USER GUIDE

4D SYSTEMS

TURNING TECHNOLOGY INTO ART

Workshop 4
User Guide

Document Date: 11th March 2014
Document Revision: 1.4

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Please refer to the 4D Systems website for the latest Revision of this document

Contents

1. Description

This user guide provides an introduction to Workshop 4, the 4D Systems integrated development environment. Workshop 4 supports multiple development environments for the user, to cater for different user requirements and skill level.

The **Designer** environment enables the user to write 4DGL code in its natural form to program the 4D Systems module of choice.

A visual programming experience, suitably called **ViSi**, enables drag-and-drop type placement of objects to assist with 4DGL code generation and allows the user to visualise how the display will look while being developed.

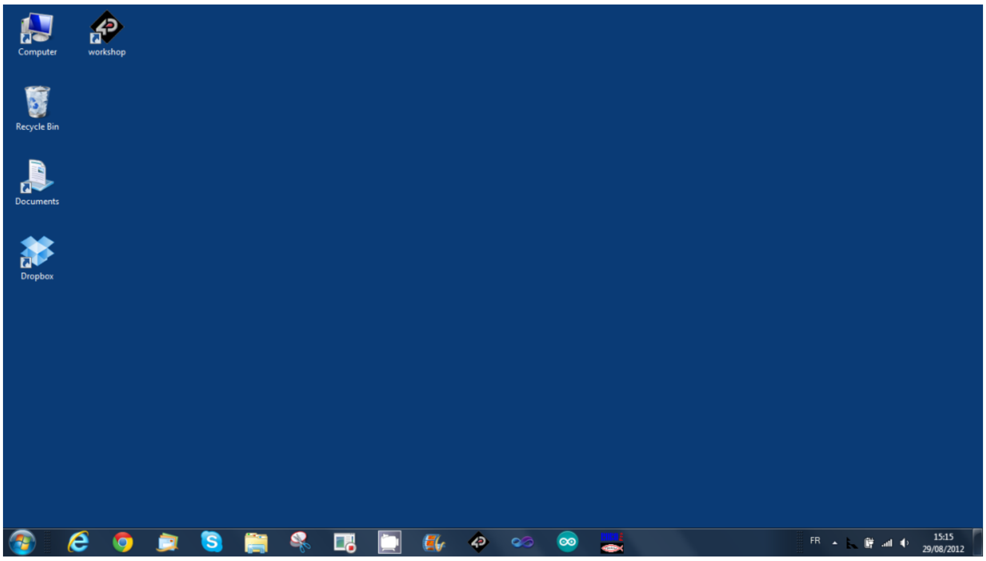
An advanced environment called **ViSi-Genie** doesn't require any 4DGL coding at all, it is all done automatically. Simply lay the display out with the objects required, set the events to drive them and the code is written for the user automatically. ViSi-Genie provides the latest rapid development experience from 4D Systems. (Not available for Goldelox)

A **Serial** environment is also provided to transform the 4D Systems module into a slave serial module, allowing the user to control the display from any host microcontroller or device with a serial port.

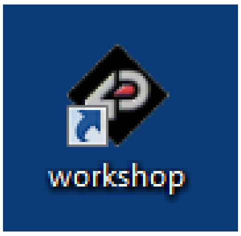
To install Workshop 4, please refer to the document ***Workshop 4 Installation***.

2. Workshop 4

There is an alias for 4D Workshop on the desktop:

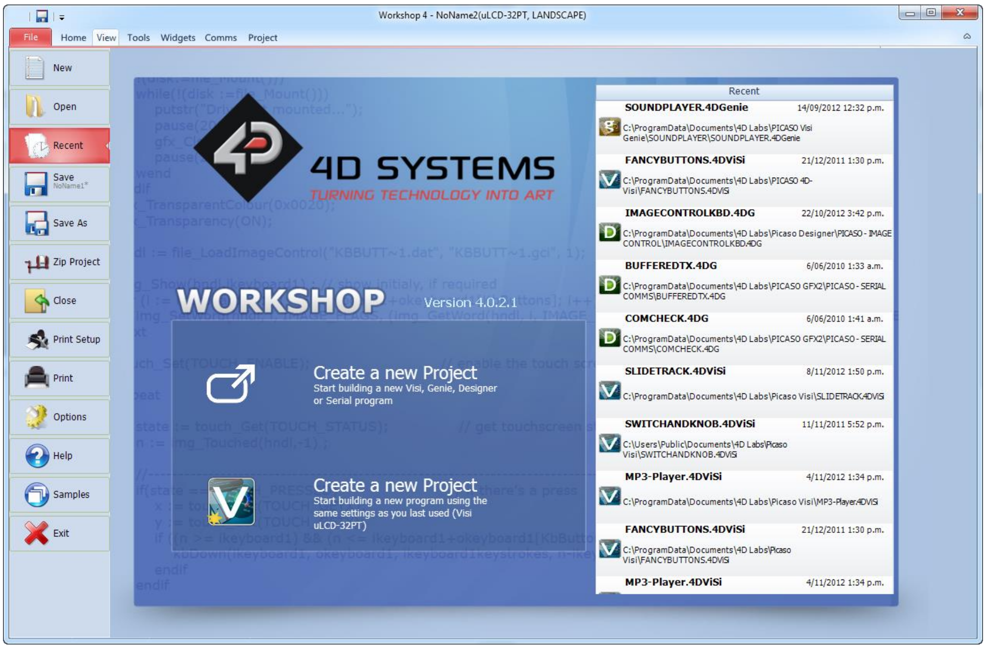


Launch 4D Workshop by double-clicking on the icon:



3. Create a New Project

Workshop 4 opens and displays the **Recent** page:



Create a new Project
Start building a new Visi, Genie, Designer or Serial program

Create a new Project
Start building a new program using the same settings as you last used (Visi uLCD-32PT)

SOUNDPLAYER.4DGenie 14/09/2012 12:32 p.m.
C:\ProgramData\Documents\4D Labs\PICASO Visi Genie\SOUNDPLAYER\SOUNDPLAYER.4DGenie

FANCYBUTTONS.4DViSi 21/12/2011 1:30 p.m.
C:\ProgramData\Documents\4D Labs\PICASO 4D-Visi\FANCYBUTTONS.4DViSi

IMAGECONTROLKBD.4DG 22/10/2012 3:42 p.m.
C:\ProgramData\Documents\4D Labs\Picaso Designer\PICASO - IMAGE CONTROL\IMAGECONTROLKBD.4DG

BUFFEREDTX.4DG 6/06/2010 1:33 a.m.
C:\ProgramData\Documents\4D Labs\PICASO GFX2\PICASO - SERIAL COMMS\BUFFEREDTX.4DG

COMCHECK.4DG 6/06/2010 1:41 a.m.
C:\ProgramData\Documents\4D Labs\PICASO GFX2\PICASO - SERIAL COMMS\COMCHECK.4DG

SLIDETRACK.4DViSi 8/11/2012 1:50 p.m.
C:\ProgramData\Documents\4D Labs\Picaso Visi\SLIDETRACK.4DViSi

SWITCHANDKNOB.4DViSi 11/11/2011 5:52 p.m.
C:\Users\Public\Documents\4D Labs\Picaso Visi\SWITCHANDKNOB.4DViSi

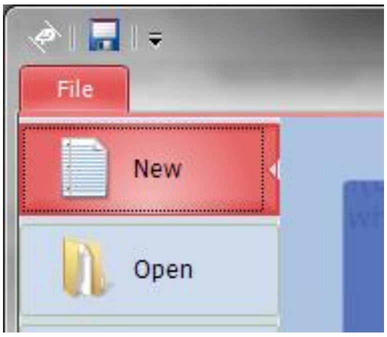
MP3-Player.4DViSi 4/11/2012 1:34 p.m.
C:\ProgramData\Documents\4D Labs\Picaso Visi\MP3-Player.4DViSi

FANCYBUTTONS.4DViSi 21/12/2011 1:30 p.m.
C:\ProgramData\Documents\4D Labs\Picaso Visi\FANCYBUTTONS.4DViSi

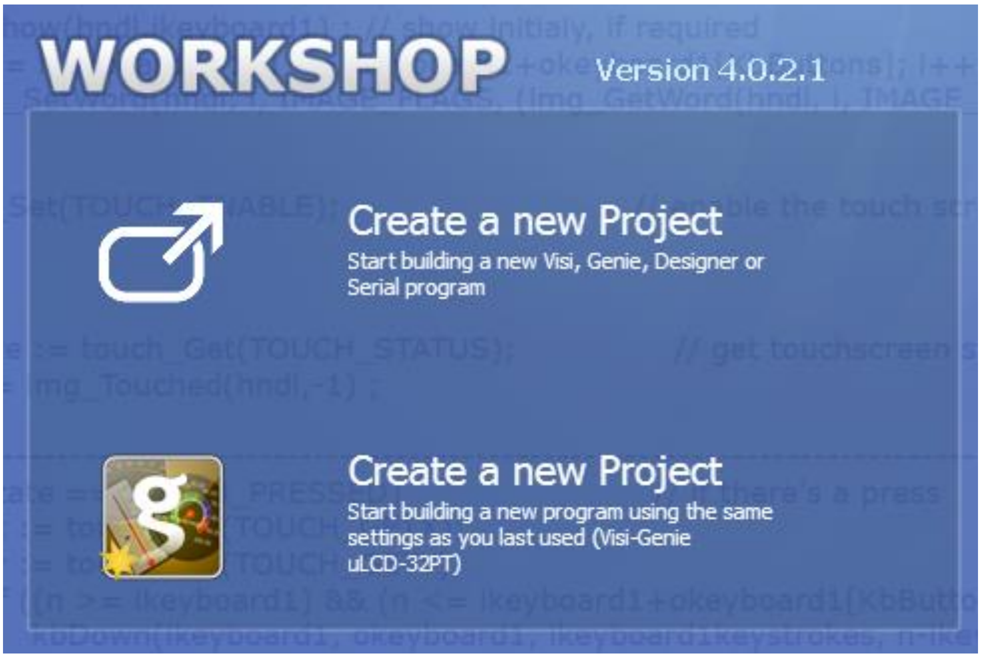
MP3-Player.4DViSi 4/11/2012 1:34 p.m.

To create a new program, there are multiple options:

- Click on the top left-most icon **New**



- Click on the upper **Create a New Project** if creating a project from scratch, or click on the lower **Create a New Project** to use the settings and module that was used last time:

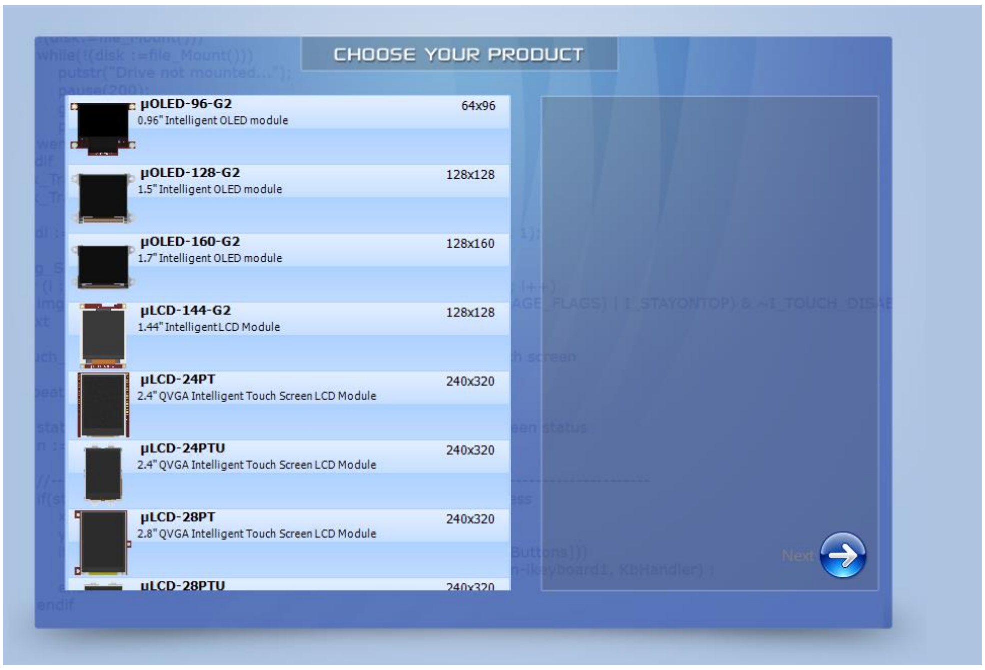


WORKSHOP Version 4.0.2.1

Create a new Project
Start building a new Visi, Genie, Designer or Serial program

Create a new Project
Start building a new program using the same settings as you last used (Visi-Genie uLCD-32PT)

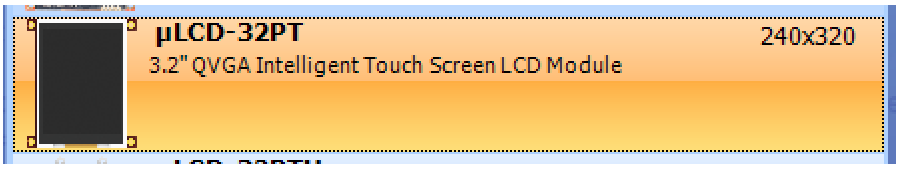
Choose Your Product, simply select the 4D Systems module of choice to start your development:



CHOOSE YOUR PRODUCT

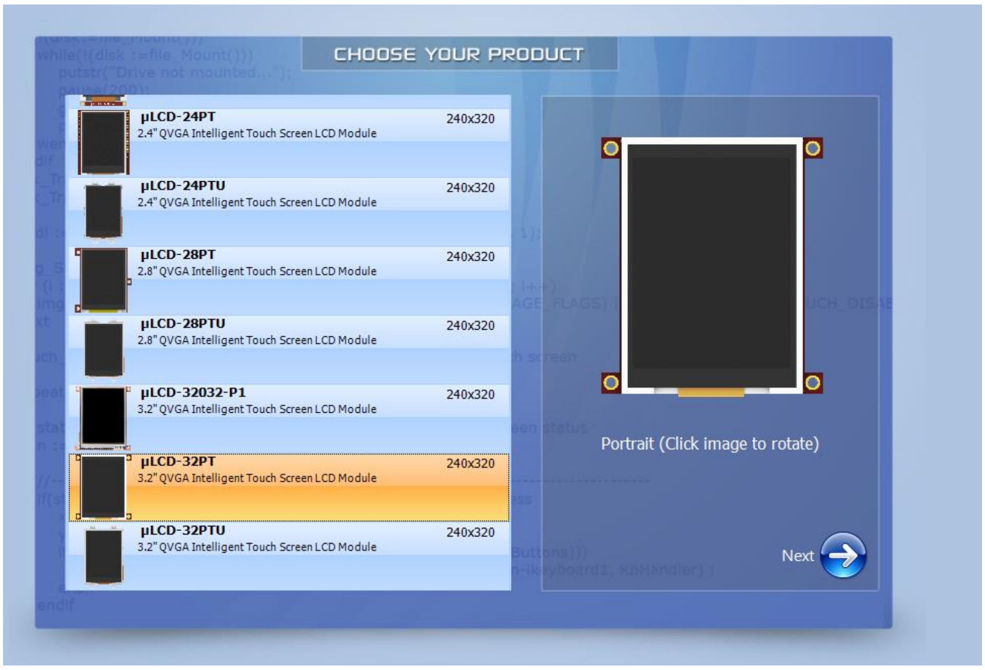
μOLED-96-G2	0.96" Intelligent OLED module	64x96
μOLED-128-G2	1.5" Intelligent OLED module	128x128
μOLED-160-G2	1.7" Intelligent OLED module	128x160
μLCD-144-G2	1.44" Intelligent LCD Module	128x128
μLCD-24PT	2.4" QVGA Intelligent Touch Screen LCD Module	240x320
μLCD-24PTU	2.4" QVGA Intelligent Touch Screen LCD Module	240x320
μLCD-28PT	2.8" QVGA Intelligent Touch Screen LCD Module	240x320
μLCD-28PTU		240x320

Select the product, in this case the μLCD-32PT Display Module:



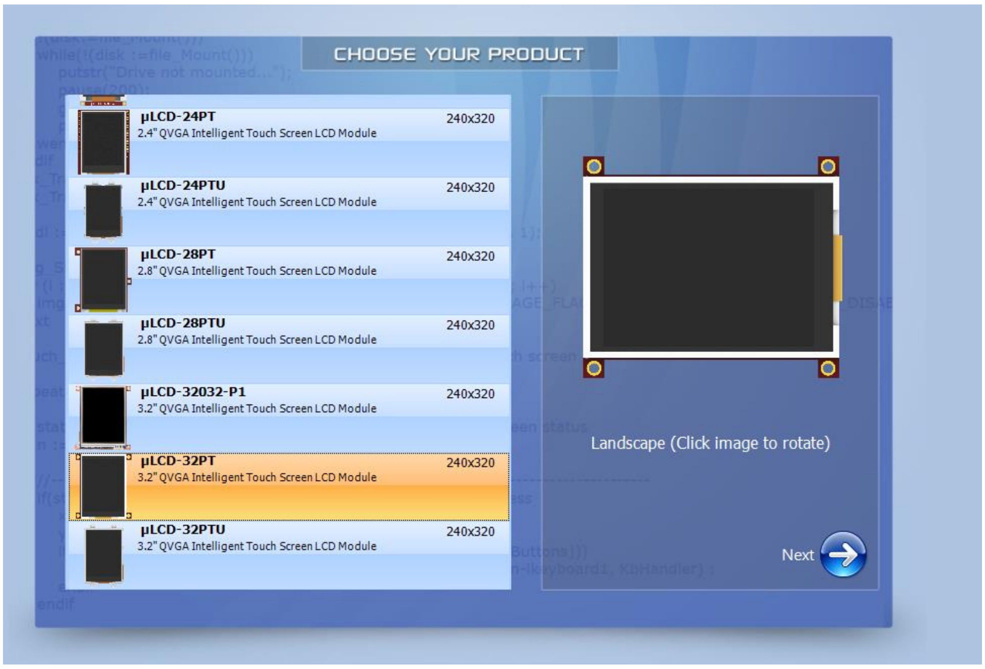
μLCD-32PT 240x320
3.2" QVGA Intelligent Touch Screen LCD Module

The selected module is displayed on the right hand side:


CHOOSE YOUR PRODUCT
μLCD-24PT 2.4" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-24PTU 2.4" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-28PT 2.8" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-28PTU 2.8" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-32032-P1 3.2" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-32PT 3.2" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-32PTU 3.2" QVGA Intelligent Touch Screen LCD Module 240x320
Portrait (Click image to rotate)
Next

Orientation is portrait by default.

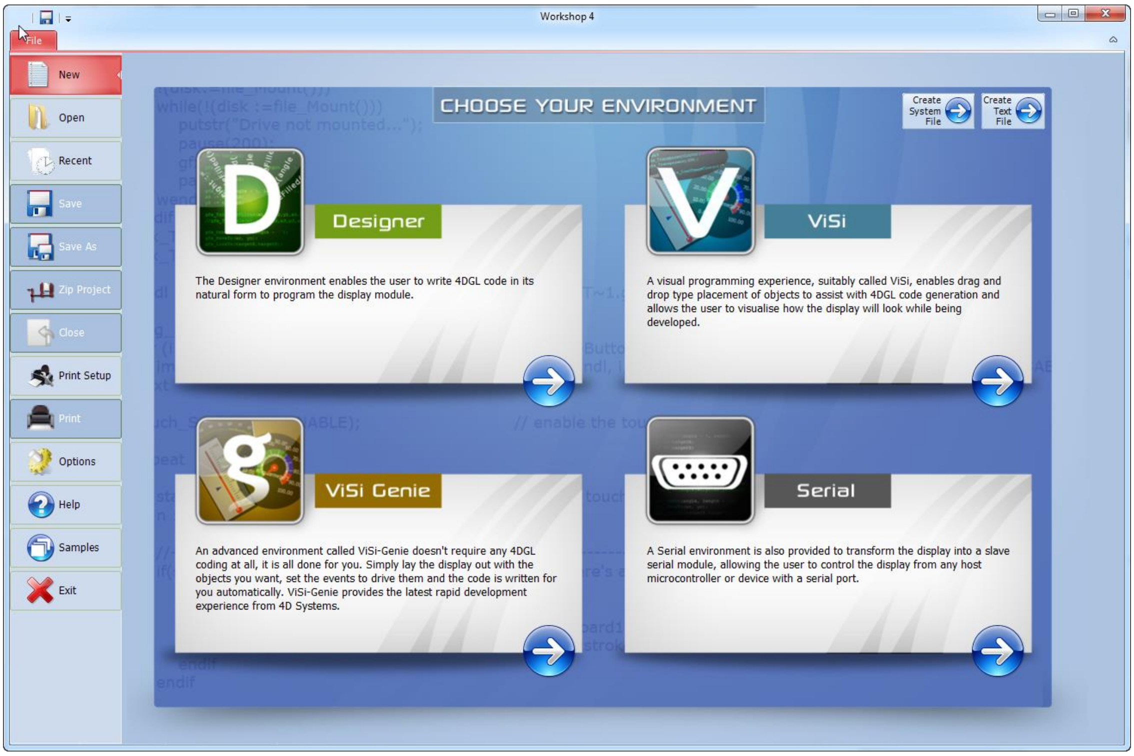
To set it to landscape, just click on the image of the display to rotate it. Additional clicks rotate the display by 90 degrees:


CHOOSE YOUR PRODUCT
μLCD-24PT 2.4" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-24PTU 2.4" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-28PT 2.8" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-28PTU 2.8" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-32032-P1 3.2" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-32PT 3.2" QVGA Intelligent Touch Screen LCD Module 240x320
μLCD-32PTU 3.2" QVGA Intelligent Touch Screen LCD Module 240x320
Landscape (Click image to rotate)
Next

Press **Next** to proceed:

4. Choose Your Environment

The main window now asks for the environment for the project:



The Designer environment enables the user to write 4DGL code in its natural form to program the display module.

A visual programming experience, suitably called ViSi, enables drag and drop type placement of objects to assist with 4DGL code generation and allows the user to visualise how the display will look while being developed.

An advanced environment called ViSi-Genie doesn't require any 4DGL coding at all, it is all done for you. Simply lay the display out with the objects you want, set the events to drive them and the code is written for you automatically. ViSi-Genie provides the latest rapid development experience from 4D Systems.

A Serial environment is also provided to transform the display into a slave serial module, allowing the user to control the display from any host microcontroller or device with a serial port.

Four main environment options are available:

- Designer,
- ViSi,
- ViSi-Genie,
- Serial

…and two editor options:

- Create System File,
- Create Text File.

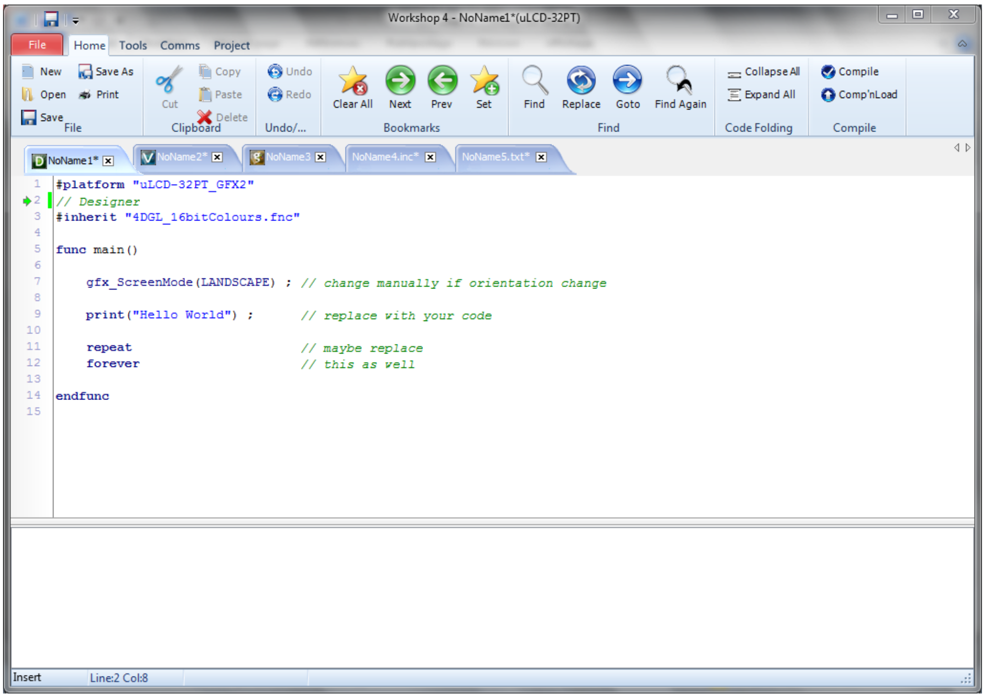
Each option opens a customised environment with specific commands and controls.

Different projects using different modules and environments can be open simultaneously on Workshop 4. The toolbar ribbon will adapt to the project tab that is selected, to suit its environment.

4.1. Designer

The Designer environment enables the user to write 4DGL code in its natural form to program the display module.

The **Designer** environment enables the user to write 4DGL code in its natural form to program the display module. 4DGL is a graphics oriented language allowing rapid application development, and the syntax structure was designed using elements of popular languages such as C, Basic, Pascal and others.



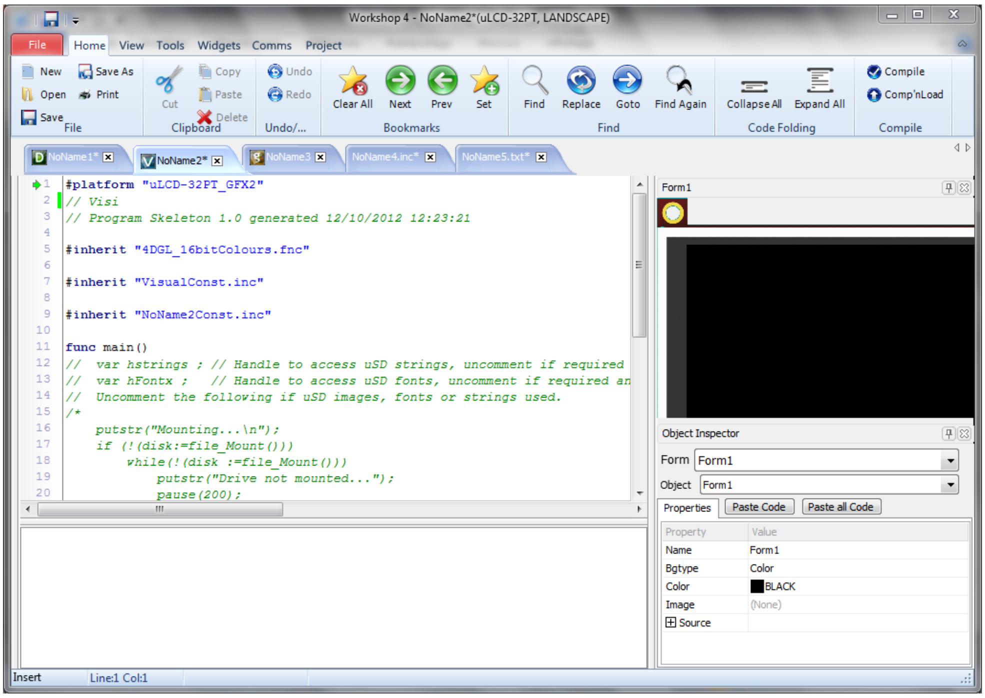
```
#platform "uLCD-32PT_GFX2"
// Designer
#inherit "4DGL_16bitColours.fnc"

func main()

    gfx_ScreenMode(LANDSCAPE) ; // change manually if orientation change

    print("Hello World") ;      // replace with your code

    repeat                      // maybe replace
    forever                     // this as well

endfunc
```

To learn more about Designer, please to refer to the 4DGL Internal Functions Reference Manuals and 4DGL Programmers Reference Manual on the Workshop 4 product page of the website, and the related application notes on the Application Note page of the website. http://www.4dsystems.com.au

4.2. ViSi

A visual programming experience, suitably called ViSi, enables drag and drop type placement of objects to assist with 4DGL code generation and allows the user to visualise how the display will look while being developed.

A visual programming experience, suitably called **ViSi**, enables drag-and-drop type placement of objects to assist with 4DGL code generation and allows the user to visualise how the display will look while being developed.



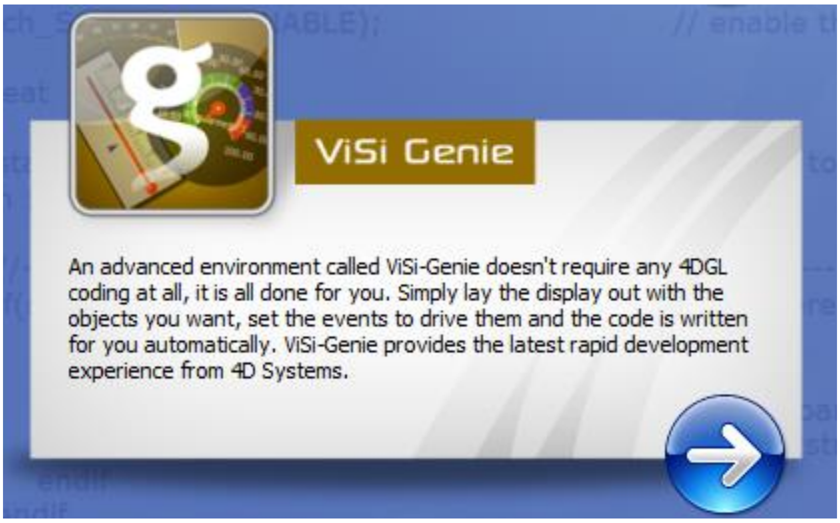
```
#platform "uLCD-32PT_GFX2"
// Visi
// Program Skeleton 1.0 generated 12/10/2012 12:23:21

#inherit "4DGL_16bitColours.fnc"

#inherit "VisualConst.inc"

#inherit "NoName2Const.inc"

func main()
//  var hstrings ; // Handle to access uSD strings, uncomment if required
//  var hFontx ;   // Handle to access uSD fonts, uncomment if required an
//  Uncomment the following if uSD images, fonts or strings used.
/*
    putstr("Mounting...\n");
    if (!(disk:=file_Mount()))
        while(!(disk :=file_Mount()))
            putstr("Drive not mounted...");
            pause(200);
```

Form: Form1
Object: Form1

Property	Value
Name	Form1
Bgtype	Color
Color	■BLACK
Image	(None)
⊞ Source	

To learn more about ViSi, please to refer to the ViSi User Guide on the Workshop 4 product page of the website, and the related application notes on the Application Note page of the website. http://www.4dsystems.com.au

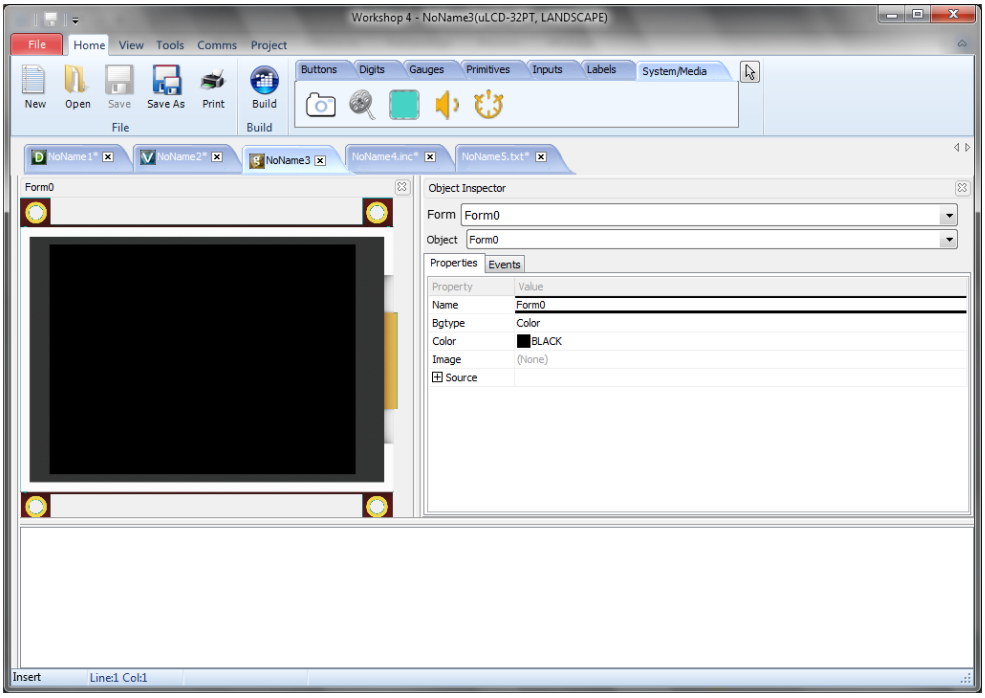
4.3. ViSi-Genie



ViSi Genie

An advanced environment called ViSi-Genie doesn't require any 4DGL coding at all, it is all done for you. Simply lay the display out with the objects you want, set the events to drive them and the code is written for you automatically. ViSi-Genie provides the latest rapid development experience from 4D Systems.

An advanced environment called **ViSi-Genie** doesn’t require any 4DGL coding at all, it is all done for the user. By simply laying the display out with the wanted objects and setting the events to drive them, the code is written automatically. ViSi-Genie provides the latest apid development experience from 4D Systems.



Workshop 4 - NoName3(uLCD-32PT, LANDSCAPE)

Object Inspector

Form: Form0

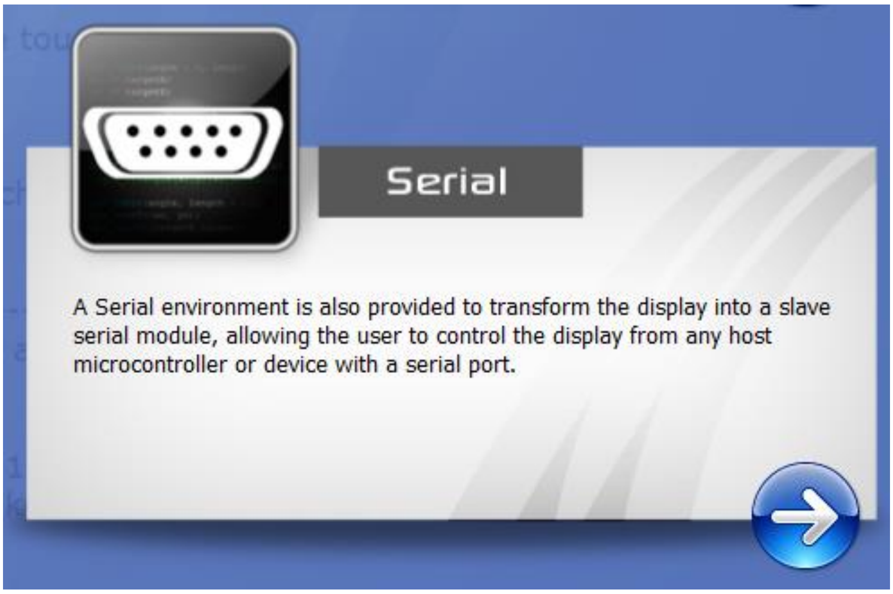
Object: Form0

Property	Value
Name	Form0
Bgtype	Color
Color	BLACK
Image	(None)
Source	

Insert Line:1 Col:1

To learn more about ViSi-Genie, please to refer to ViSi-Genie User Guide on the Workshop 4 product page of the website, and the related application notes on the Application Note page of the website. http://www.4dsystems.com.au

4.4. Serial



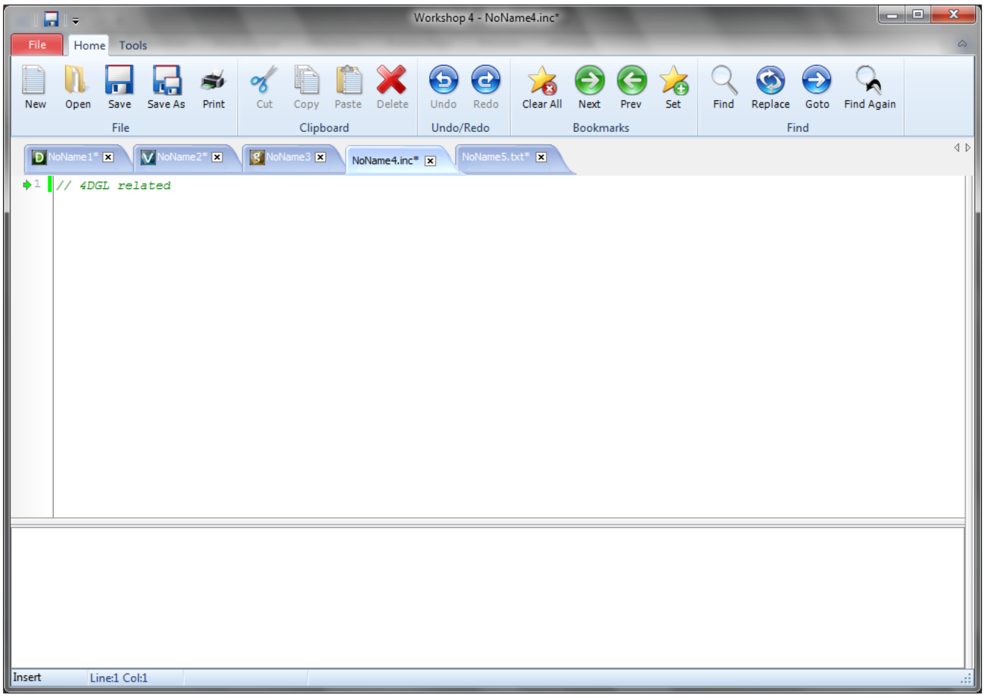
A Serial environment is also provided to transform the display into a slave serial module, allowing the user to control the display from any host microcontroller or device with a serial port.

The **Serial** environment is provided to transform the module into a slave serial module, allowing communication and control from virtually any host micro-controller or device with a serial port.

For detail on this environment and steps on how to make your display module run under the Serial environment, please refer to the Serial Command Set Reference Manual on the Workshop 4 product page of the website, and the related application notes on the Application Note page of the website. http://www.4dsystems.com.au

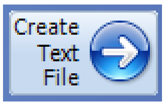
4.5. Create System File

The **Create System File** option provides an editor for all 4DGL-related projects, so a user can create or edit a 4DGL Include file, 4DGL Library file, a Function or System file. These can then be included in the users 4DGL code.

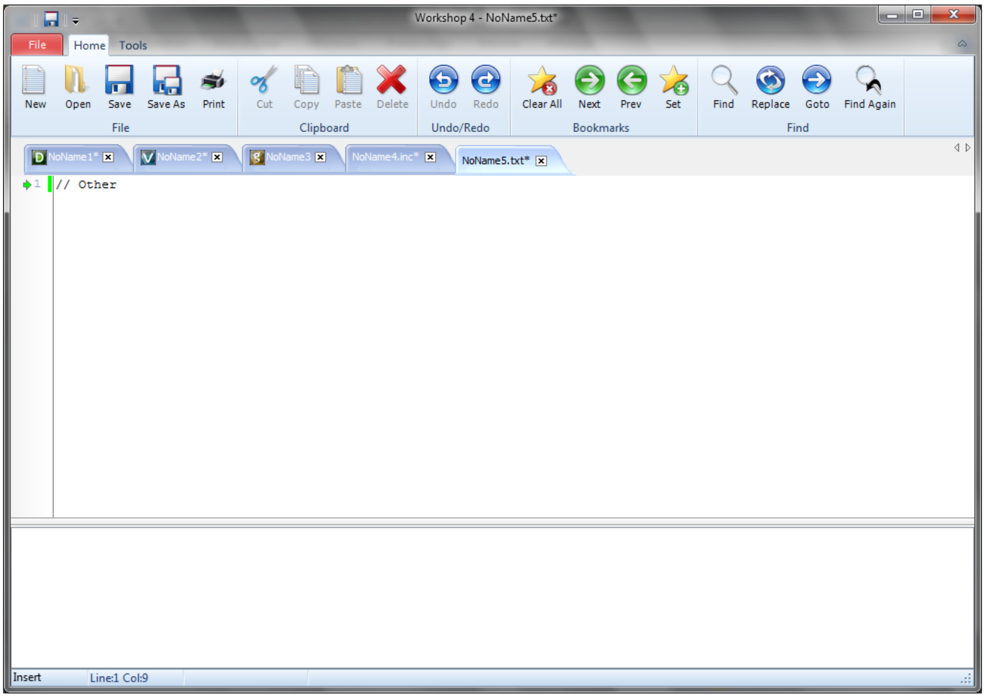


```
// 4DGL related
```

4.6. Create Text File



The **Create Text File** environment features a plain editor, suitable for writing basic documentation, application notes, data files or anything else requiring plain text files.

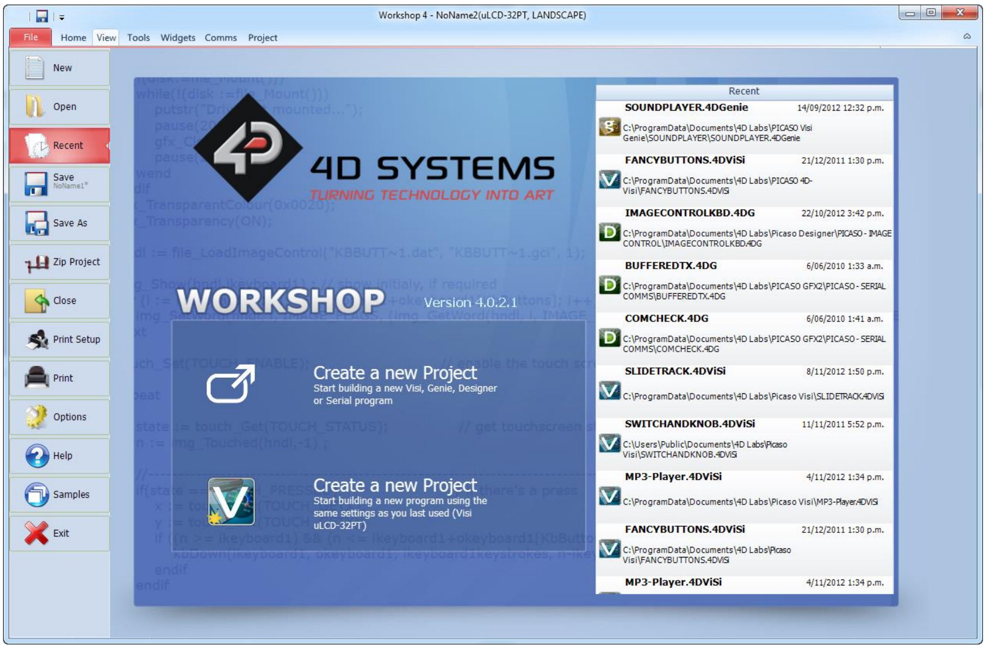


```
// Other
```

Insert Line:1 Col:9

5. Common File Menu

The **File** Menu is the first menu and common to all environments…


Workshop 4 - NoName2(uLCD-32PT, LANDSCAPE)
File
Home
View
Tools
Widgets
Comms
Project
New
Open
Recent
Save
NoName1*
Save As
Zip Project
Close
Print Setup
Print
Options
Help
Samples
Exit
4D SYSTEMS
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Version 4.0.2.1
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Create a new Project
Start building a new program using the same settings as you last used (Visi uLCD-32PT)

Recent

SOUNDPLAYER.4DGenie 14/09/2012 12:32 p.m.
C:\ProgramData\Documents\4D Labs\PICASO Visi Genie\SOUNDPLAYER\SOUNDPLAYER.4DGenie

FANCYBUTTONS.4DViSi 21/12/2011 1:30 p.m.
C:\ProgramData\Documents\4D Labs\PICASO 4D-Visi\FANCYBUTTONS.4DViSi

IMAGECONTROLKBD.4DG 22/10/2012 3:42 p.m.
C:\ProgramData\Documents\4D Labs\Picaso Designer\PICASO - IMAGE CONTROL\IMAGECONTROLKBD.4DG

BUFFEREDTX.4DG 6/06/2010 1:33 a.m.
C:\ProgramData\Documents\4D Labs\PICASO GFX2\PICASO - SERIAL COMMS\BUFFEREDTX.4DG

COMCHECK.4DG 6/06/2010 1:41 a.m.
C:\ProgramData\Documents\4D Labs\PICASO GFX2\PICASO - SERIAL COMMS\COMCHECK.4DG

SLIDETRACK.4DViSi 8/11/2012 1:50 p.m.
C:\ProgramData\Documents\4D Labs\Picaso Visi\SLIDETRACK.4DViSi

SWITCHANDKNOB.4DViSi 11/11/2011 5:52 p.m.
C:\Users\Public\Documents\4D Labs\Picaso Visi\SWITCHANDKNOB.4DViSi

MP3-Player.4DViSi 4/11/2012 1:34 p.m.
C:\ProgramData\Documents\4D Labs\Picaso Visi\MP3-Player.4DViSi

FANCYBUTTONS.4DViSi 21/12/2011 1:30 p.m.
C:\ProgramData\Documents\4D Labs\Picaso Visi\FANCYBUTTONS.4DViSi

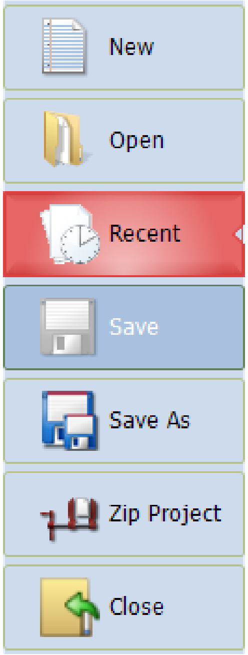
MP3-Player.4DViSi 4/11/2012 1:34 p.m.

…with various buttons relating to the project that is open (or greyed out if no project is open):

- File-related buttons,
- Print-related buttons,
- And miscellaneous buttons, such as Help, Options and Samples.

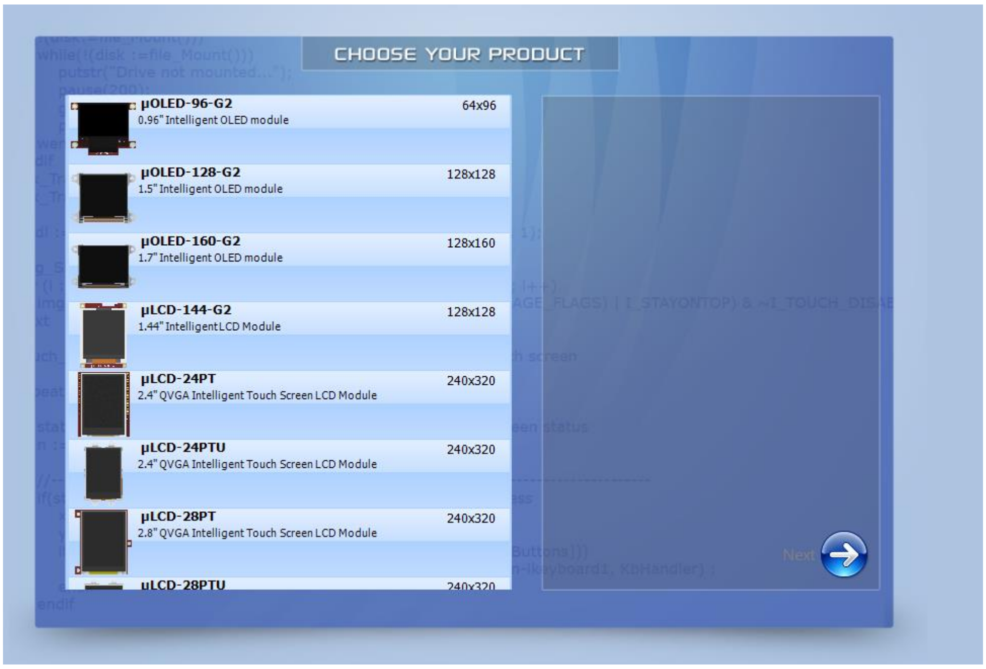
5.1. File-Related Buttons

The buttons include all the actions related to projects: New, Open, Recent, Save, Save As, Zip Project and Close project.



The options include:

- Click **New** to create a new project. A dialogue window asks for the screen and the kind of project.



CHOOSE YOUR PRODUCT

µOLED-96-G2 0.96" Intelligent OLED module	64x96
µOLED-128-G2 1.5" Intelligent OLED module	128x128
µOLED-160-G2 1.7" Intelligent OLED module	128x160
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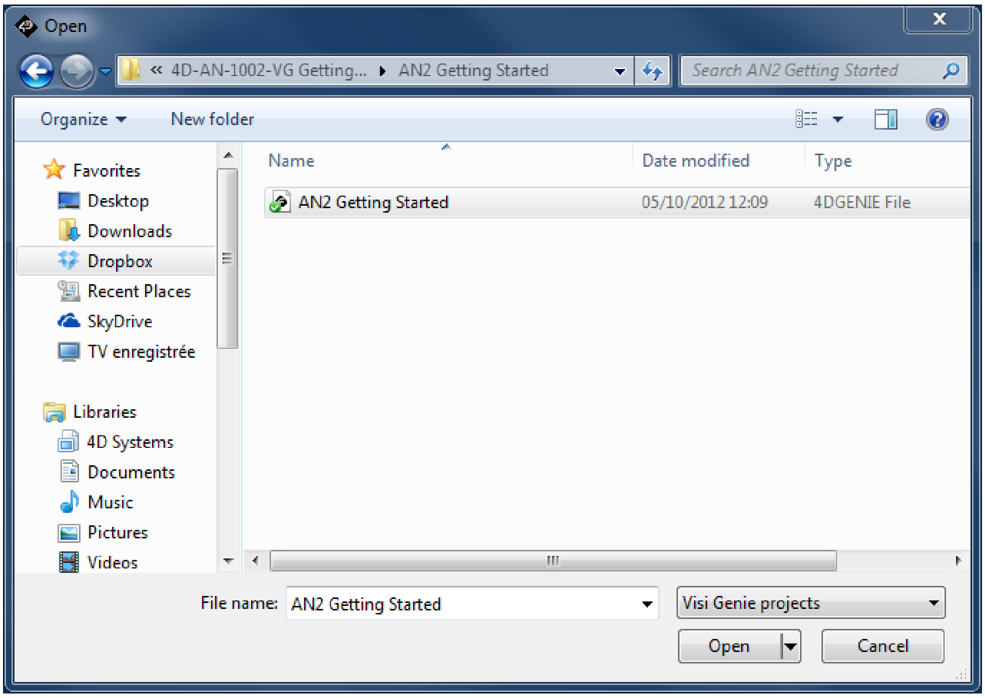
µLCD-24PTU 2.4" QVGA Intelligent Touch Screen LCD Module	240x320
µLCD-28PT 2.8" QVGA Intelligent Touch Screen LCD Module	240x320
µLCD-28PTU	240x320

- Click **Open** to browse and open an existing project. A standard Open window opens.



Open

« 4D-AN-1002-VG Getting... ▸ AN2 Getting Started

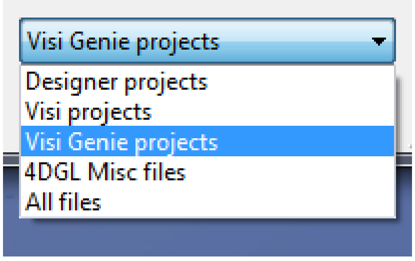
Search AN2 Getting Started

Name	Date modified	Type
AN2 Getting Started	05/10/2012 12:09	4DGENIE File

File name: AN2 Getting Started

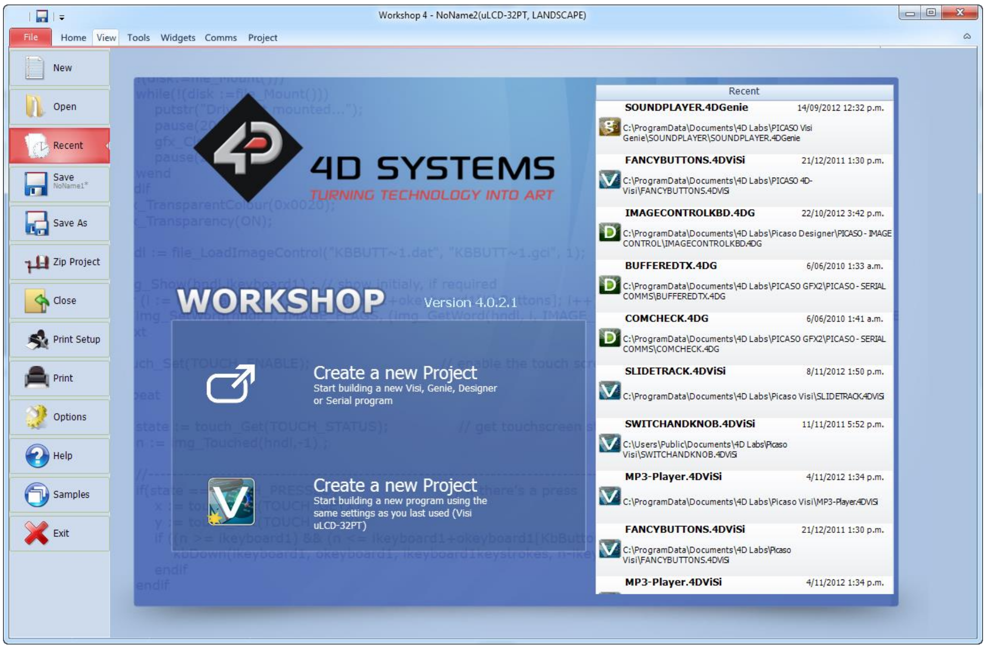
Visi Genie projects

Select **ViSi-Genie projects** among the different kinds listed below to load a ViSi-Genie project:



Visi Genie projects

- Click **Recent** to list the recently accessed files, and click on the project to open it.


Workshop 4 - NoName2(uLCD-32PT, LANDSCAPE)
File
Home
View
Tools
Widgets
Comms
Project
New
Open
Recent
Save
NoName1*
Save As
Zip Project
Close
Print Setup
Print
Options
Help
Samples
Exit
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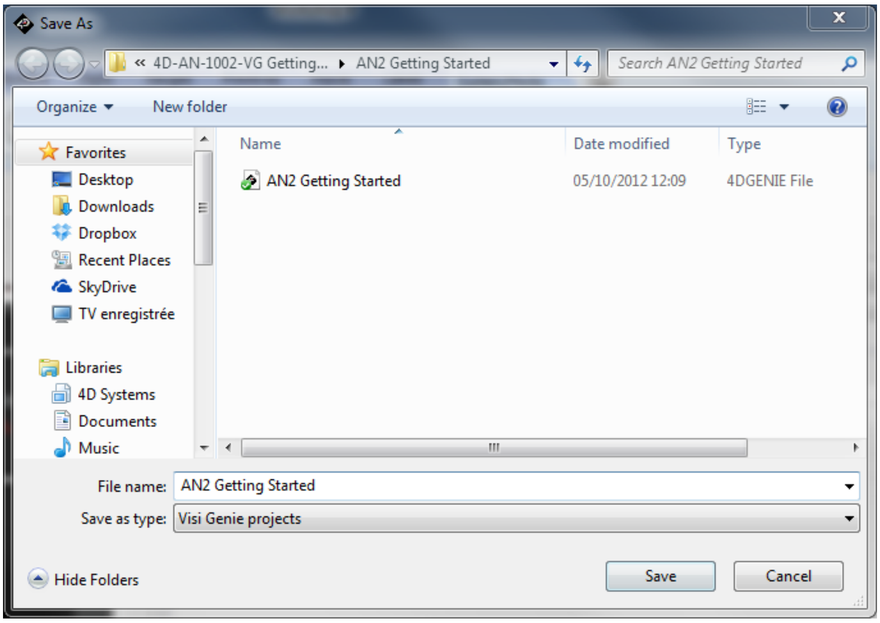
Recent

SOUNDPLAYER.4DGenie C:\ProgramData\Documents\4D Labs\PICASO Visi Genie\SOUNDPLAYER\SOUNDPLAYER.4DGenie	14/09/2012 12:32 p.m.
FANCYBUTTONS.4DViSi C:\ProgramData\Documents\4D Labs\PICASO 4D-Visi\FANCYBUTTONS.4DViSi	21/12/2011 1:30 p.m.
IMAGECONTROLKBD.4DG C:\ProgramData\Documents\4D Labs\Picaso Designer\PICASO - IMAGE CONTROL\IMAGECONTROLKBD.4DG	22/10/2012 3:42 p.m.
BUFFEREDTX.4DG C:\ProgramData\Documents\4D Labs\PICASO GFX2\PICASO - SERIAL COMMS\BUFFEREDTX.4DG	6/06/2010 1:33 a.m.
COMCHECK.4DG C:\ProgramData\Documents\4D Labs\PICASO GFX2\PICASO - SERIAL COMMS\COMCHECK.4DG	6/06/2010 1:41 a.m.
SLIDETRACK.4DViSi C:\ProgramData\Documents\4D Labs\Picaso Visi\SLIDETRACK.4DViSi	8/11/2012 1:50 p.m.
SWITCHANDKNOB.4DViSi C:\Users\Public\Documents\4D Labs\Picaso Visi\SWITCHANDKNOB.4DViSi	11/11/2011 5:52 p.m.
MP3-Player.4DViSi C:\ProgramData\Documents\4D Labs\Picaso Visi\MP3-Player.4DViSi	4/11/2012 1:34 p.m.
FANCYBUTTONS.4DViSi C:\ProgramData\Documents\4D Labs\Picaso Visi\FANCYBUTTONS.4DViSi	21/12/2011 1:30 p.m.
MP3-Player.4DViSi	4/11/2012 1:34 p.m.

- Click **Save** to save the modified projects.
- Click **Save As** to create a copy of already saved project and give it a new name. A standard Save window opens and asks for the location and the name:



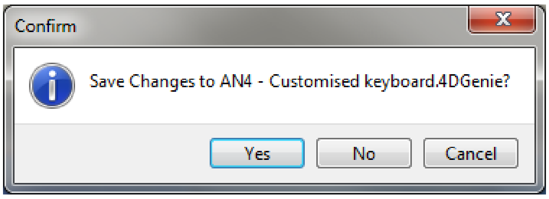
Name	Date modified	Type
AN2 Getting Started	05/10/2012 12:09	4DGENIE File

File name: AN2 Getting Started

Save as type: Visi Genie projects

- Click **Zip Project** to make a compressed file out of the project. This is especially useful when then project is large and contains pictures and videos.

- Click **Close** to close the current project. You will be prompted to save the changes to any modified project.

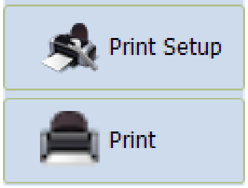


Confirm

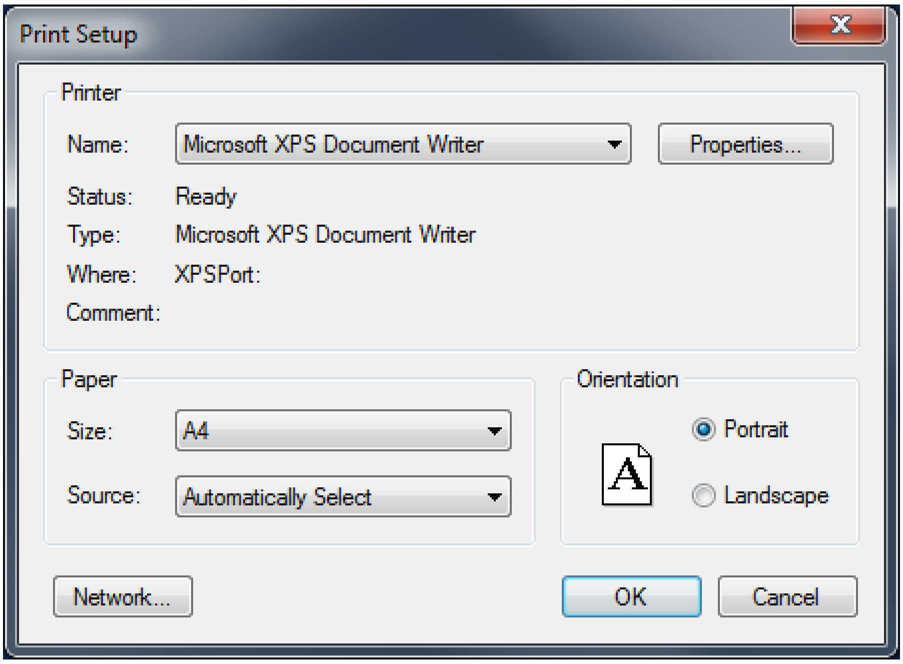
Save Changes to AN4 - Customised keyboard.4DGenie?

5.2. Print-Related Buttons

The buttons include all the actions related to print:



Click **Print Setup** to setup the printer:



Print Setup

Printer

Name: Microsoft XPS Document Writer

Status: Ready

Type: Microsoft XPS Document Writer

Where: XPSPort:

Comment:

Paper

Size: A4

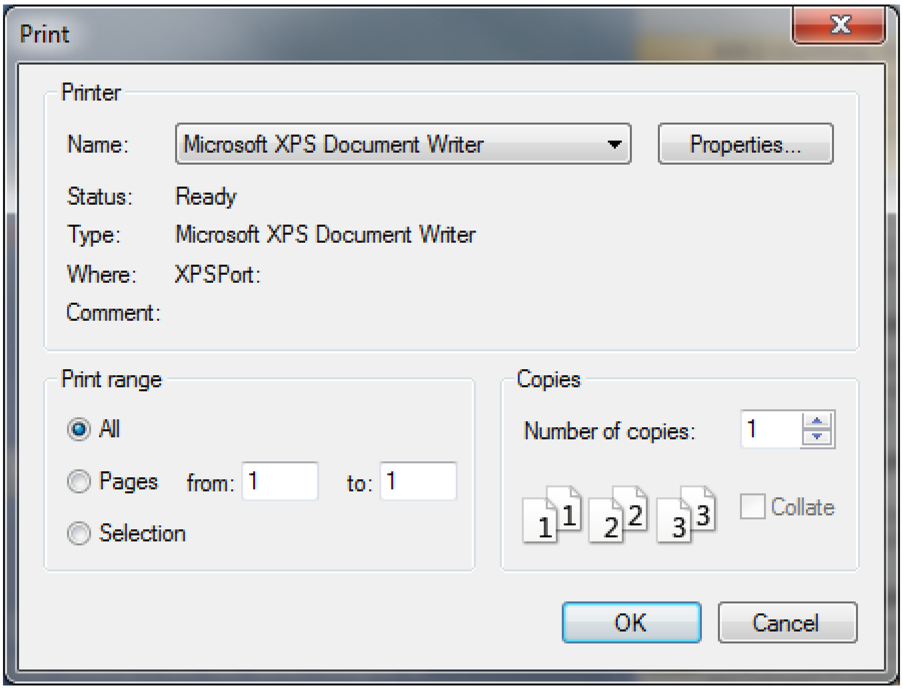
Source: Automatically Select

Orientation

● Portrait

○ Landscape

Click **Print** to print the project:



Print

Printer

Name: Microsoft XPS Document Writer

Status: Ready

Type: Microsoft XPS Document Writer

Where: XPSPort:

Comment:

Print range

● All

○ Pages from: 1 to: 1

○ Selection

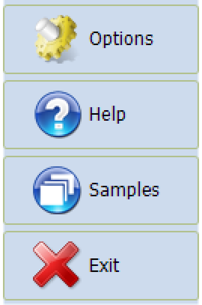
Copies

Number of copies: 1

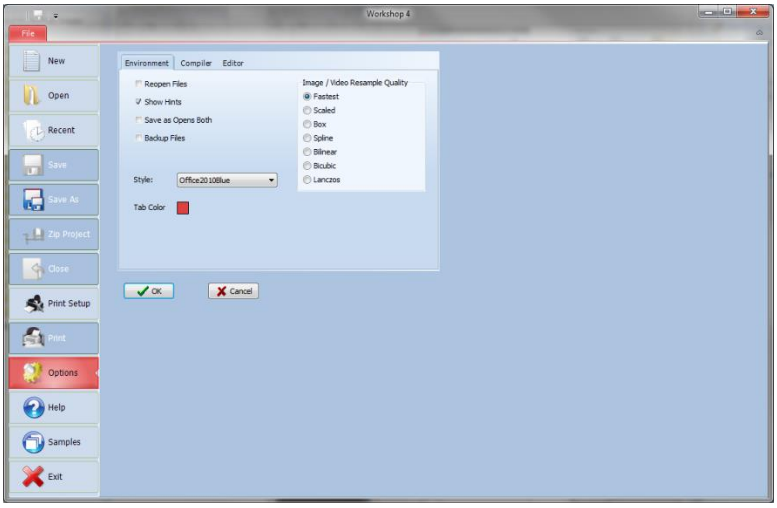
□ Collate

5.3. Miscellaneous Buttons

The Miscellaneous buttons include **Options**, **Help**, **Samples** and **Exit**.



Click **Options** to set the options for the current project:



Workshop 4

Environment | Compiler | Editor

□ Reopen Files

☑ Show Hints

□ Save as Opens Both

□ Backup Files

Style: Office2010Blue

Tab Color 🟥

Image / Video Resample Quality

● Fastest

○ Scaled

○ Box

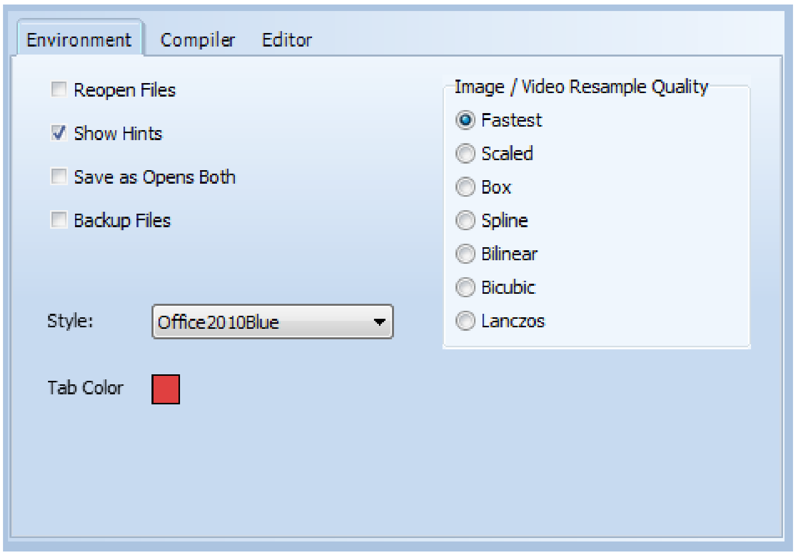
○ Spline

○ Bilinear

○ Bicubic

○ Lanczos

Options include three panes but only **Environment** is relevant with ViSi-Genie, which is code-less. The Compiler and Editor panes deal with code.



□ Reopen Files

☑ Show Hints

□ Save as Opens Both

□ Backup Files

Style: Office2010Blue

Tab Color 🟥

Image / Video Resample Quality

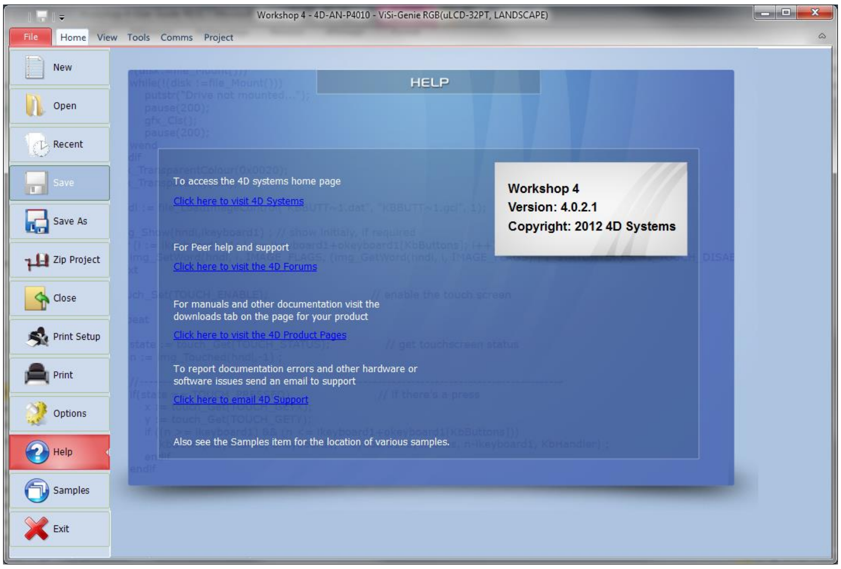
● Fastest
○ Scaled
○ Box
○ Spline
○ Bilinear
○ Bicubic
○ Lanczos

Select the **Style** among different possibilities.

The **Image / Video Resample Quality** selection brings different options:

- Fastest
- Scaled
- Box
- Spline
- Bilinear
- Bicubic
- Lanczos

Click **Help** to access help, with links to the 4D Systems website:



To access the 4D systems home page

Click here to visit 4D Systems

For Peer help and support

Click here to visit the 4D Forums

For manuals and other documentation visit the downloads tab on the page for your product

Click here to visit the 4D Product Pages

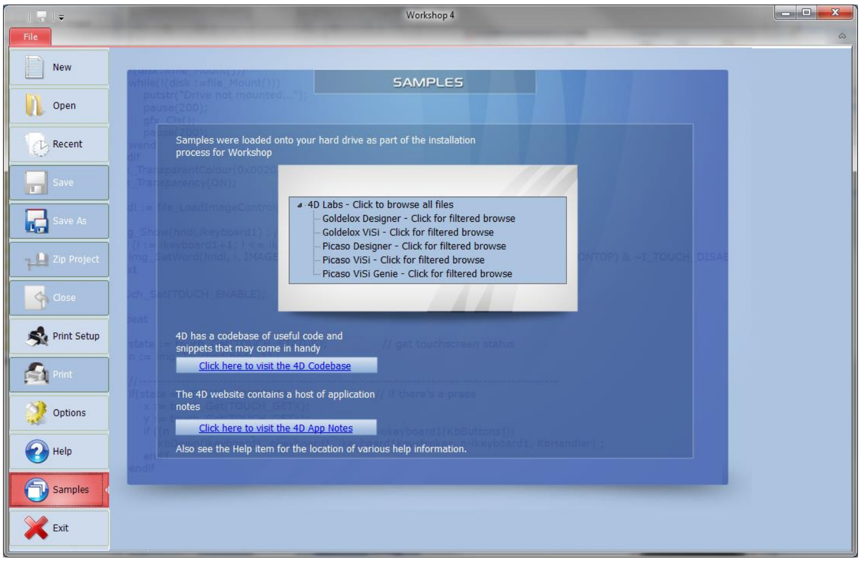
To report documentation errors and other hardware or software issues send an email to support

Click here to email 4D Support

Also see the Samples item for the location of various samples.

Workshop 4
Version: 4.0.2.1
Copyright: 2012 4D Systems

Click **Samples** to access examples from 4D Systems, with pre-defined filters:



Samples were loaded onto your hard drive as part of the installation process for Workshop

- 4D Labs - Click to browse all files
  - Goldelox Designer - Click for filtered browse
  - Goldelox ViSi - Click for filtered browse
  - Picaso Designer - Click for filtered browse
  - Picaso ViSi - Click for filtered browse
  - Picaso ViSi Genie - Click for filtered browse

4D has a codebase of useful code and snippets that may come in handy

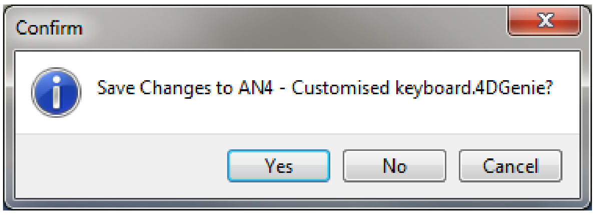
Click here to visit the 4D Codebase

The 4D website contains a host of application notes

Click here to visit the 4D App Notes

Also see the Help item for the location of various help information.

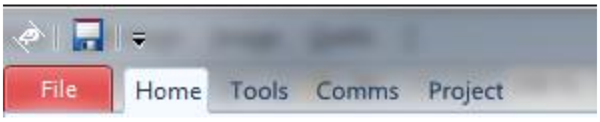
Click **Exit** to close Workshop 4. You will be prompted to save the changes to any modified project.



Save Changes to AN4 - Customised keyboard.4DGenie?

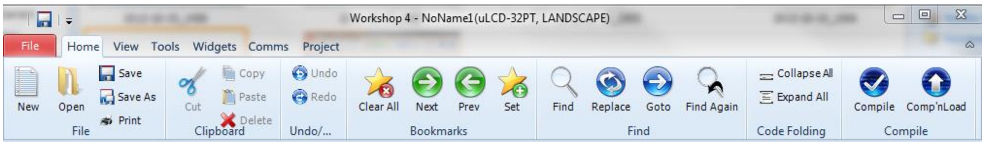
6. Designer Specific Menus

The Designer environment includes five menus:



6.1. Home Menu

The **Home** menu is the main menu…

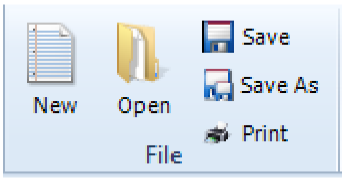


…with three groups of buttons:

- File-related commands,
- Build command,
- And the objects pane.

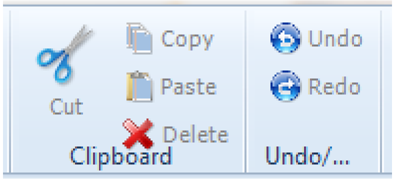
6.1.1. File-Related Buttons

The file-related buttons include the same commands as seen in the File menu: New, Open, Save, Save As and Print.



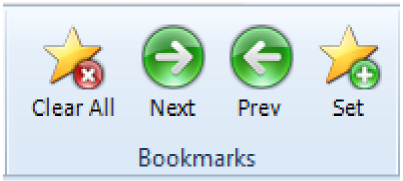
6.1.2. Code Related-Buttons

The code related buttons include the standard Windows commands of Cut, Copy, Paste, Delete, Undo and Redo.

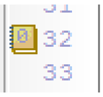


6.1.3. Bookmark Buttons

The bookmark buttons include **Set** a bookmark, go to **Next** or **Previous** bookmark and **Clear All** bookmarks.



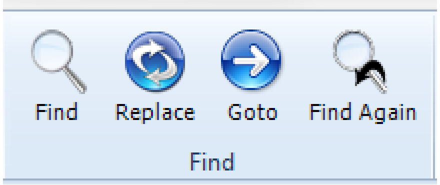
Bookmarks are shown close to the line number:



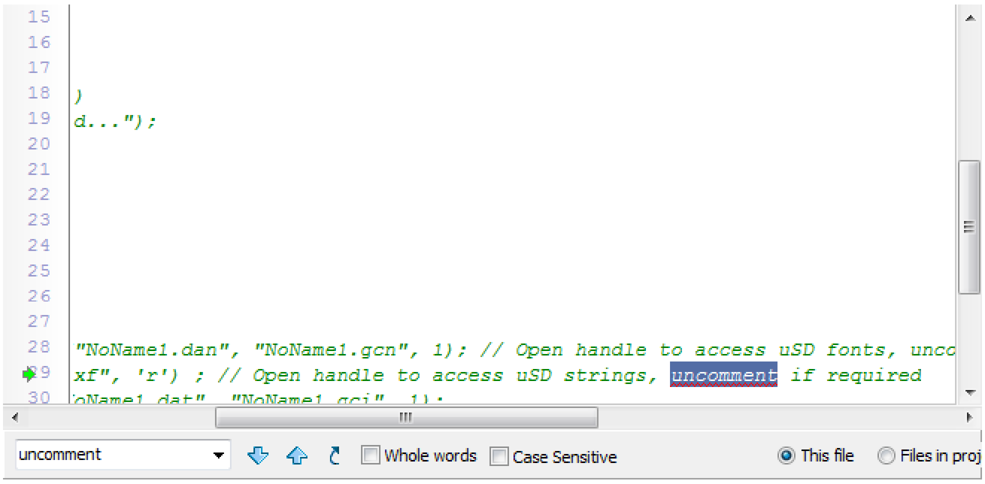
Bookmarks are especially useful for large projects.

6.1.4. Find and Replace Buttons

The find and replace buttons provide the basic features for code.



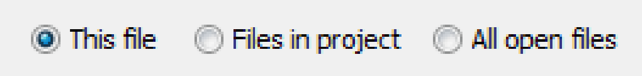
The **Find** button prompts for a string and highly it in the code:



```



)
d...");








"NoName1.dan", "NoName1.gcn", 1); // Open handle to access uSD fonts, unco
xf", 'r') ; // Open handle to access uSD strings, uncomment if required
oName1.dat"  "NoName1.gci"  1);
```

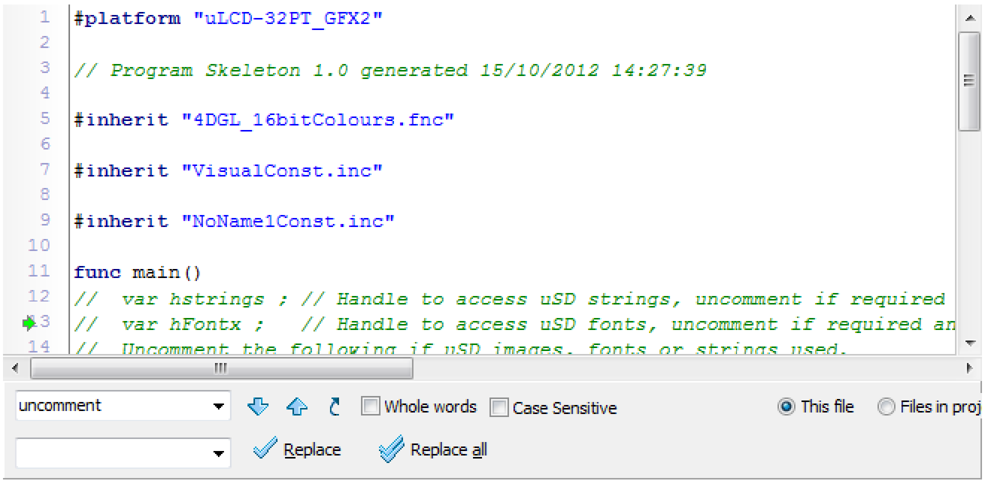
uncomment ▾ □ Whole words □ Case Sensitive ● This file ○ Files in proj

Use the up and down arrows to look for the previous and next occurrence. Check **Whole Words** and **Case Sensitive**. Choose between **This file** and **Files in progress** and **All Open Files**.



● This file ○ Files in project ○ All open files

The **Replace** button searches for a string and exchanges it with another string:



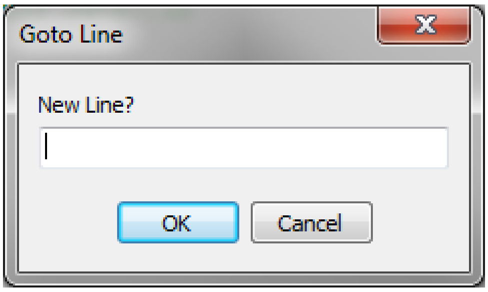
```
#platform "uLCD-32PT_GFX2"

// Program Skeleton 1.0 generated 15/10/2012 14:27:39

#inherit "4DGL_16bitColours.fnc"

#inherit "VisualConst.inc"

#inherit "NoName1Const.inc"

func main()
//  var hstrings ; // Handle to access uSD strings, uncomment if required
//  var hFontx ;   // Handle to access uSD fonts, uncomment if required an
//  Uncomment the following if uSD images, fonts or strings used.
```

uncomment ▾ □ Whole words □ Case Sensitive ● This file ○ Files in proj

▾ Replace Replace all

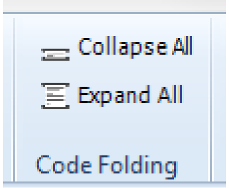
Same options as for Find apply.

The **Goto** button prompts for a line number:



6.1.5. Code Folding Buttons

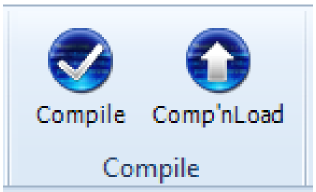
The code folding buttons allow to collapse or expand a function:



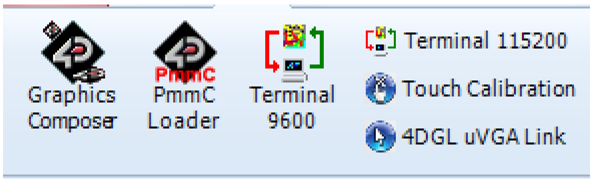
This is especially useful for large projects.

6.1.6. Compile Buttons

The **Compile** button launches the compilation of the project while the **Comp'nLoad** compiles and uploads the project to the screen.



6.2. Menu Tools

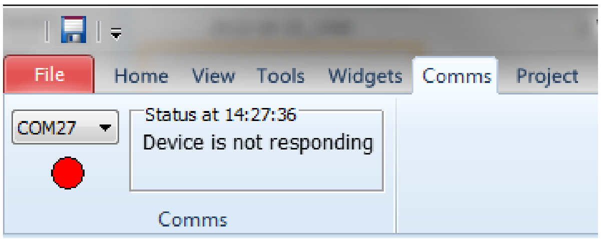


All the tools and utilities are grouped here:

- Click **PmmC Loader** to start the PmmC Loader utility.
- Click '**Terminal connect 9600**' to open the currently selected com port at 9600 baud in the Terminal program.
- Click '**Terminal connect 115200**' to open the currently selected com port at 115200 baud in the Terminal program.
- Click **Touch Calibration** to calibrate the touch on the display.
- Click **4DGL uVGA Link** to open a window which can interact with the uVGA, enabling a mouse and keyboard to be used with the uVGA(GFX) module. Demo code is available from Workshop 4.

6.3. Comms Menu

This menu is in charge of the communication port:

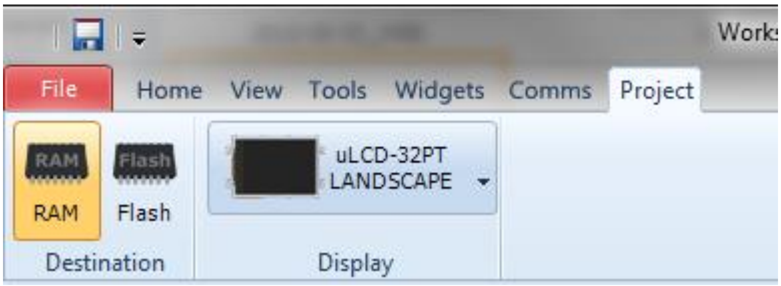


Status at 14:27:36
Device is not responding

The use of this menu is described at the section Connect the Module.

6.4. Project Menu

The **Project** menu includes different parameters and options…

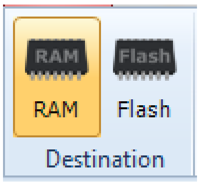


…with two groups of buttons:

- Destination,
- And display selection.

6.4.1. Destination

The first group includes the options for the destination:

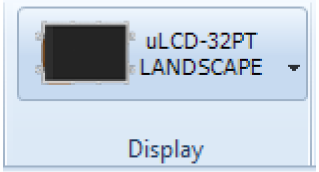


Select the **Destination** among two possibilities:

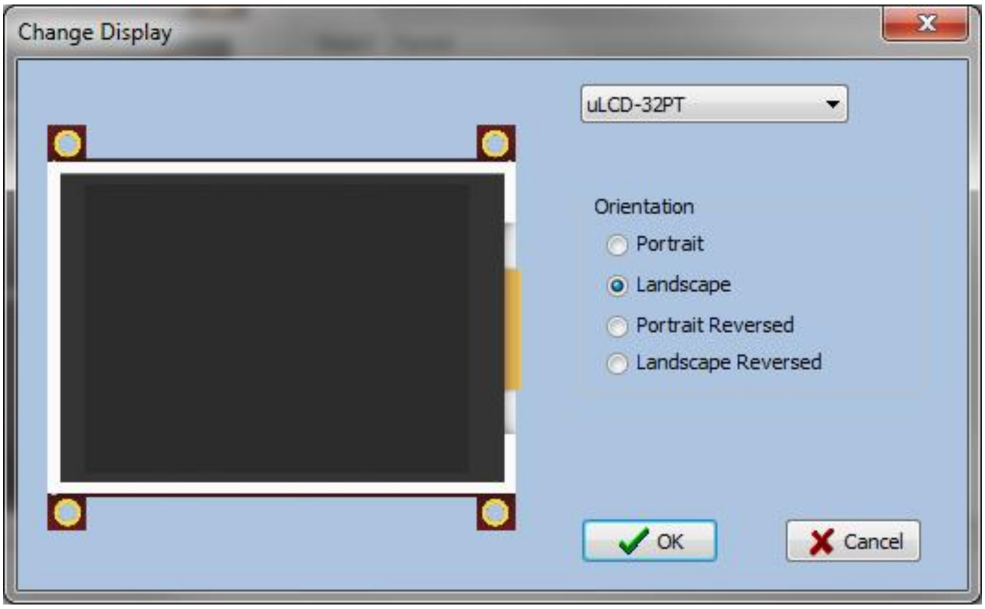
- **RAM** means the display must be connected during build and that the program will be downloaded to the display's RAM memory once compiled. If **RAM** is chosen as the destination, the program is lost when the display is turned off.
- **Flash** means the display must be connected during build and that the program will be downloaded to the display's flash memory once compiled. If **flash** is chosen as the destination, the program is retained and will be available after power cycling.

6.4.2. Display Selection

The second section allows to select the screen. Clicking on the button…



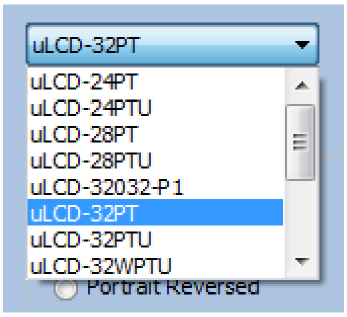
…opens a new window to select the screen:



uLCD-32PT

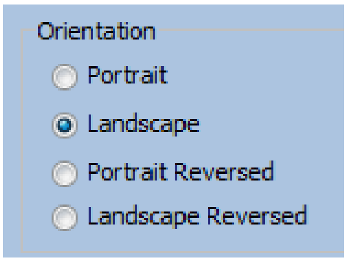
Orientation
- ○ Portrait
- ● Landscape
- ○ Portrait Reversed
- ○ Landscape Reversed

Select the screen from the drop-down list:



uLCD-32PT
- uLCD-24PT
- uLCD-24PTU
- uLCD-28PT
- uLCD-28PTU
- uLCD-32032-P1
- uLCD-32PT
- uLCD-32PTU
- uLCD-32WPTU

Define the orientation among the four options:

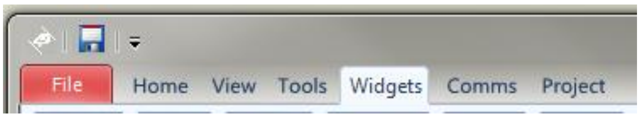


Orientation
- ○ Portrait
- ● Landscape
- ○ Portrait Reversed
- ○ Landscape Reversed

Confirm by clicking on ✓ OK or deny by clicking on ✗ Cancel.

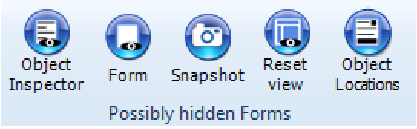
7. ViSi Specific Menus

The ViSi environment includes all the menus available with the Designer environment plus two additional menus: **View** and **Widgets**.

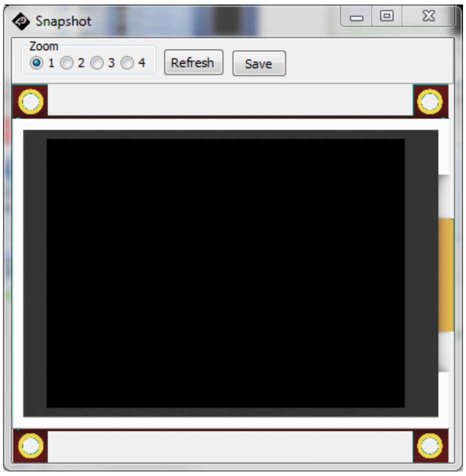


7.1. View Menu

The **View** menu includes one important tool for visualising the form:



Click on **Snapshot** to open a specific window of the form to enable a 1:1 screenshot of the display to me made.



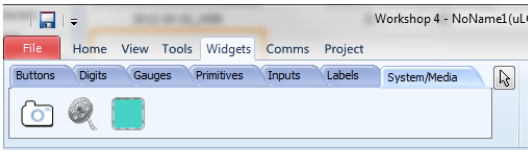
This window provides a zoom up to 4 times. The **Save** button allows to save the screen as an image.

Object Inspector, Form, and Reset View, all relate to the menus and tool bars used in Workshop 4. These toolbars and menus can be moved and detached from the side of Workshop 4. Object Inspector and Form will bring to front the relevant toolbar when clicked. If required, the toolbars can be reset back to their default location by clicking the Reset View button.

Object Locations enables the user to copy the locations/coordinates of objects on the display, to the clipboard.

7.2. Widgets Menu

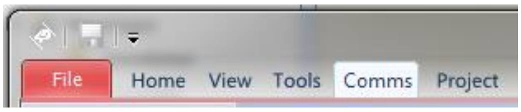
The **Widgets** menu includes the objects pane with all the objects available to build the interface:



The objects –also called widgets–are detailed in the ***ViSi User Guide***.

8. ViSi-Genie Specific Menus

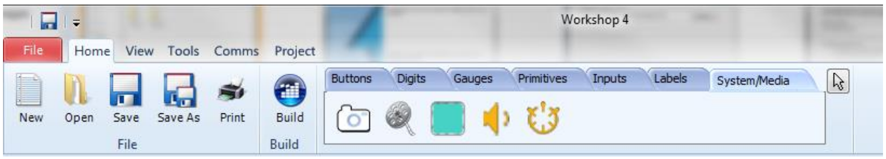
ViSi-Genie includes five menus with specific ribbons and options.



ViSi-Genie is codeless and thus completely different from the previous code-based environments, all the menus relating to ViSi-Genie are detailed.

8.1. Home Menu

The **Home** menu is the main menu…

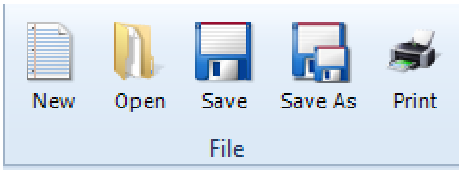


…with three groups of buttons:

- File-related commands,
- Build command,
- And the objects pane.

8.1.1. File-Related Buttons

The file-related buttons include the same commands as seen in the File menu: New, Open, Save, Save As and Print.

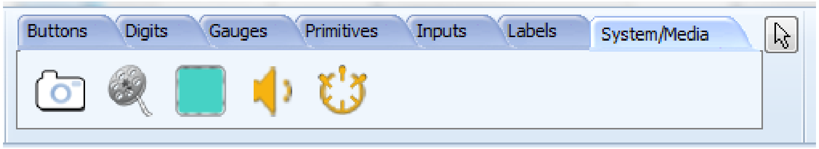


8.1.2. Build Button

The **Build** button launches the compilation and the upload of the project to the screen.

8.1.3. Objects Pane

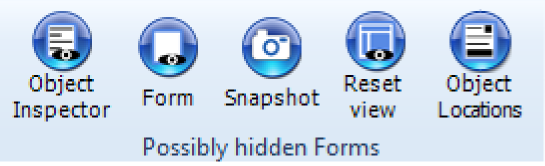
The objects pane includes all the objects available to build the interface:



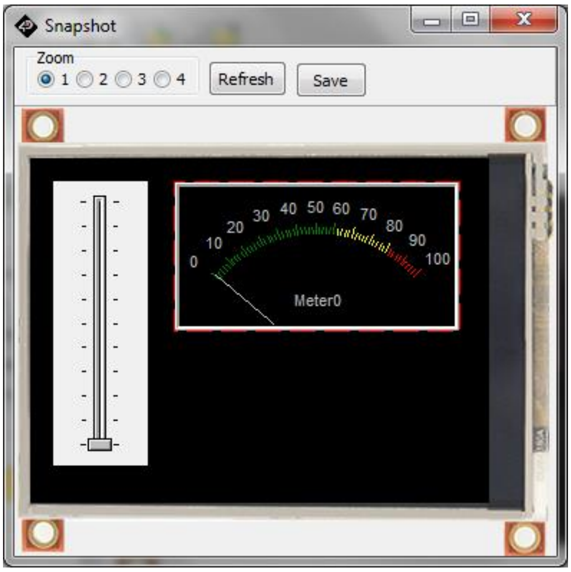
The objects are detailed on the ViSi-Genie User Guide.

8.2. View Menu

The **View** menu includes one important tool for visualising the form:

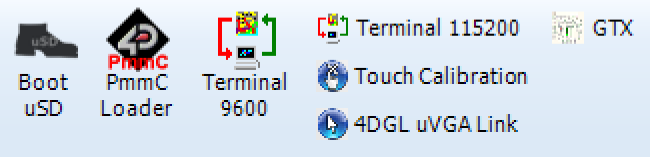


Click on **Snapshot** to open a specific window of the form.



This window provides a zoom up to 4 times. The **Save** button allows to save the screen as an image.

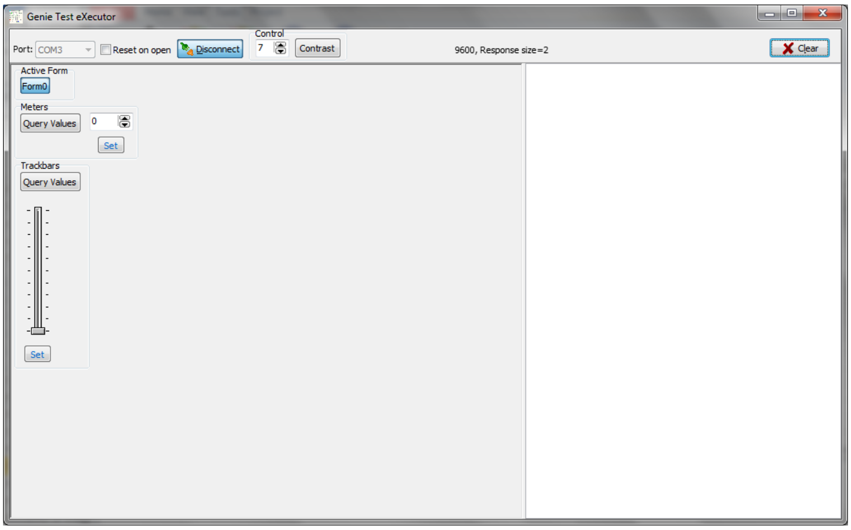
8.3. Menu Tools



All the tools and utilities are grouped here:

- Click **Boot uSD** to upload the boot-loader to the screen.
- Click **PmmC Loader** to start the PmmC Loader utility.
- Click '**Terminal connect 9600**' to open the currently selected com port at 9600 baud in the Terminal program.
- Click '**Terminal connect 115200**' to open the currently selected com port at 115200 baud in the Terminal program.
- Click **Touch Calibration** to calibrate the touch on the screen.
- Click **4DGL uVGA Link** to open an interactive window to use mouse/keyboard with the uVGA(GFX) module.
- Click **GTX** to launch the Genie Test Executor debugger.

Clicking the GTX button, a new screen will appear with the form and objects defined in the project:



Port: COM3

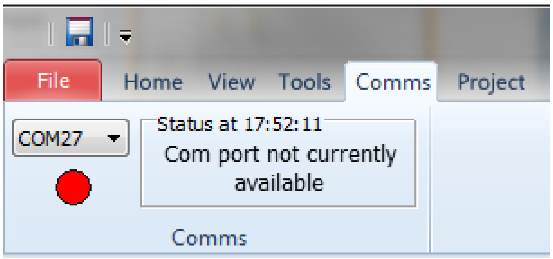
Control: 7

9600, Response size=2

Meters: 0

8.4. Comms Menu

This menu is in charge of the communication port:



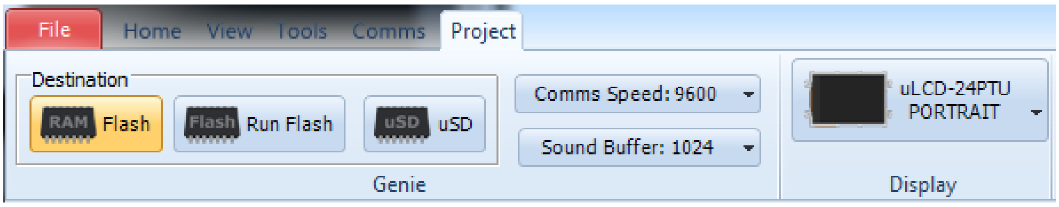
COM27

Status at 17:52:11
Com port not currently available

The use of this menu is described in section 9 “Connect the Module”

8.5. Project Menu

The **Project** menu includes different parameters and options…



Comms Speed: 9600

Sound Buffer: 1024

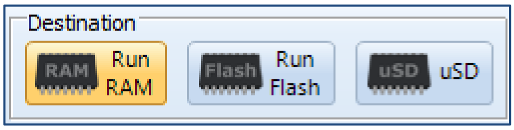
uLCD-24PTU PORTRAIT

…with three groups of buttons:

- Options for Genie,
- Parameters,
- And display selection.

8.5.1. Genie Options

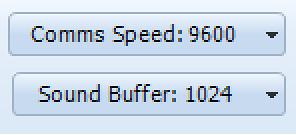
The first group includes the options for Genie:



- Select the **Destination** among three possibilities:
  - ○ **Run RAM** - The display must be connected during Build and the program will be downloaded to the display's flash memory once compiled. The user's application will be stored in Flash, but will be run from RAM.
  - ○ **Run Flash** - The display must be connected during Build and the program will be downloaded to the display's flash memory once compiled. The user's application will be stored and run from flash, this uses less memory on the display, but makes programs run slightly slower.
  - ○ **uSD** - The user's application will be built and copied to the uSD card. From the uSD card the application is loaded into RAM and run from there. This option requires the Boot uSD program to be uploaded to the display's flash, as seen in the menu **Tools**. This Boot uSD program loads the user's application from the uSD card at startup, and executes it.

8.5.2. Parameters

The second group include advanced parameters:



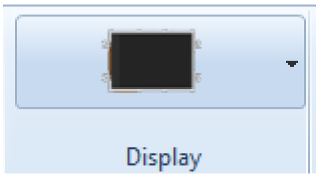
Comms Speed: 9600

Sound Buffer: 1024

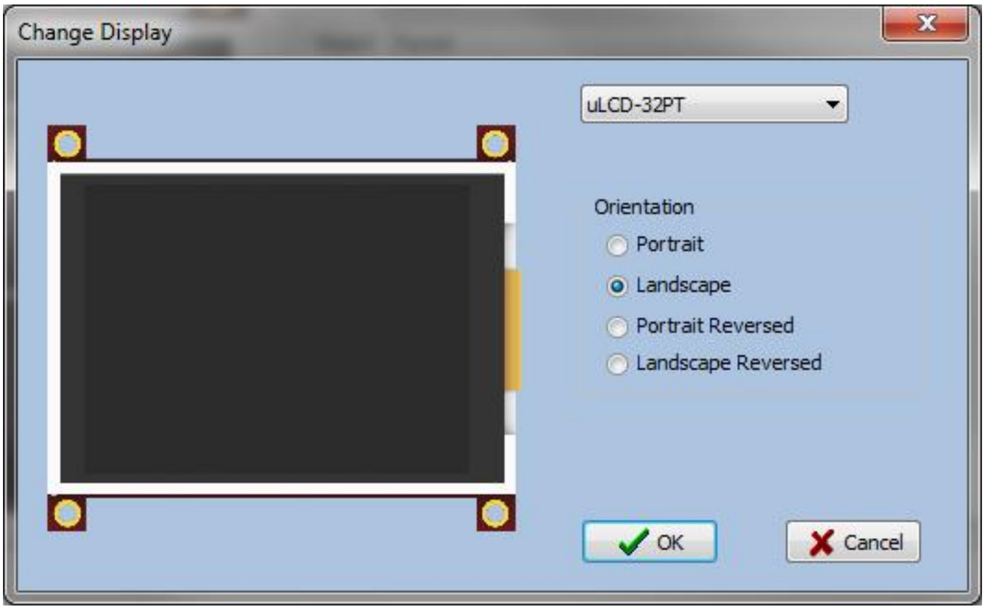
- **Comms speed** Is the baud rate at which the serial command interface operates
- Define **Sound buffer size** for the amount of memory set aside for buffering wav (sound) files. For simple sound files 1024 bytes should be enough. For complicate sound files to be played whilst video is displaying may need as much as 4096 bytes.

8.5.3. Display Selection

The last section allows selecting the screen, useful for converting a program from one display module to another. Clicking on the button…



…opens a new window to select the screen:

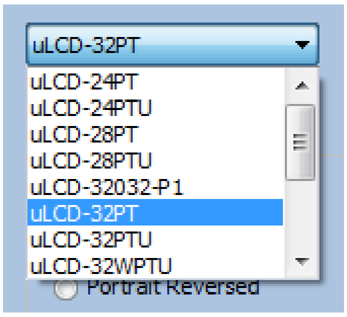


Change Display

uLCD-32PT

Orientation
- ○ Portrait
- ● Landscape
- ○ Portrait Reversed
- ○ Landscape Reversed

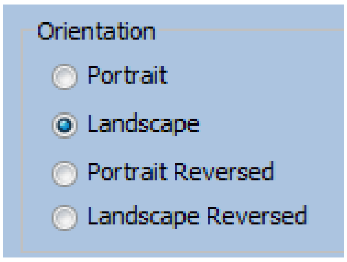
Select the screen from the drop-down list:



uLCD-32PT

- uLCD-24PT
- uLCD-24PTU
- uLCD-28PT
- uLCD-28PTU
- uLCD-32032-P1
- uLCD-32PT
- uLCD-32PTU
- uLCD-32WPTU

Define the orientation among the four options:

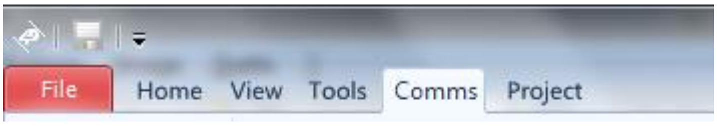


Orientation
- ○ Portrait
- ● Landscape
- ○ Portrait Reversed
- ○ Landscape Reversed

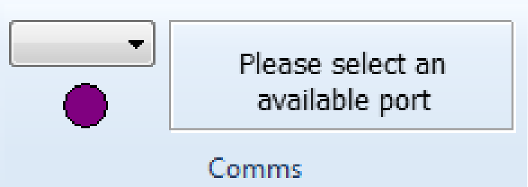
Confirm by clicking on ✓ OK or deny by clicking on ✗ Cancel.

9. Connect the Module

Connect the module to a USB port with the 4D Systems programming cable and select the **Comms** menu:

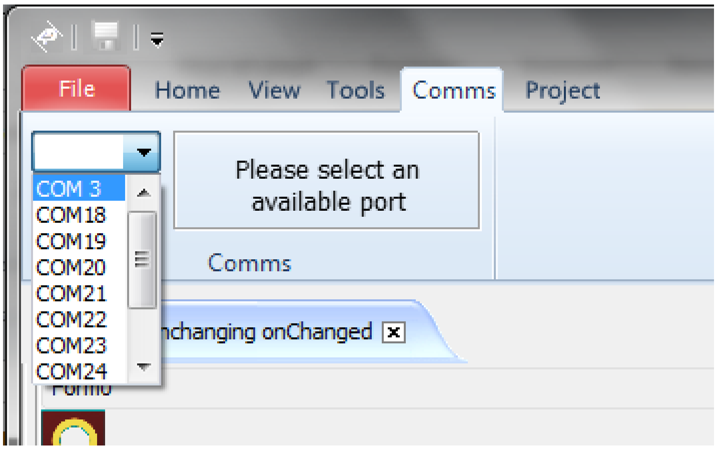


Above the **Comms** section, the **violet** light mentions no module is currently connected.

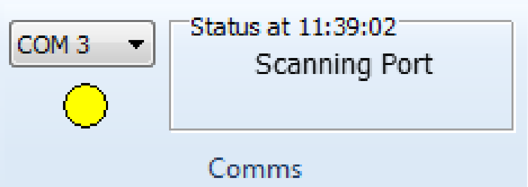

Please select an available port

Connect the 4D Systems programming cable/adaptor to the module and plug the cable into the USB port.

Click on the drop-down list and select the COM port relating to the 4D Programming cable/adaptor.


Please select an available port

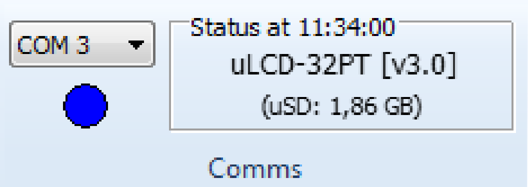
The light turns yellow while the connection is being established:


COM 3

Status at 11:39:02

Scanning Port

Finally, the light goes **blue** when the connection is established.

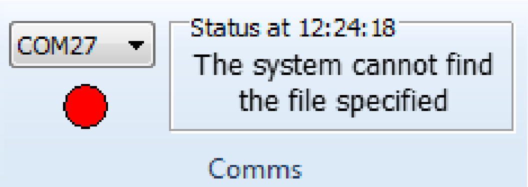

COM 3

Status at 11:34:00

uLCD-32PT [v3.0]

(uSD: 1,86 GB)

The light turns **red** when no module is attached to the selected port:


COM27

Status at 12:24:18

The system cannot find the file specified

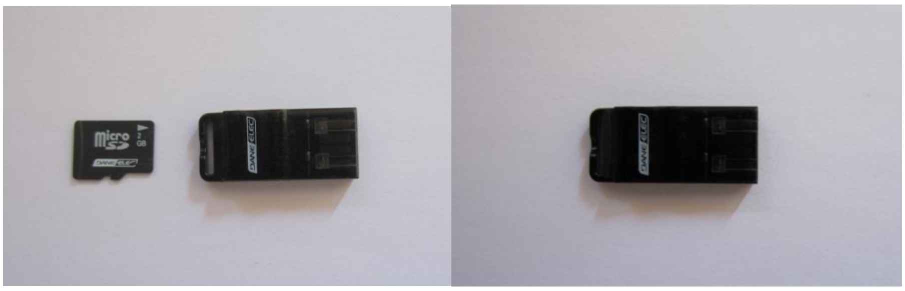
10. Insert the Micro-SD Card

The Picaso modules, micro-SD card shall be FAT16-formatted. Partition can't exceed 4 GB.

For Goldelox modules, the micro-SD card shall not be formatted at all, it requires the SD card to be RAW.

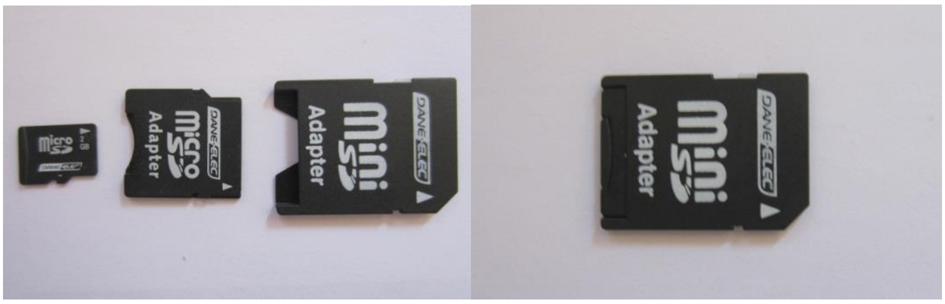
To connect the micro-SD card, either

- Insert the micro-SD card into the USB adaptor and plug the USB adaptor into an USB port of the PC.

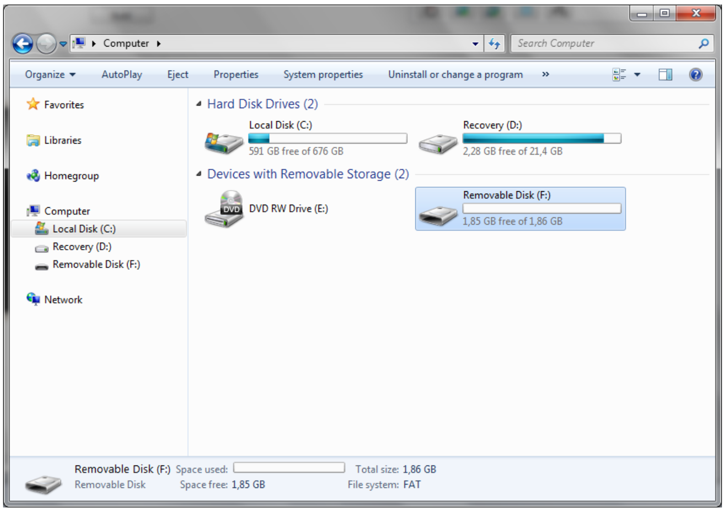


Or

- Insert the micro-SD card into a micro-SD to SD card converter and plug the SD card converter into the SD card slot of the PC.



Check the micro-SD card is mounted, here as drive E:.



For Goldelox, if prompted to format the SD card, click no/cancel. Leave the card unformatted and Workshop4 will handle the rest.

11. Revision History

Revision	Revision Content	Revision Date
1.0	First Release	Nov 19, 2012
1.1	Typos on Page 4 fixed	Dec 17, 2012
1.2	Added new content for Serial and fixed incorrect document references	Feb 4, 2013
1.3	Amended details about Micro-SD card	July 5, 2013
1.4	Amended details about Program Destination	Mar 11, 2014

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