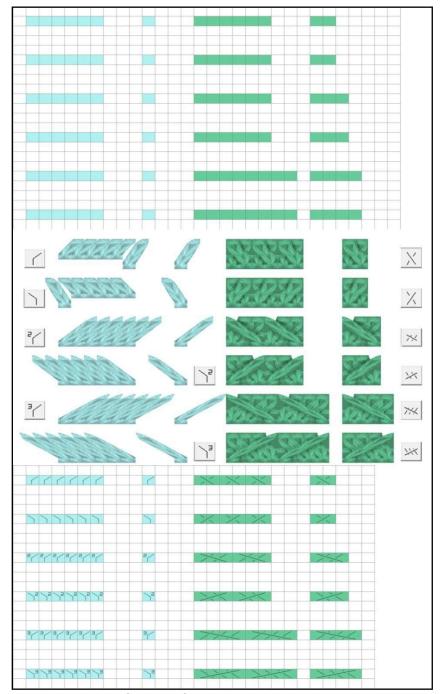


[Image 3-6] three knit view modes1

1 I front stitch, back stitch, + full needle, Ttubular, tuck1, tuch2, float stitch1, float stitch2, binding off to right, binding off to left, widening to left, widening to right

2 narrowing 1 stitch to right, narrowing 1 stitch to left, narrowing 2 stitch to right, narrowing 3 stitch to left, narrowing 3 stitch to left

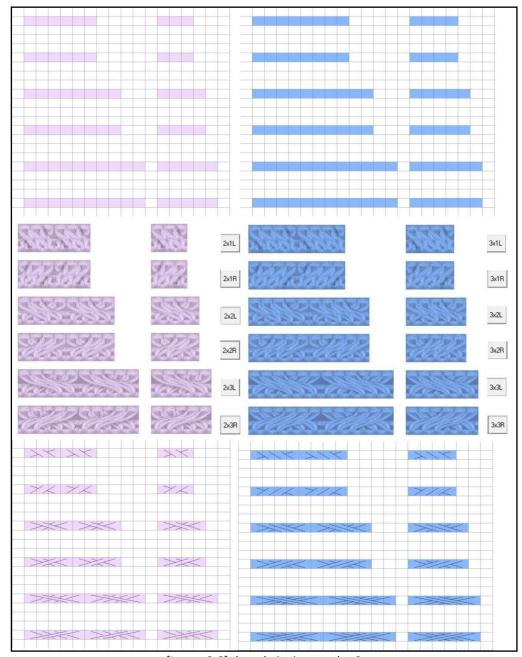
, X cable 1X1 right cross over, Cable 1X1 left cross over, cable 1X2 right cross over, cable 1X2 left cross over, cable 1X3 right cross over



[Image 3-7] three knit view modes2

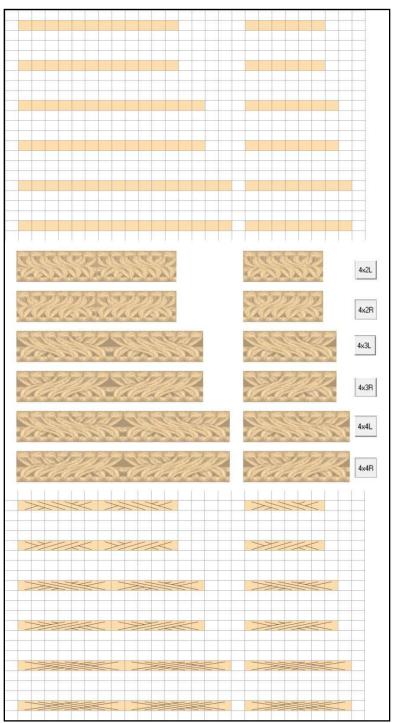
3 cable 2X1 right cross over, cable 2X1 left cross over, cable 2X2 right cross over, cable 2X2 left cross over, cable 2X3 right cross over, cable 2X3 left cross over, cable 3X1 right

cross over, cable 3X1 left cross over, cable 3X2 right cross over, cable 3X2 left cross over, cable 3X3 right cross over, cable 3X3 left cross over



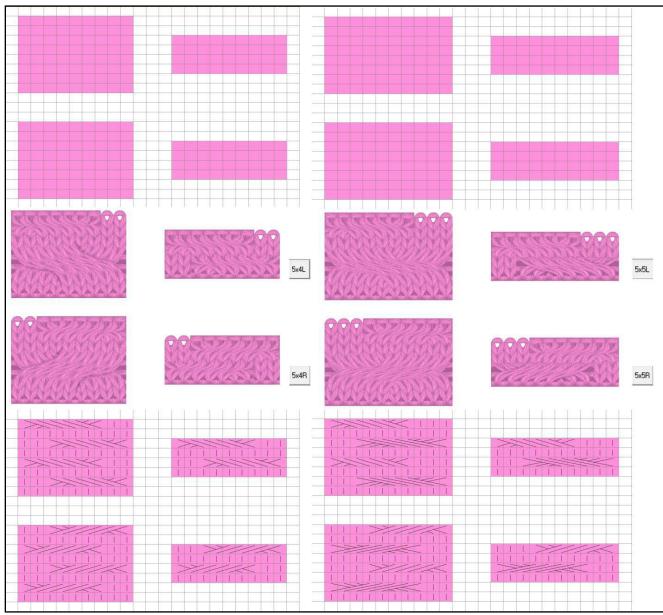
[Image 3-8] three knit view modes 3

(4) cable 4X2 right cross over, cable 4X2 left cross over, cable 4X3 right cross over, cable 4X3 left cross over, cable 4X4 right cross over, cable 4X4 left cross over

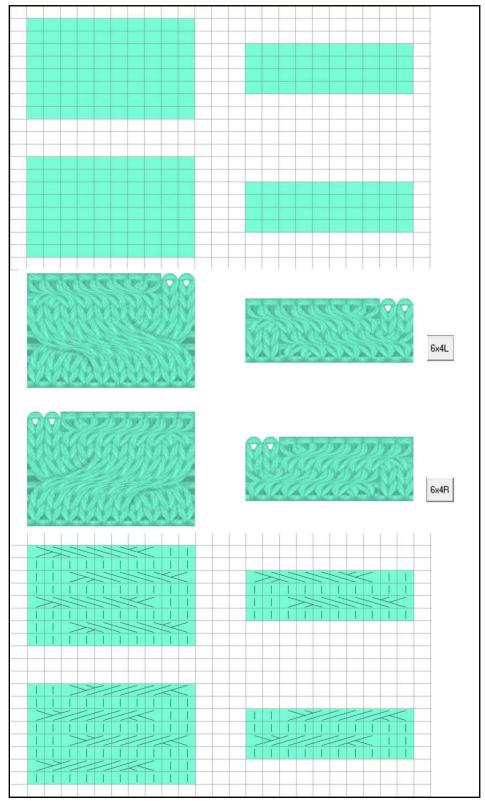


[Image 3-9] three knit view modes4

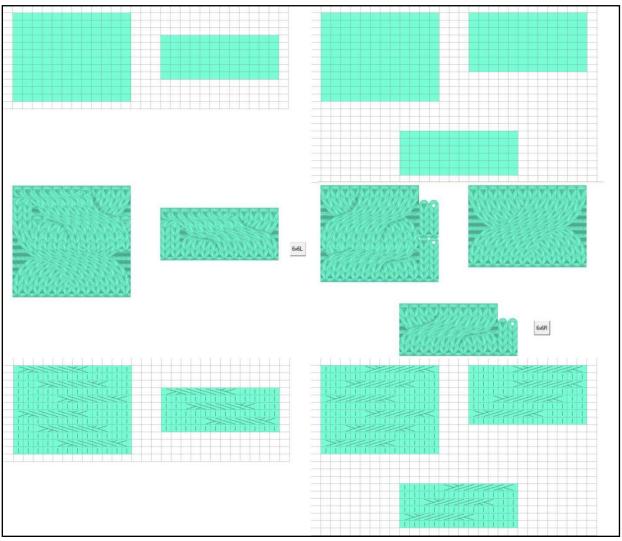
(5) 5x4L cable 5X4 right cross over, 5x4R cable 5X4left cross over, 5x5L cable 5X5 right cross over, 5x5R cable 5X5left cross over, 5x6L cable 6X4 right cross over, 5x6L cable 6X6 right cross over



[Image 3-10] three knit view modes5

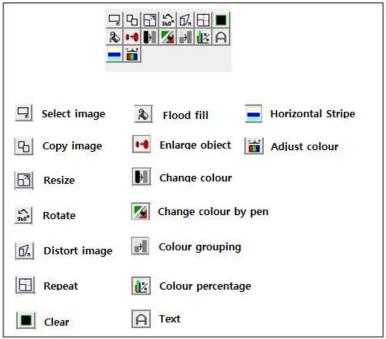


[Image 3-11] three knit view modes6



[Image 3-12] three knit view modes7

4) Tool box of knit image mode



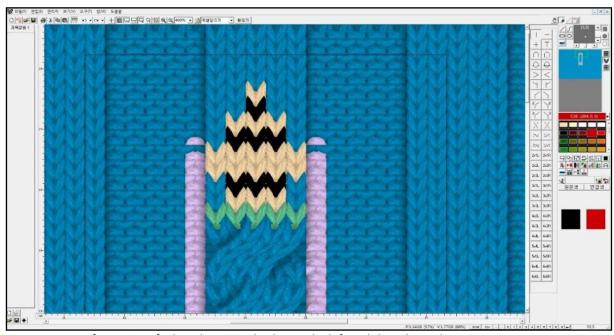
[Image 3-13]Tool box of knit image mode

- ① Select image: It is same with other modes.
- (2) Copy: It is same with other modes.
- (3) Resize: It is same with other modes.
- 4 Distort image: It is same with other modes.
- (5) Repeat: It is same with other modes.
- 6 Clear:It is same with other modes.
- 7 Flood fill:It is same with other modes.
- 8 Enlarge object: It is same with other modes.
- (9) Change color: It is same with other modes.
- ①Change color by pen: You can fill color by pen. Select a color you want to change and select the other color. Then, the selected colorwill be changed by drawing on screen.

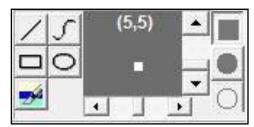
★Change color by pen



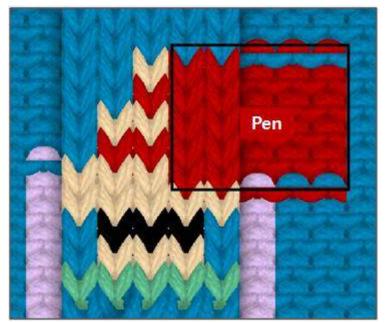
[Image 3-14]Tools of change color by pen



[Image 3-15]select the original color on the left and the other color next to it.



[Image 3-16], adjust the thickness of pen

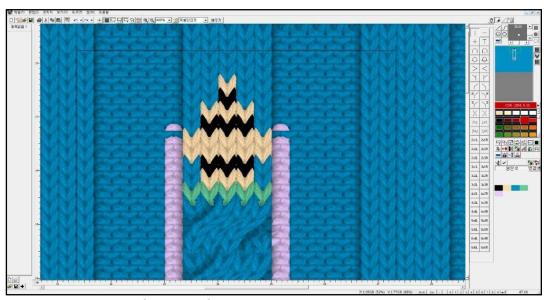


[Image 3-17] color has changed by pen

②Change color by pen2

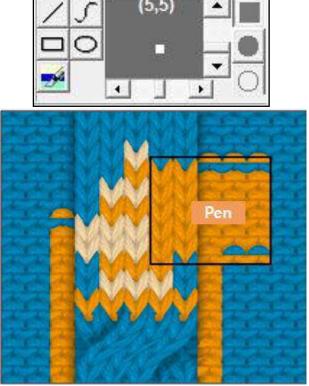
multi to single colour by pen: you can change multiple colors into one.

Using select image' and define rectangular window. Click Change color by pen, and click multi to single colour by pen. When you define the part you want to change, selected colors are added to set up window as shown in [Image 3-18]. You can delete some colors on here. Click Ok and select other color to change.



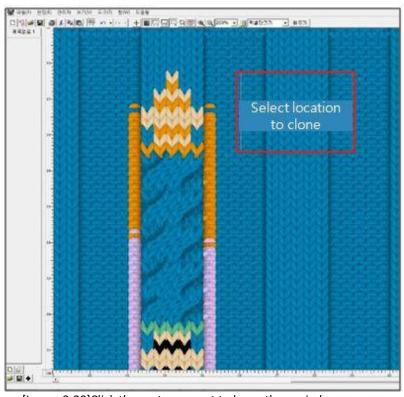
[Image 3-18] colors are add on the right tool box.

•Adjust the thickness of pen and change color as shown in [Image 3-19]. Now you can see selected color is changed to one color.



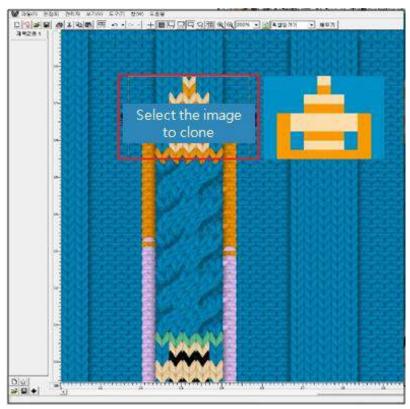
[Image 3-19]Change colors on a defined part into one.

- window on work screen. Then click 'change color by pen' and click 'clone' then adjust thickness of pen. 21.
- •You will have a boundary made with the adjusted pen on work screen. Click this boundary on the part you are going to leave copied one and click the part you want to copy and click it on the previous part again. Then, it is done. If you move the mouse, it will be copied along with the boundary. ²².

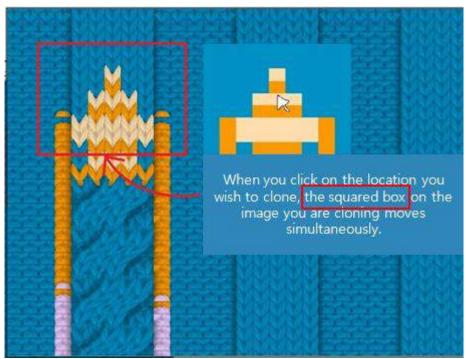


[Image 3-20]Click the part you want to leave the copied one.

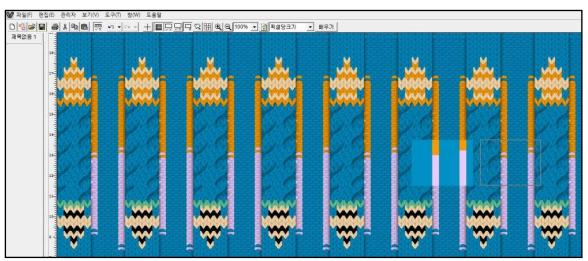
²¹The area of pen is used to selected area so adjust the size you want.
²²The selected image will be copied one-way. So you need to set the position clicking 'clone' when you set the position again.



[Image 3-21]click on the original image to copy.



[Image 3-22]click the part you want to leave the copied one again.

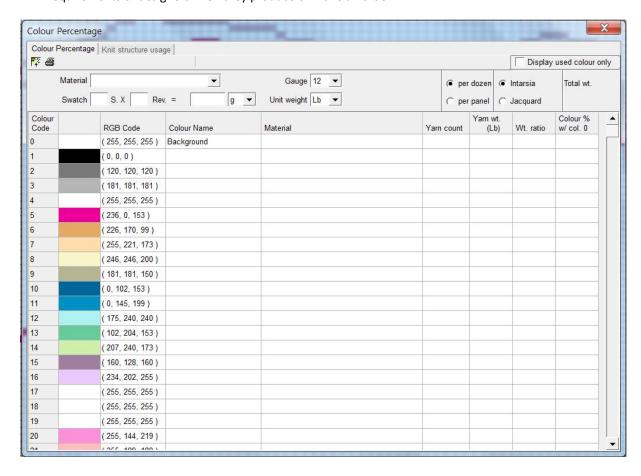


[Image 3-23]identical images have been appeared

- 1 color grouping:it is the same with other modes.
- ②color percentage:You can adjust percentage of color by changing yarn count, yarn weight, ratio ect.

You can also select one option among per dozen, per panel and intarsia²³ or jacquard²⁴. You can also check knit structure usage.

• <u>Click color percentage after defining boundary on your design.</u> If you click 'Display used color only' on upper right side, you will see colors used inside of defined boundary and get automatic figures of RGB color code, color name, number, weight percentage and color percentage from those colors. Moreover you can insert name of material by double click. So this let it easy to print and see detailed requirements of designers when they produce or make an order.

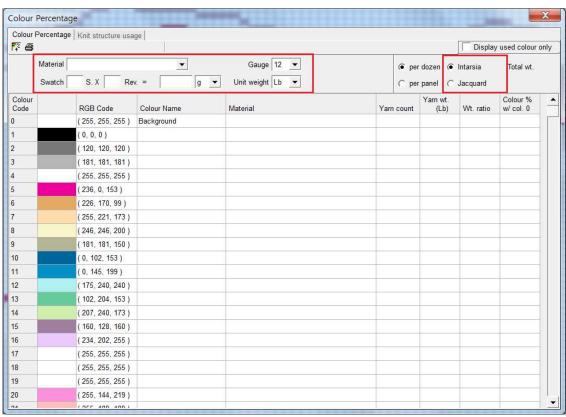


[Image 3-24]color percentage-intarsia

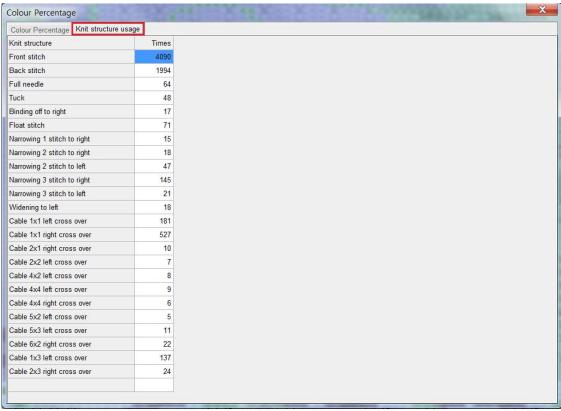
²³ Intarsia Sweater: it is the way of knitting geometric patterns such as square, triangle, V shape or zigzag shape on plain fabrics.

Argyle is the most prominent. It is usually made with cashmere or lamb's wool so that it is soft ant rich, but also rough when it's braided with thick yarn. Pull overs such as V neck or crew neck is mostly used.

²⁴ Jacquard Sweater: It is commonly considered as a sweater having geometric patterns. Quite complicated patterns can be braided. When using ready dyed yarn, a sweater having various colors and patterns can be made.



[Image 3-25]color percentage-jacquard



[Image 3-26]color percentage-knit structure usage

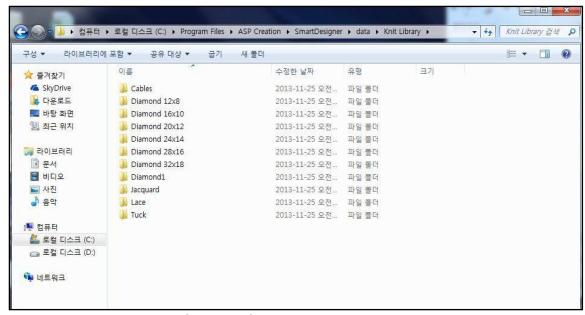
- ③Text:It is same with other modes.
- (14) Horizontal stripe: It is same with other modes.
- (15) Adjust color:It is same with other modes.

4) knit library

You can utilize more than 140 ready-made knit structure library to use designs. On menu bar of Smart-

Designer[™]→import image→C:\Program Files\ASP Creation\SmartDesigner

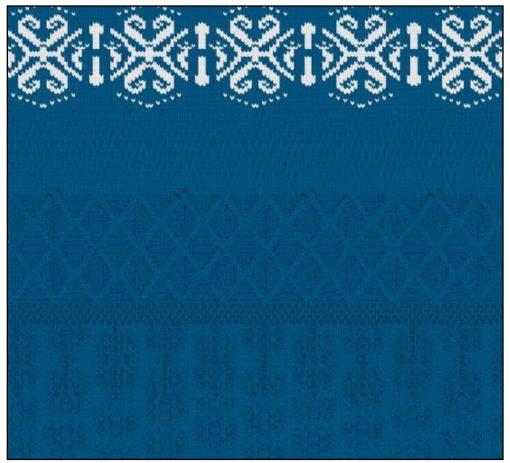
\data\Knit Library and import one you want.



[Image 3-27] path to knit structure library



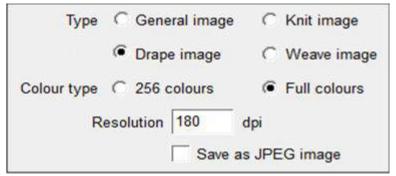
[Image 3-28] built-in knit structure library



[Image 3-29] a knit image utilized with knit library

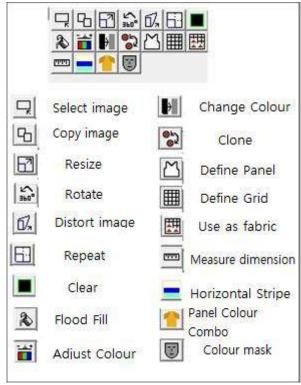
4. 3D Drape image Mode

This mode has an additional draping tool to general image.



[image4-1]Opening drape image mode

1) Drape image tool box



[image4-2]Drape image tool box

2) 3D drape



①Open image on a screen and click 'Define Panel' icon.

[image4-3]Define panel

- ② Select 'Define Panel' to define area of where you want to apply drape. After you are done, click on the right hand button and click on okay button to finish defining a panel.
- (3) With the completed panel area, click on define color 25 [image4-4] and click anywhere inside the panel area to select color.

²⁵Note when you 'define color':

When you define color, if you select relatively darker color in the panel, you will get brighter pattern draped and ifyou select brighter color, you will get darker panel draped, so it is the best to select an average color.



[image4-4]Define color



[image4-5]Define image dimension

- 4 Click on <u>'Define image dimension'</u>, and type in any number to define size of an image.
- ⑤ Click right hand button and select <u>'Complete current panel'</u> to complete. Once it is completed, the color of path changes from yellow to red. [image4-6]



[image4-6]Complete current panel

6 Click on <u>'Define Grid' and select the defined area to apply grid.</u>
As in [image4-7] below, selected path is shown on the editing window.



[image4-7]Defining the direction before adjusting grid

- •The arrow which shows the direction of grid needs to face ↑.
- •If you define one panel and complete it, and define another area, you will get two separate area for draping. Then you will be able to define grid separately as well.

On the editing window, click on right hand button and you can add vertical/horizontal control lines to add lines to express natural curves on a image.

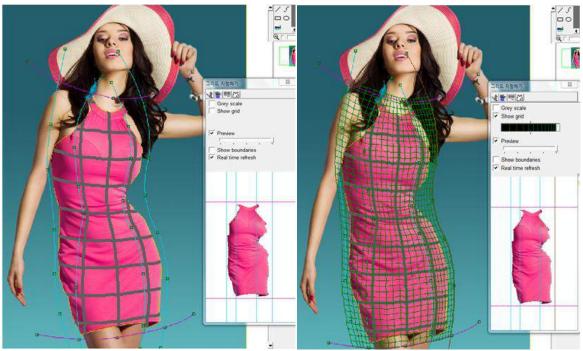


[image4-8]adding control lines

[image4-9]adding control node, and exit button

- (8) Editing control lines is only possible on an image, but not on editing window.
 Outermost lines should be defined along the defined path. If you want to edit lines, click on the right hand button with the cursor on the line you want to edit as in [image4-8], and click on 'add control nodes' and you can add nodes as much as you want. When you are finished with adding nodes, you can click on right hand button and click on exit.
- (9) You need to define grid to apply pattern naturally, and when you select 'show grid' on editing window, it shows you dense grid which helps you to assume how patterns are going to be applied²⁶.

²⁶The density of grid can be adjusted by a user.



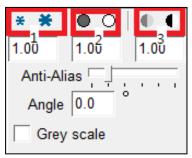
[image4-10]Completed defining grid

[image4-11] Show grid

10 When you are done with defining grid, <u>click exit</u> on editing window and <u>select one of</u> <u>the patterns on image list that you wish to apply on and click 'object drape'</u>.



- ① You can set size, brightness, and contrast of selected pattern from a tool box menu.
- •[1]Size adjustment, [2]Brightness adjustment[3]Contrast adjustment

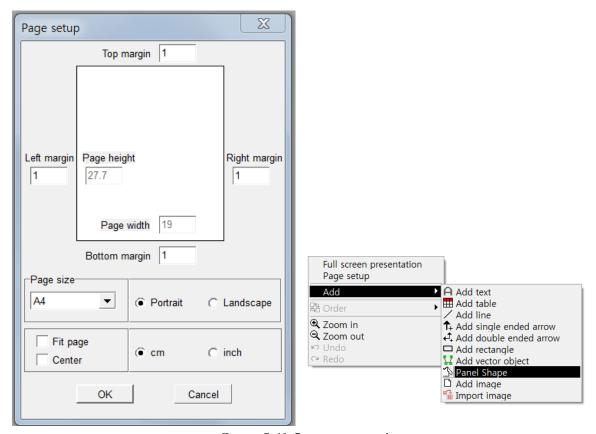


[image4-13] Adjustment in size, brightness, contrast of a pattern



[image4-14]Completed 3D drape with appropriate adjustment in pattern

5. Project image Mode



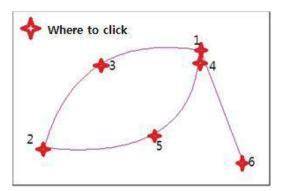
[Image5-1] Create new project

On a blank screen, <u>click right hand button \rightarrow add \rightarrow add vector object</u> to create new layer, and you can start editing as tool box appears on the right side.

1) Draw

①Select one of pen tools A, and click one of the lines that you want to use from these icons and click on work sheet as shown in [Image 5-2] to start drawing ²⁷.

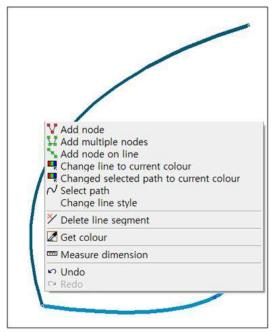
²⁷Curve can be drawn in 132 order, and if you click on icon you can change it into 123 order.



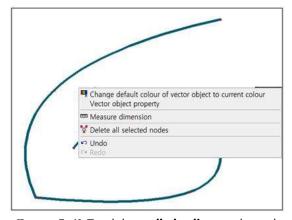
[Image5-2] Define curve order

2) Delete

- ① In editing mode, to delete one of lines is as below.
- <u>Press shift</u> and <u>click on the line that you wish to remove.</u> Once you have done it, the line selected will become darker and nodes on the line will become red.
- •Click right button on the selected line →Select 'Delete all selected lines'.
- ② In editing mode, to delete all the lines selected is as below.
- <u>Press shift</u> and <u>click on the lines that you wish to remove</u> or drag on the screen to select lines that you wish to remove, <u>click right button near the selected lines</u>→<u>Select 'Delete all selected lines</u>'.



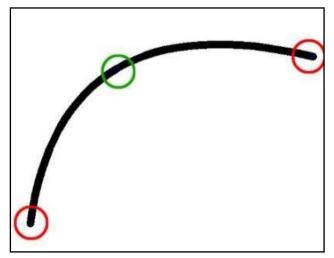
[Image5-3] To delete a selected line



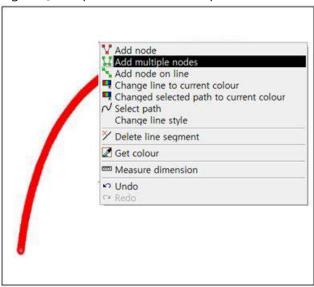
[Image5-4] To delete all the lines selected

- ③ In editing mode, to remove node partially, or to delete line separately is as below.
- •A curved line is consisted of each end point and a middle point. Therefore, when you want to divide a line, you need to add more nodes to make division in a line. To add more than one node at once click right button on the line you want to separate → add multiple

nodes²⁸ and you will get divided lines.



[Image5-5] End points and a middle point of curved line

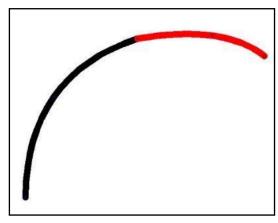


[Image5-6]Add multiple nodes

(4) Ctrl + Z

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²⁸ As shown in [Image5-5], red circled points are end point s and green circled point is a middle point which decides angle of a line. Also, when a middle point is added as in [Image5-7], a line is divided according to the added node. It is possible to remove each line separately when a line is divided.



[Image5-7] Divided line

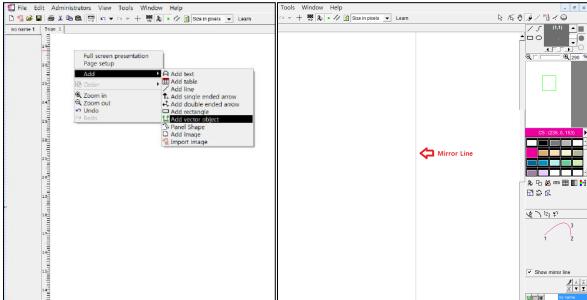
3) Add vector object

1 Sketching with mirror function with mirror line on

Before you start sketching, click right button on a screen→ add →add vector object.

If you check on [show mirror line] at a tool box on the right hand side of a screen, a vertical gray line appears to show where the mirror line is.

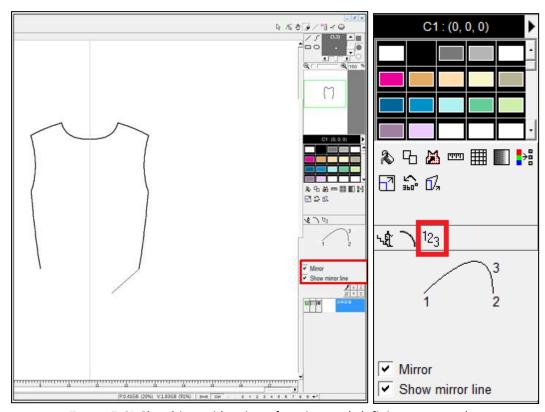
You can adjust the location of mirror line by placing the cursor on where you want to move the line to and click right button and select 'Move mirror line here'.



[Image5-8] Add vector object and show mirror line function

When you start drawing half of your sketch with a pen tool according to mirror line, the other half automatically appears symmetrically.

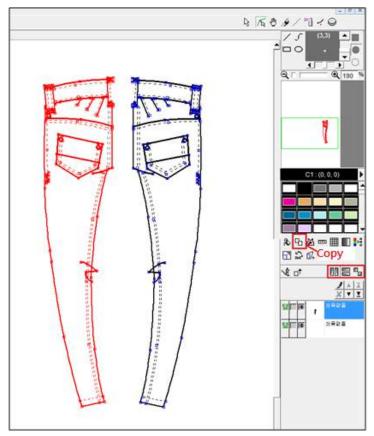
When you click on at a tool box, you can define the order of drawing.



[Image5-9] Sketching with mirror function and defining curve order

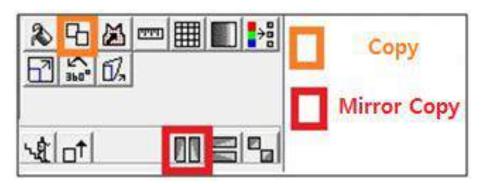


2 Sketch design with mirror copy effect

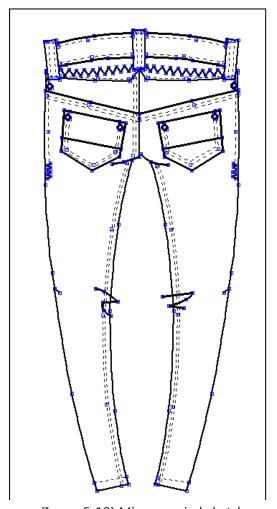


[Image5-10] sketch design with mirror copy effect

On Editing mode →Drag the sketch you want to copy →Click copy and select mirror copy from a tool box. You will see other half copied as shown on a mirror.



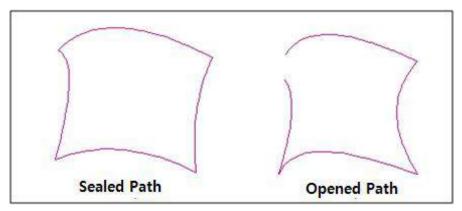
[Image5-11] Mirror copy tool



[Image5-12] Mirror copied sketch

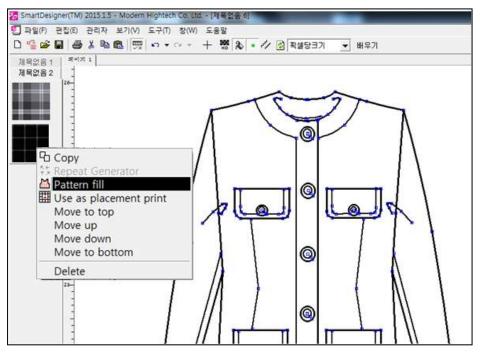
4) Flood fill

- ① Color fill
- To color inside a sealed path, click on color you wish to use and click <u>'Flood fill'</u> icon click in the path with left button to fill in with color you have selected.



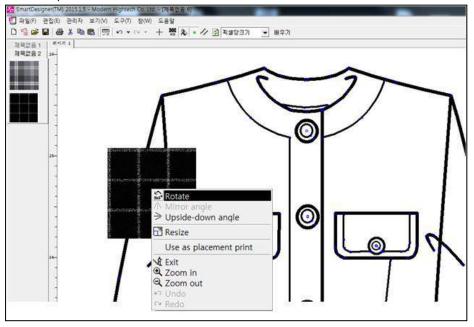
[Image5-13] Sealed path and opened path

- When a path is opened, color floods out so make sure to seal a path.
 - (2) Patter fill
 - In project mode, save it on a image list first by importing the image through <u>'import</u> image' button with edit mode off. Then click on an image with <u>right button</u> add to image list. Sketch as you wish with either add vector object or add panel shape.
 After done with a sketch, make sure to have <u>edit mode on</u> and click the image that you wish to use from image list and select pattern fill as shown in [Image1-63].



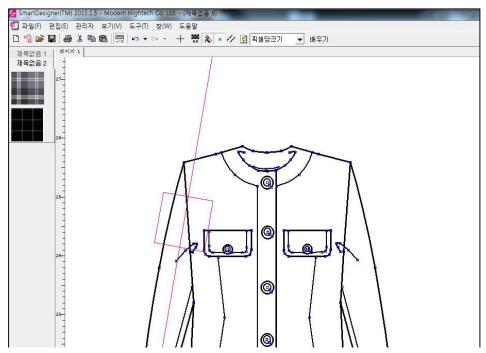
[Image5-14] Pattern fill

• Like in [Image5-16], you can <u>click on right button and select 'Rotate'</u> to adjust the direction of a pattern ²⁹.

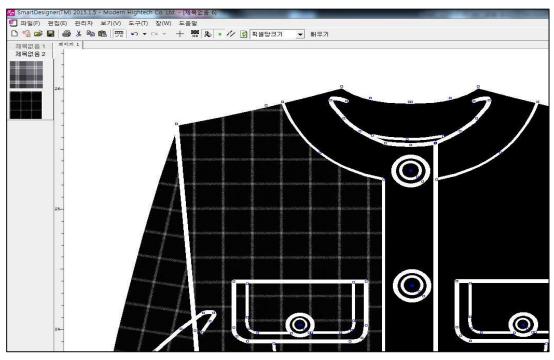


[Image5-15] Rotate a pattern

²⁹Put pattern same as the direction of sleeve. Be aware that an arrow facing upward means the original direction.



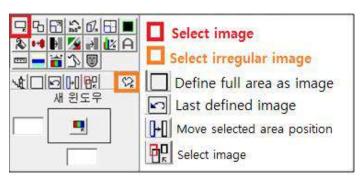
[Image5-16] Rotating a pattern to match the direction and the angle of sleeve



[Image5-17] Fill pattern and color in a sketch

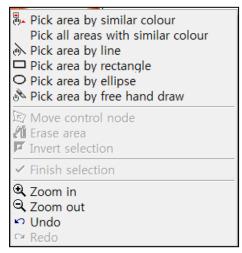
5) Select window

- ① Window is a tool to select space for users to work on.
- 2) Generally it is a square shaped.
- 3 It is not activated automatically on project mode.
- ④ Click right button on a screen →add →import image→when you choose one of <general image, drape image, knit image>, you will be able to select an area you want to add on a screen ³⁰.



[Image5-18]Tools for selecting window and sub menus

⑤ <u>Click 'Select image'</u> and you will see a tool box like [Image5-18] above. <u>Click 'Define</u> <u>irregular window'</u> and you will be able to activate menu shown in, [Image5-19] once you <u>click</u> on the right button.



[Image5-19]Menu from 'define irregular window'

³⁰ Window tool is only activated in a selected area. Note that when you try to save weave image into an image list, an area is selected by warp and weft and cannot be selected with window tool.

- 6 Define full area as image: You can select the whole area as a window.
- ② Last defined image: You can go back to the previously selected window.
- Move selected area postition: You can move a window to area where you want.

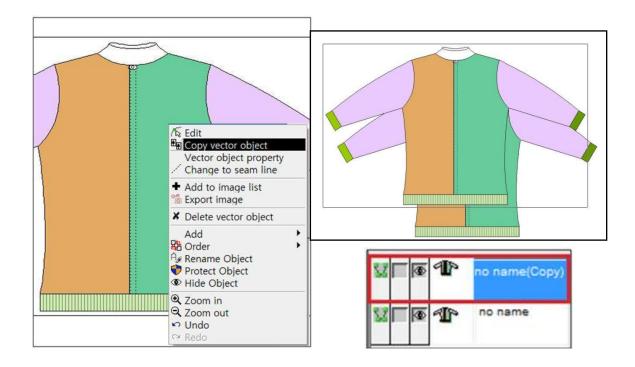
6) Move/Copy

① Move: <u>Click 'Move object'</u> to leave from edit mode, and you can move each layer of object independently.



[Image5-20] Leave from edit mode and select 'Move object'

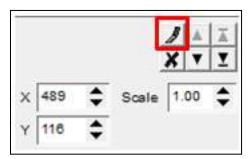
② Copy: If you want to copy an object, as shown in [Image5-21], leave from edit mode and click right button on the object you wish to move →Click 'Copy image as object' and the image is copied on a new layer.



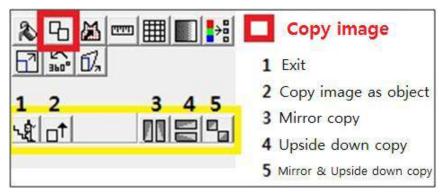
[Image5-21]Copy object function in project mode

- * 3 ways to put an object you wish to copy into edit mode
 - ① Double click an object.
 - ②Click right button on the object you wish to edit.
 - **3**Click brush icon below color library after selecting the object you wish to edit³¹.

Through three ways above, you can put edit mode on <u>click 'Copy image'</u> from a tool box on the right hand side.



[Image5-22]Brush shaped icon for edition



[Image5-23]Copy image

X Copy image

- 1) Exit: To leave from the function.
- 2 Copy image as object: The object is copied on an independent layer³².
- 3 Mirror copy: To copy left and right side reversed.

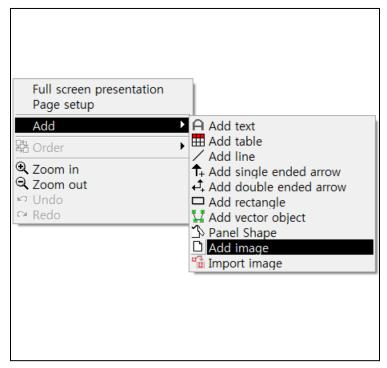
 $^{^{\}rm 31}$ Beside using the brush icon for edition, it is also possible to select a layer and edit.

³² To copy an object in a new layer, press shift and drag the area you want to copy and click left hand button.

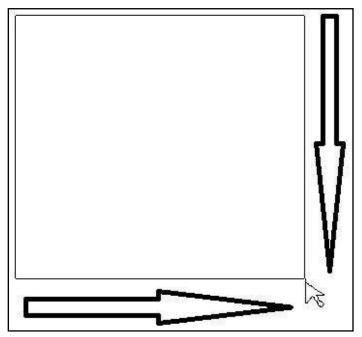
- 4 Upside down copy: To copy upper side and bottom reversed.
- ⑤ Mirror & Upside down copy: To copy reversed and diagonal way.

1. How to use 4 general image modes in a vector mode

- ① In order to design pattern, knit, and weave in a project mode, which only supports vector mode, you don't have to open a separate sheet but you can easily do it on the same sheet with creating a new layer.
- 2 You do not have to open many sheets to work on each mode but on one sheet, you can add various modes and work on it.
- ③ To add image mode: Click right button on a project mode sheet → add → Click add image and select an area to work on.

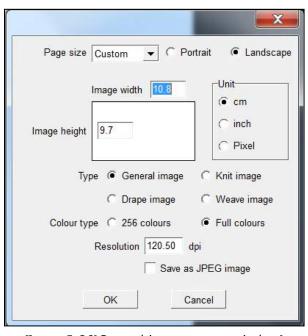


[Image5-24]Add image



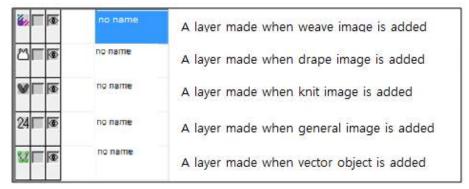
[Image5-25]Select an area to work on

4 You can create an image by selecting which mode you would like to work on as shown in [Image5-26].



[Image5-26]General image set up window]

⑤ Once you select an area to work on, new layer is created as in [Image5-27]. You can utilize layers to make your work more efficient.



[Image5-27] Layers created

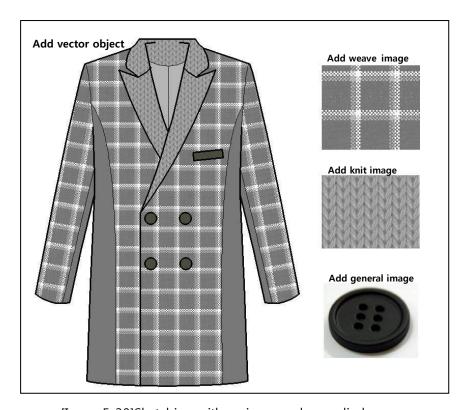


[Image5-28] Classification of modes shown left side of layers

(6) 'Add image' function can be used when you need to create a pattern, knit, or fabric for you sketch, or when you have to edit a bitmap image. Furthermore, you can activate color combo function on your sketch to see various color ways.



[Image5-29] How to utilize image mode in project mode

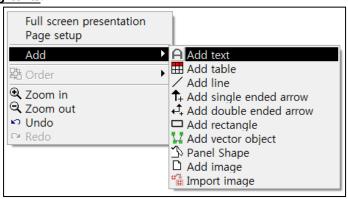


[Image5-30]Sketching with various modes applied

13) Add text

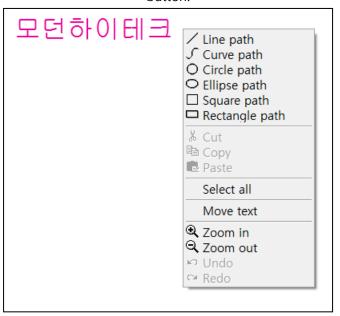
You can use this function to add brief explanation to your sketch.

① On work sheet, <u>click right hand button → add → add text</u> and click on the sheet to start entering texts.



[Image5-31]Add text 1

② After entering texts, you will see a menu as in [Image5-32] when you click right hand button.



[Image5-32]Add text 2

3 A path of text varies depending on your choice. When you select line path and click right hand button, you will see a menu to add control node as in [Image5-33] In addition, if you add control node, you can insert an angle to a line path as shown in [Image5-34].

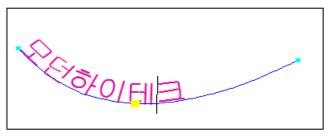
[Image5-34], [Image5-35], and [Image5-36] shows curved, circle and square path each.



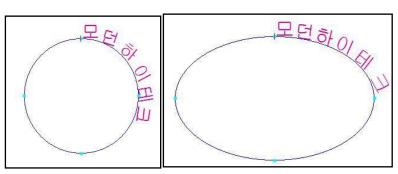
[Image5-33]Add control node 1



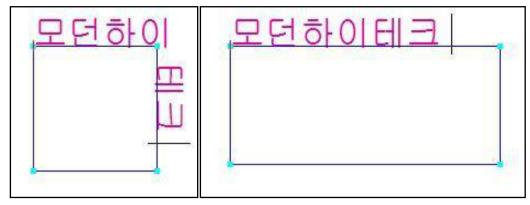
[Image5-34]Add control node 2



[Image5-35] Curve path



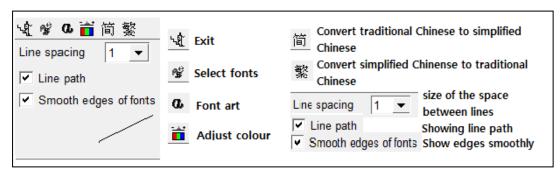
[Image5-36] Circle/oval path



[Image5-37]square path

- 4 When 'Add text' menu is selected, you can edit through various functions in a tool box.
 - Exit: To leave from edit mode.
 - Select fonts: You can change fonts.
 - Font art: You can apply image effect or adjust outline.
 - Adjust color: You can change color of texts.
 - Convert traditional Chinese to simplified Chinese: You can simplify Chinese.
 - Convert simplified Chinese to traditional Chinese: You can convert simplified Chinese into traditional Chinese.
 - Line spacing: When there are more than two lines, you can adjust the space between lines.
 - Line path: The name changes depending on selected path (curve, square, circle, etc.). You can adjust path or add control nodes by activating this function.
 - Smooth edges of fonts: To automatically adjust the smoothness of fonts to look more natural.

(5)



[Image5-38]Tool box of 'Add text' menu

14) Layer

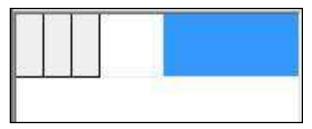
Layer is somewhat like a transparent paper that you can work on. You can edit on a specific layer for detailed work.

It is possible to hide a layer or lock it by putting protect mode on. A user can utilize this function when he/she wants to digitalize hand sketches by importing scanned sketch and lock it with protect mode while he/she traces outline.

① To add a layer 1: On a project mode, you must have to have a layer to work so <u>click right</u>

<u>button on work sheet → click add vector object</u> to create a new layer.

To make another layer, put edit mode off from the first layer and do the same process as above.



[Image5-39] Layer window when you first started a project mode



[Image5-40]Layer window when 'add vector object' function is activated



[Image5-41]Leave from edit mode by selecting 'Move object'

③ To add a layer 2: If you want to import an image, leave from edit mode and import any image. You don't need to add vector object again since the image is imported on a new layer. It is also the same when you use 'Add panel shape' function.

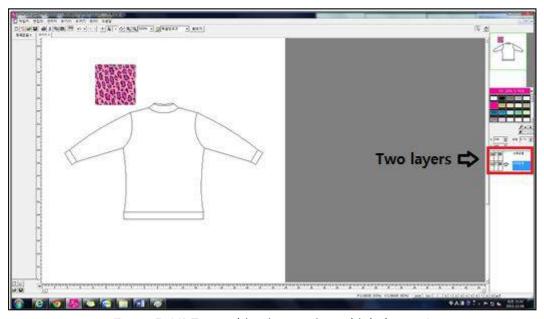


[Image5-42] When you import image, a new layer is created automatically



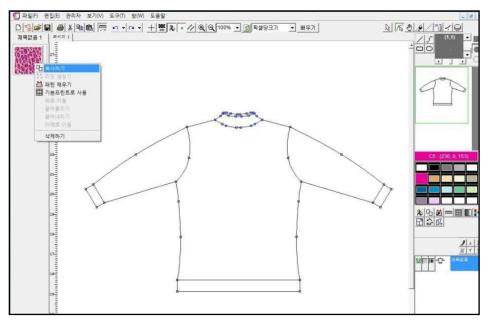
[Image5-43] When you add panel shape, a new layer is created automatically

④ To combine images in multiple layers 1: Leave from edit mode and add leopard image to the image list as shown in [Image5-44]. Then <u>click right hand button on the original image → delete image</u> to remove a layer.

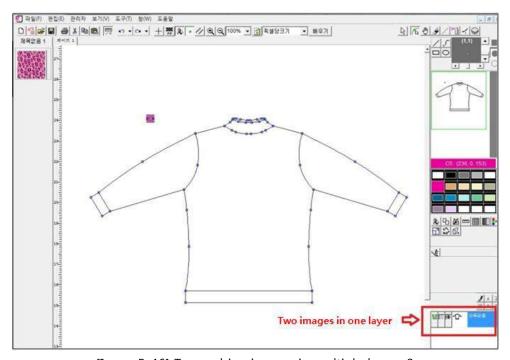


[Image5-44] To combine images in multiple layers 1

⑤ To combine images in multiple layers 2: Put on edit mode and copy leopard image to where you wish to combine. If you check on layer window, you can see that there are two images in the same layer.



[Image5-45] To combine images in multiple layers 2



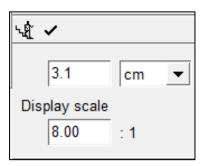
[Image5-46] To combine images in multiple layers 3

(5) To combine images in multiple layers3: If one of the images are too small or too big, use 'Measure dimension' tool to measure the sizes and define ratio.

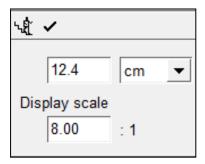
For example, in [Image5-46] above, you can see that a leopard image is too small so you should leave from edit mode first, and add the image from image list, and activate edit mode again to use 'measure dimension' tool to measure the size of the image for adjustment.

Leave from edit mode and add the resized leopard image on to the image list. Copy the resized leopard image with edit mode on and place it on the same layer. After that, type in '4' to make it 4 times bigger and click check button.

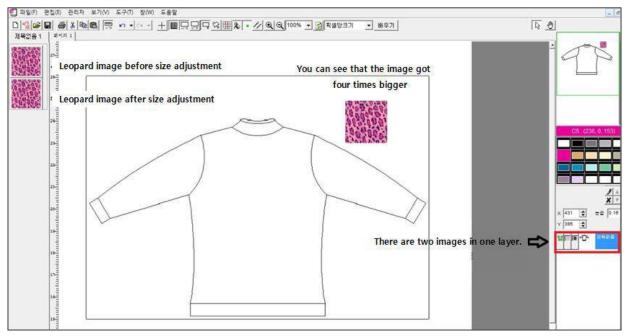
As you can see in [Image5-47], you will be able to see 4 times bigger leopard image inserted in the same layer as a sketch.



[Image5-47]Original size of the leopard image

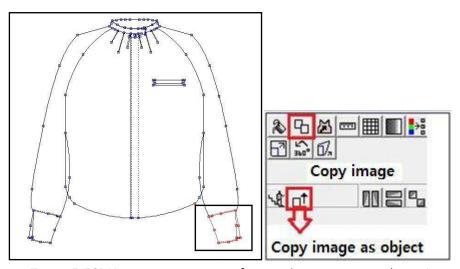


[Image5-48]Size adjusted



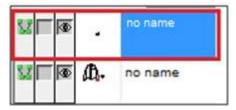
[Image5-49] Resize an image

⑥ How to copy a part of vector image to a new layer 1: Drag the part where you want to copy or select lines with pressing shift key. Then select copy image → copy image as object as shown in [Image 5-50].



[Image5-50] How to copy a part of vector image to a new layer 1

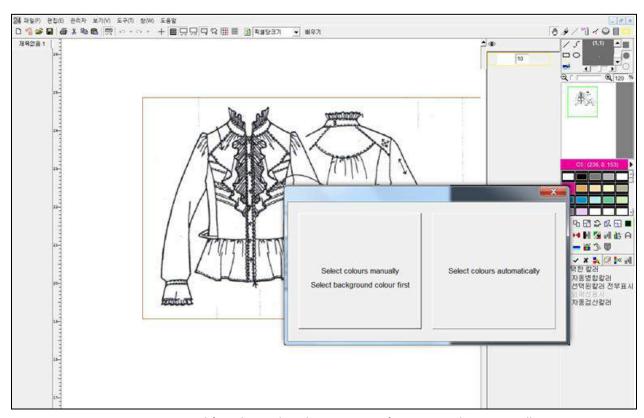
① How to copy a part of vector image to a new layer 2: As in [Image5-51], you will see a new layer with only sleeve image on it.



[Image5-51]Layer for sleeve has been created as an independent object

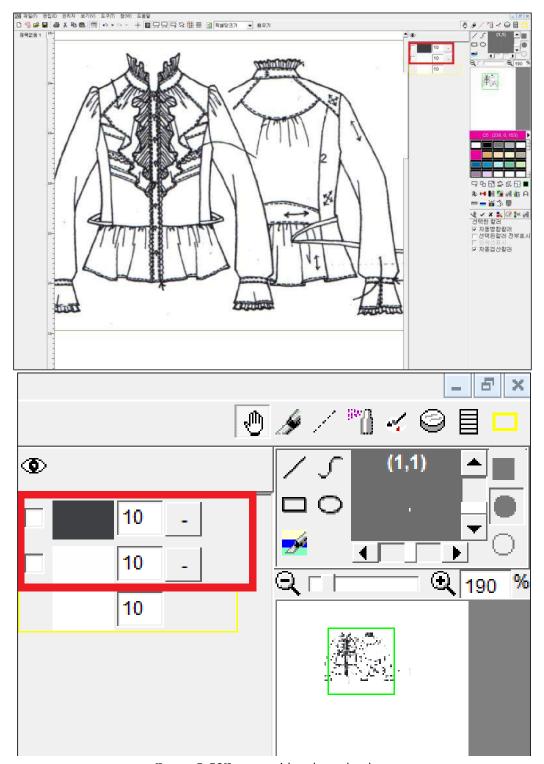
(2) Covert bitmap into a vector file

You can use 'Color grouping' function to simplify colors on scanned bitmap images and convert it into a vector image. **Project mode→import picture** and click on right button to select **'Convert bitmap into vector'**³³.



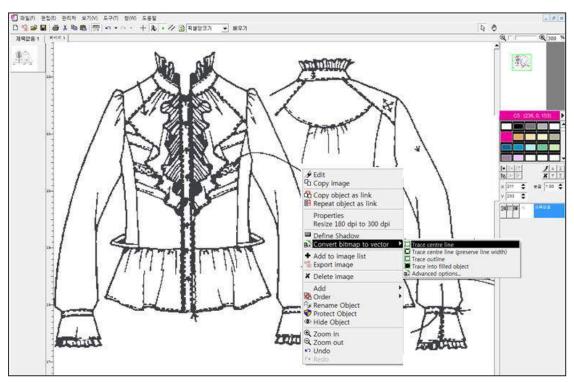
[Image5-52]Simplify color with color grouping function (Select manually)

³³ Sub category can be selected upon users need. Also, when you manually select colors, you need to select background color first.



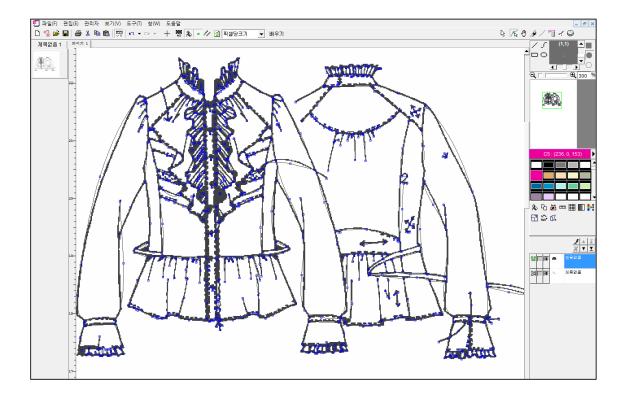
[Image5-53]Image with selected colors

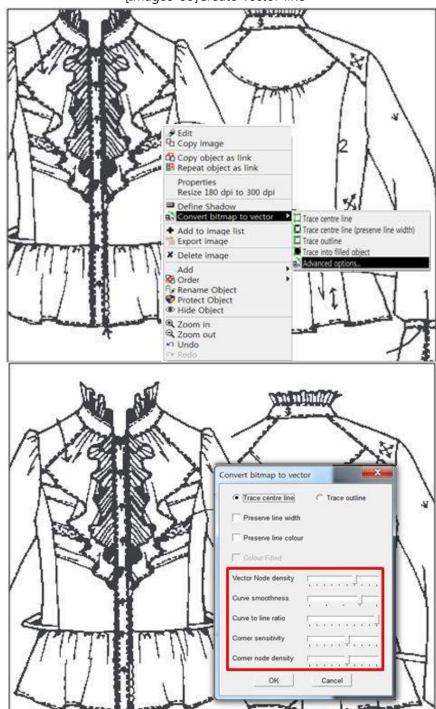
① Complete 'Color grouping' by selecting two colors and click on check button. Click on right hand button and select 'Convert bitmap into vector'.



[Image5-54] Convert bitmap into vector

1 You will see vector lines created along the lines on previous work.





[Image5-55]Create vector line

[Image5-56]Adjust density, sensitivity through 'Advanced option'

② Through 'Advanced option', you can adjust density and sensitivity of nodes.

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