reference guide

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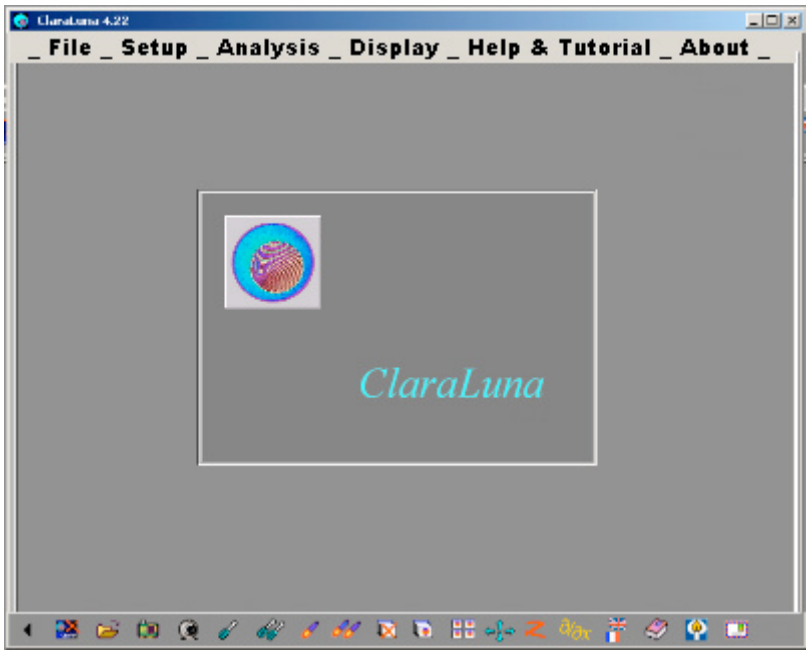
Second section : Advanced documentation

Some features are available only in the "Enhanced version"

of ClaraLuna and denoted by an green-circled index: **1**

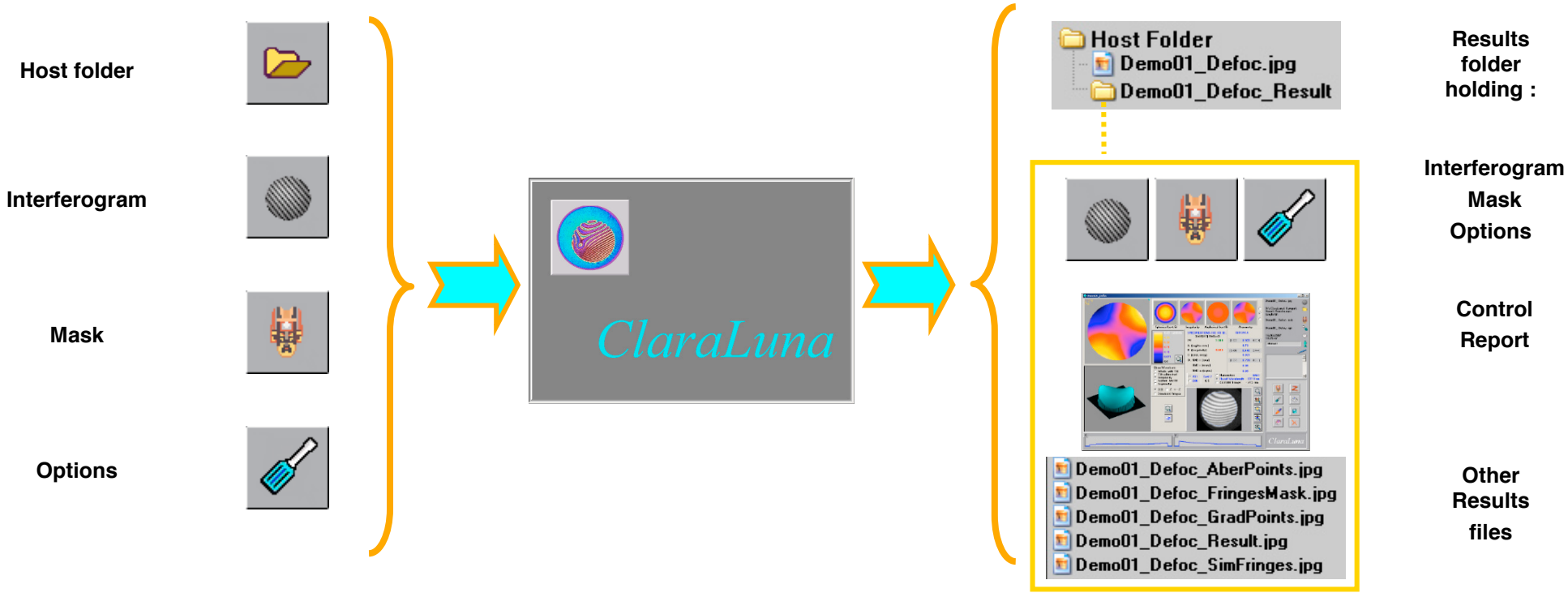
1 GETTING STARTED WITH AN EXISTING FRINGE IMAGE



This chapter gets you started in 15 minutes :

- **Open an interferogram from a disk**
- **Define a Mask and Options**
- **Compute and read results**

1.1 Getting started – Overview : ClaraLuna inputs and outputs



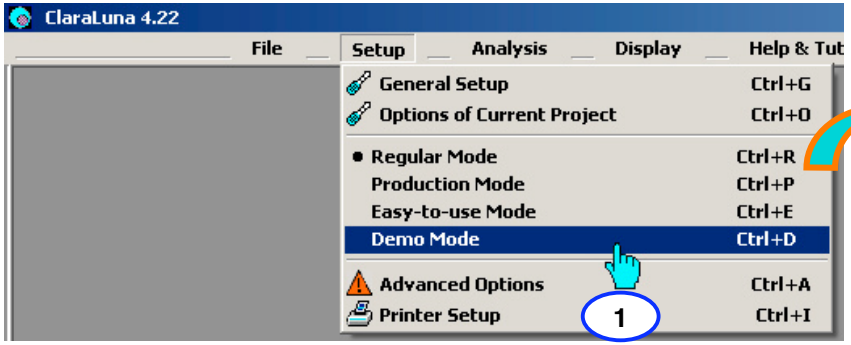
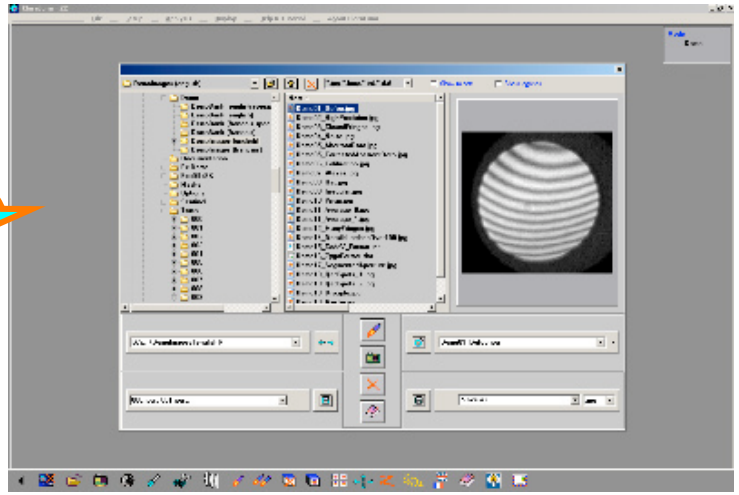
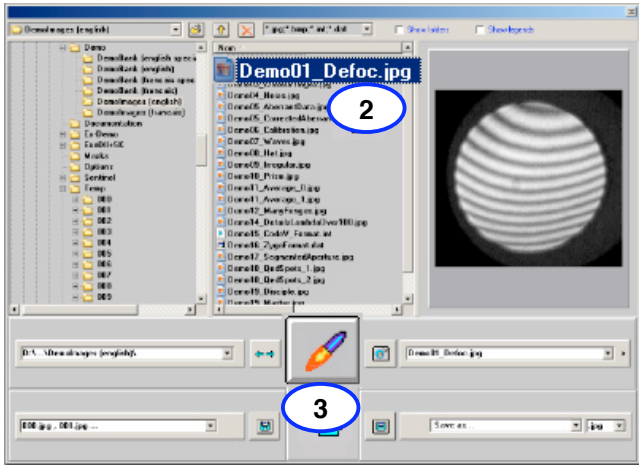
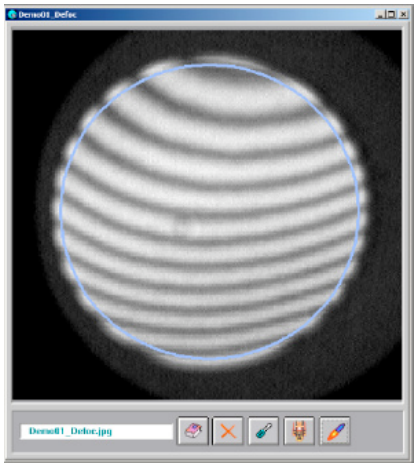
ClaraLuna treats static fringes.

It is a fair alternative to phase shifting devices, when this technique is not relevant for technical or economical reasons.

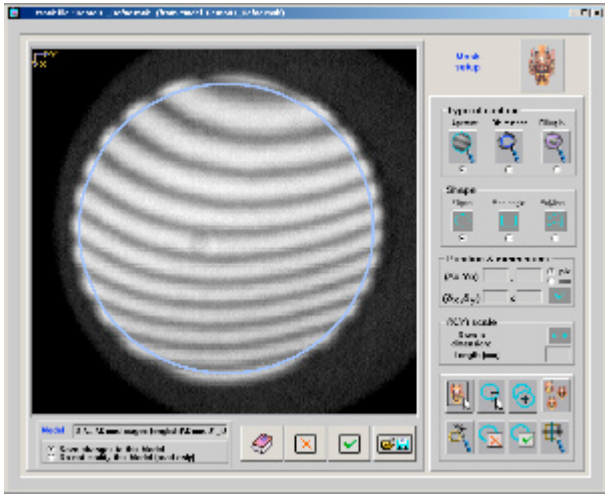
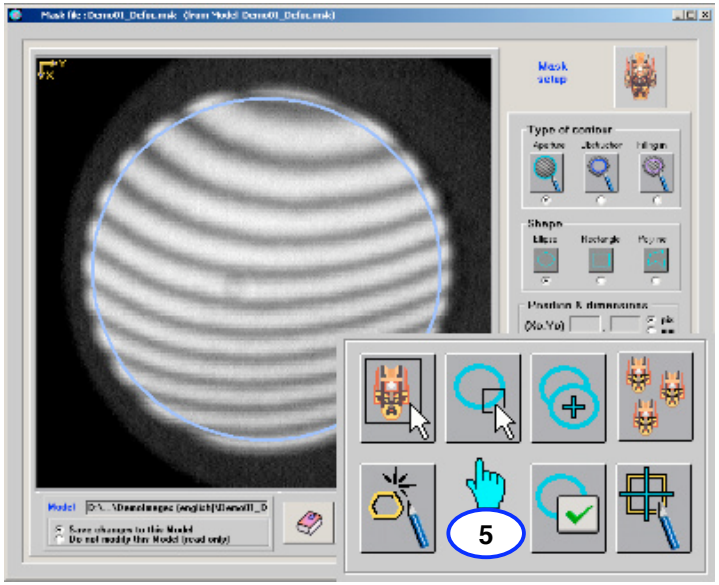
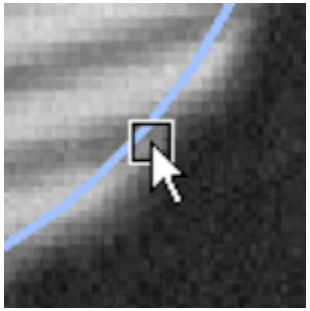
Advanced Image and Signal Processing provide exceptional performances :

- **If the measurement condtions are difficult, ClaraLuna is highly robust to noise.**
- **If the conditions are good, ClaraLuna can provide Z resolution and precision better than $\lambda/100$, due to linear prediction algorithms : the wavefront reconstruction yields the mathematical expectation, i.e. the most probable shape of the wavefront with respect to the fringe data.**

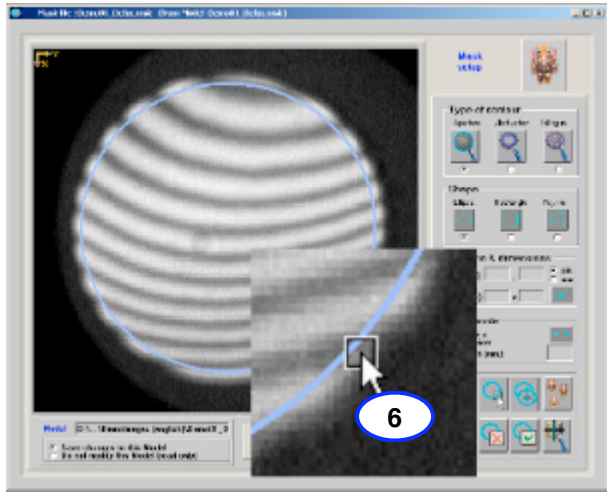
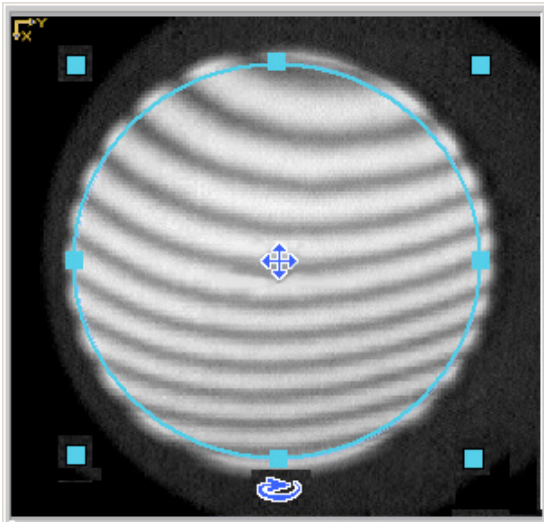
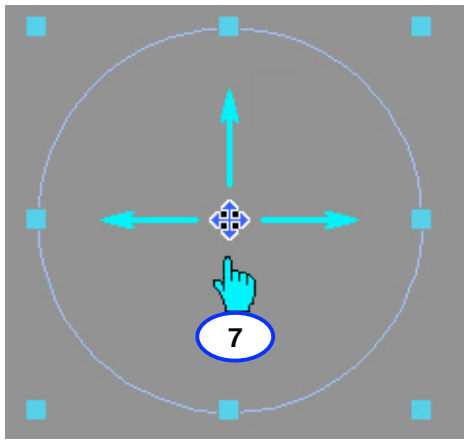
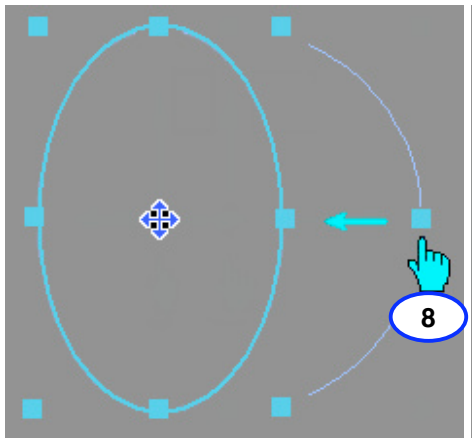
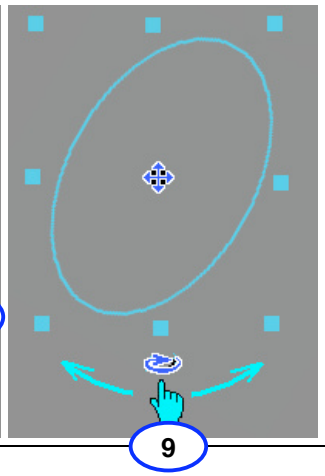
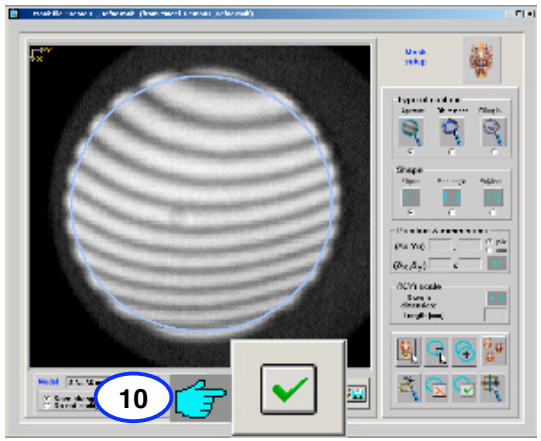
1.2 Getting started – Step 1 : open an image from the disk

Action	Result
(1) **In Main Menu Setup, click Demo Mode** 	**ClaraLuna File Explorer shows up** 
(2-3) **Click Demo01_Defoc.jpg (2) then "Launch" button (3)** 	**Demo01_Defoc is loaded on launching pad** 

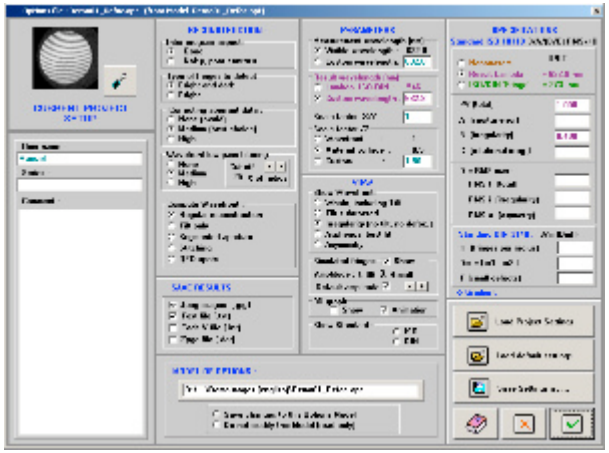
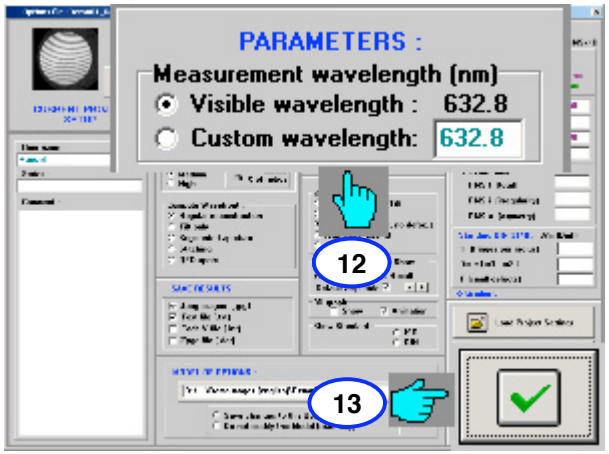
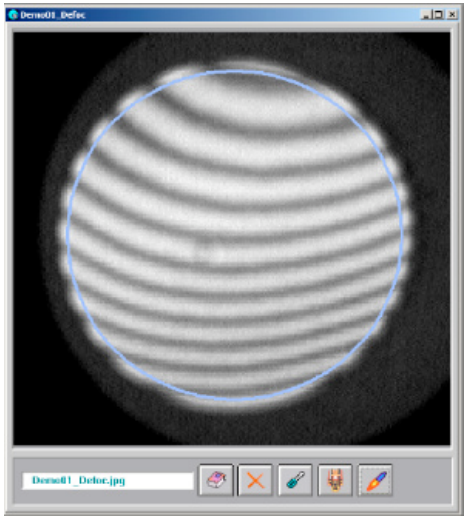
1.3 Getting started – Step 2 : Edit the Mask

Action	Result
4 **To edit the Mask, click button (4)** 	**The Mask editor shows up.** 
5 **Click "Select" tool (5)** 	**The cursor turns to a square** 

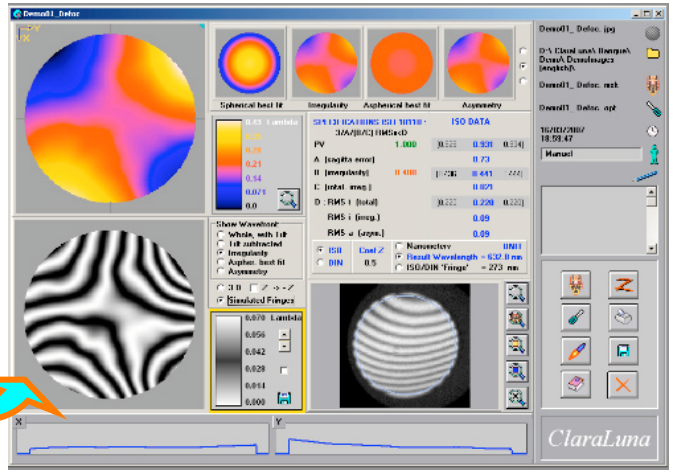
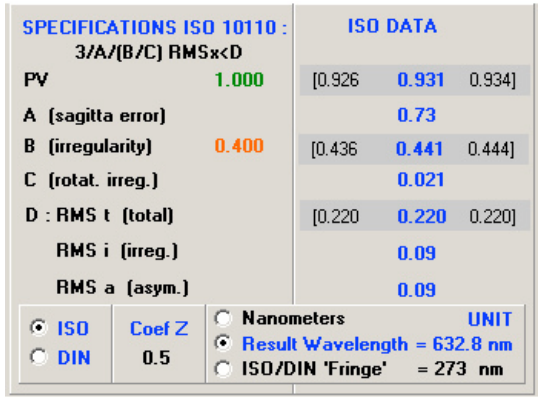
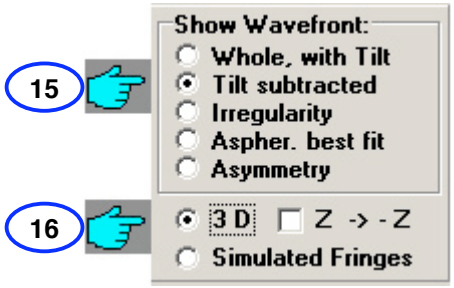
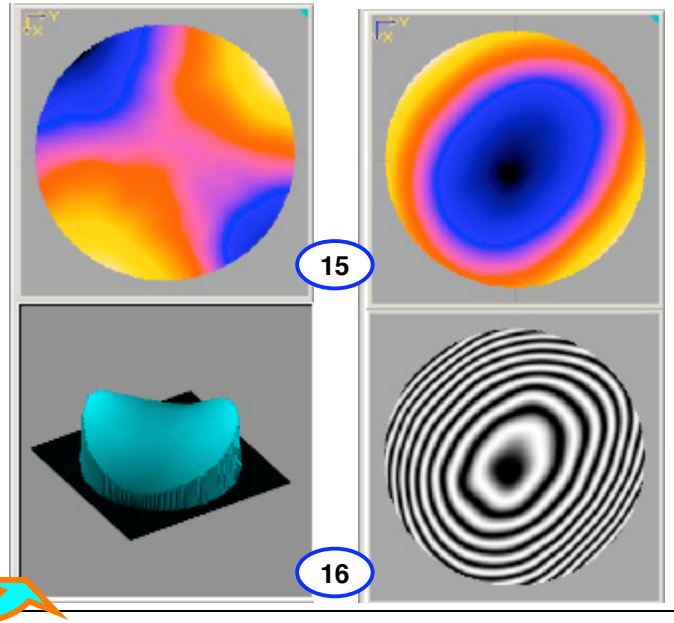
1.4 Getting started – Step 2 : Edit the Mask

Action	Result
6 **Select contour by clicking it (6)** 	**The selected contour is shown in finer line with handles** 
7 **Click and move handles to translate (7), resize (8), rotate (9)**    ... 10 **Accept modifications by button (10) and return to Launching pad** 	

1.5 Getting started – Step 3 : Edit the Options

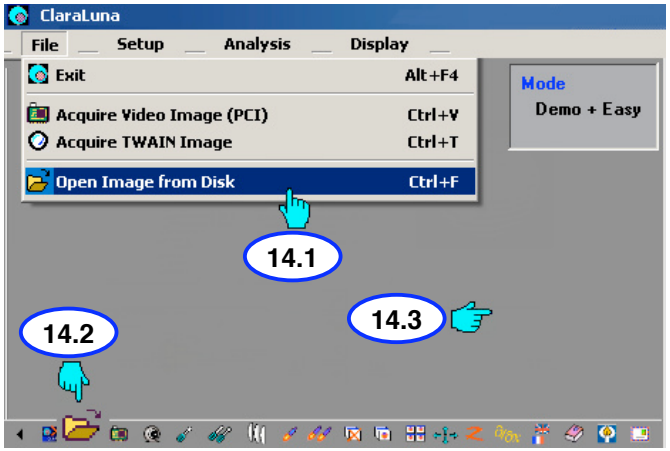
Action	Result
11 **Now enter the Options window** 	**The Options window shows up with default parameters** 
12 13 **Adjust a parameter, for instance the measurement wavelength (12) then validate (13)** 	**Now you're back, ready for launching** 

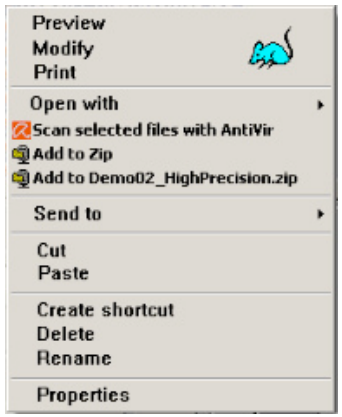
1.6 Getting started – Step 4 : Compute - Analyse results

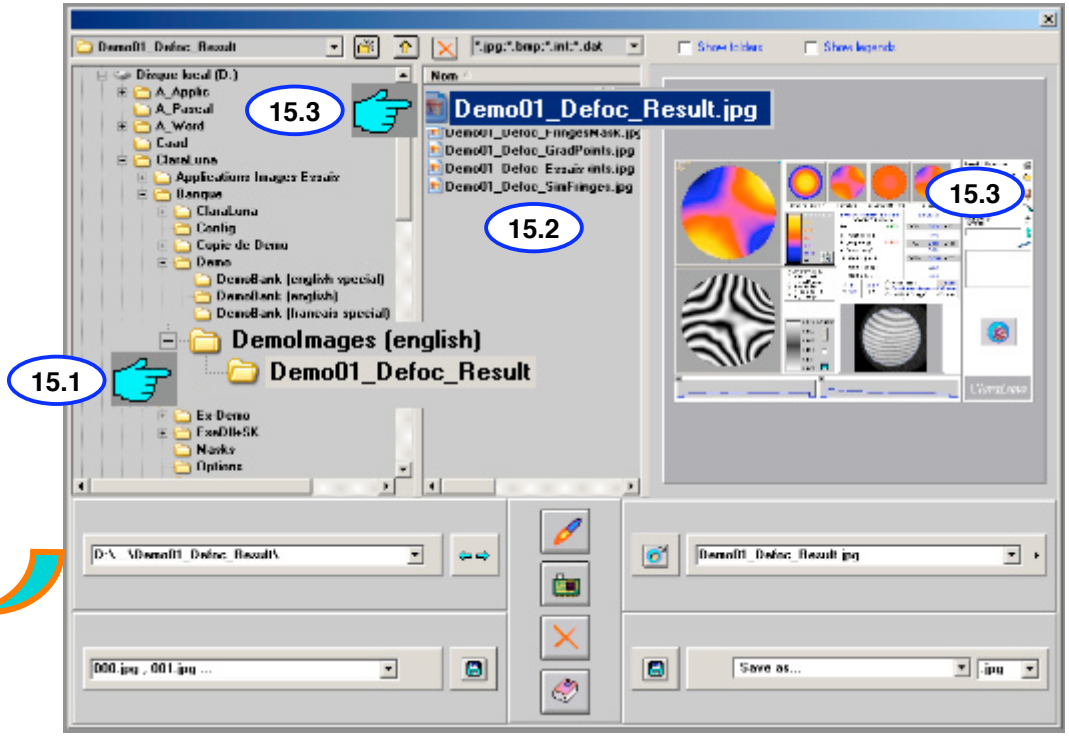
Action	Result
(14) **Click button "Launch"** 	**Computation begins : after a few seconds, you get the ISO/DIN Control Report**  
Click "Tilt subtracted" or "Whole with tilt" or "Irregularity" to view different ISO components of the wavefront (15).  **Click "3D" or "Simulated fringes" for different graphs (16).**		**Finally, close window (17).** 

1.7 Getting started – Step 5 : Consider Results files

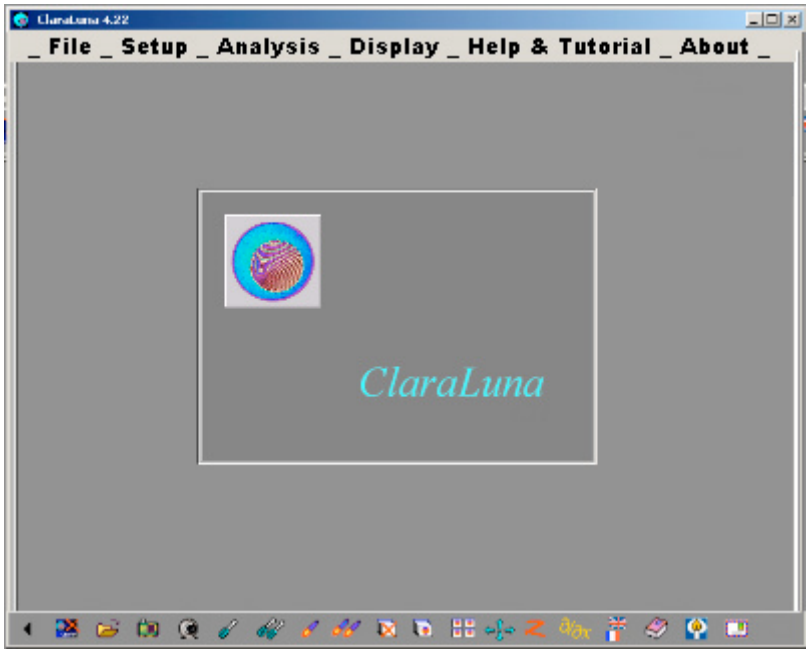
Action	Result
14 **Reopen the File Explorer** • either by menu File/Open image from Disk (14.1) • or by Tool bar icon "Open folder" (14.2) • or by clicking anywhere on Main window (14.3)	**15** **Notice that the Results subfolder has been created in the same Host folder than the inteferogram Demo01_Defoc.jpg.** **This subfolder has the same name, plus "_Result" :** **In the File Explorer, open subfolder Demo01-Defoc_Result (15.1)** **See the Result files generated by the previous computation (15.2)** **Among others, the Control Report is ready for reading and printing (15.3).**
16 **Do a mouse right-click on file name for a full screen preview, printing to paper or pdf, sending by e-mail etc...**	







2 GETTING STARTED WITH VIDEO IN EASY-TO- USE MODE

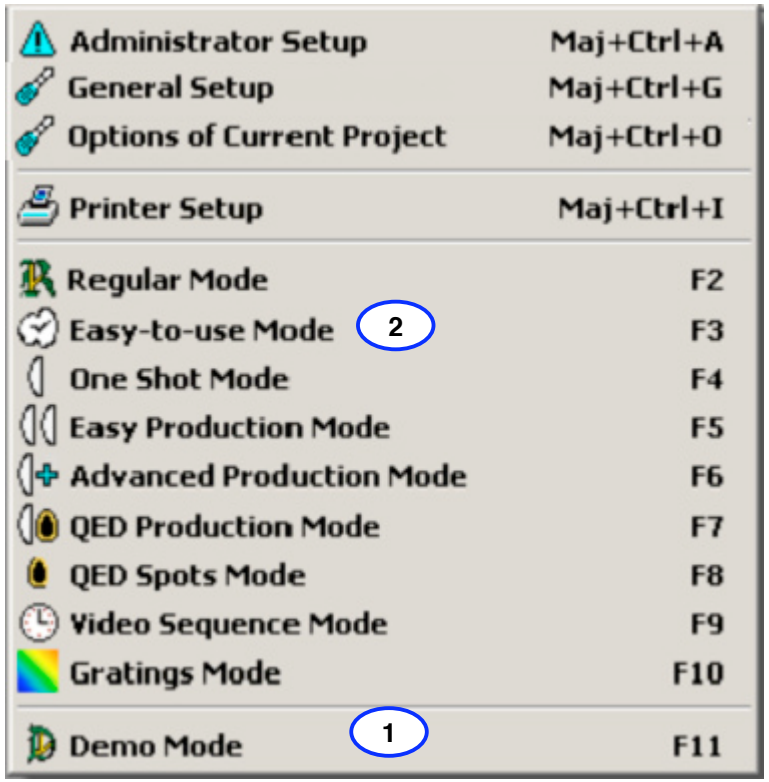


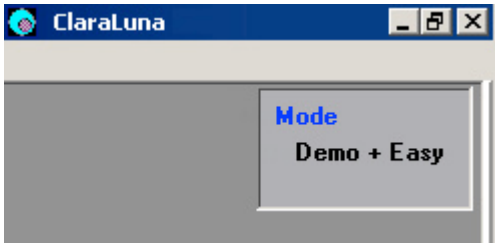
This chapter shows how to :

- **Acquire an image through Video frame grabber**
- **Save the image**
- **Get ready for launching as in previous chapter**

2.1 Getting started with Video in Easy Mode – Step 1 : Switch to Easy Mode

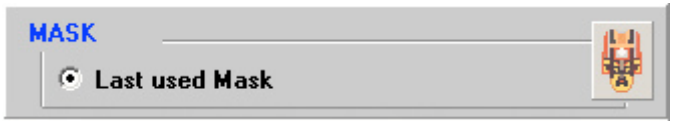
Action	Result
(1) **In main menu Setup, enter (or stay in) Demo Mode** **This mode provides a simulation of video framegrabbing even if no video card is installed.** (2) **Then, in main menu Setup, enter Easy-to-use Mode**	**Now you are in Demo+Easy Mode**



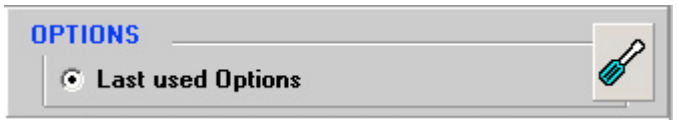


The Easy Mode provides the following behaviour :

When the File Explorer opens, the folder is the last used.

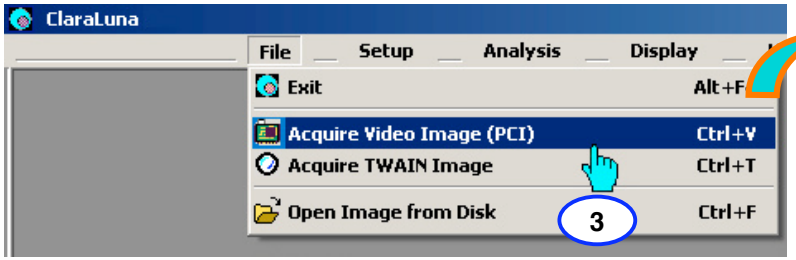
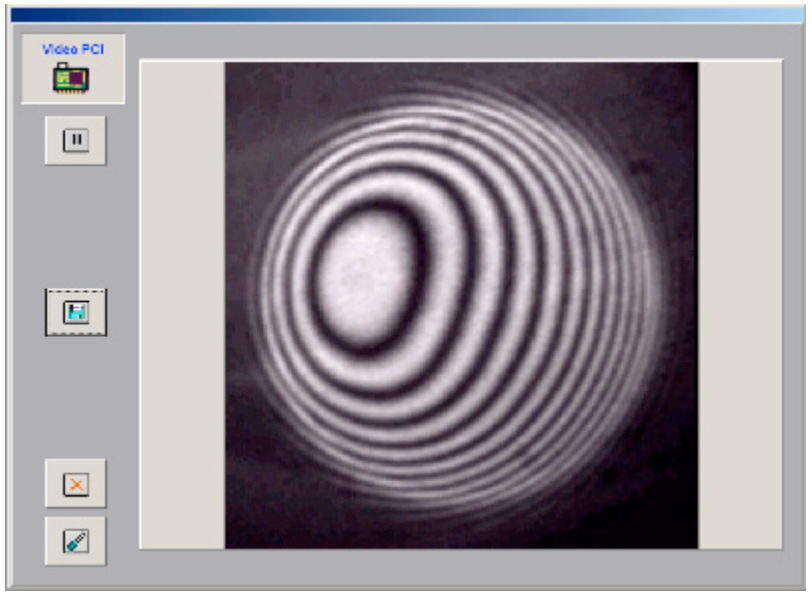
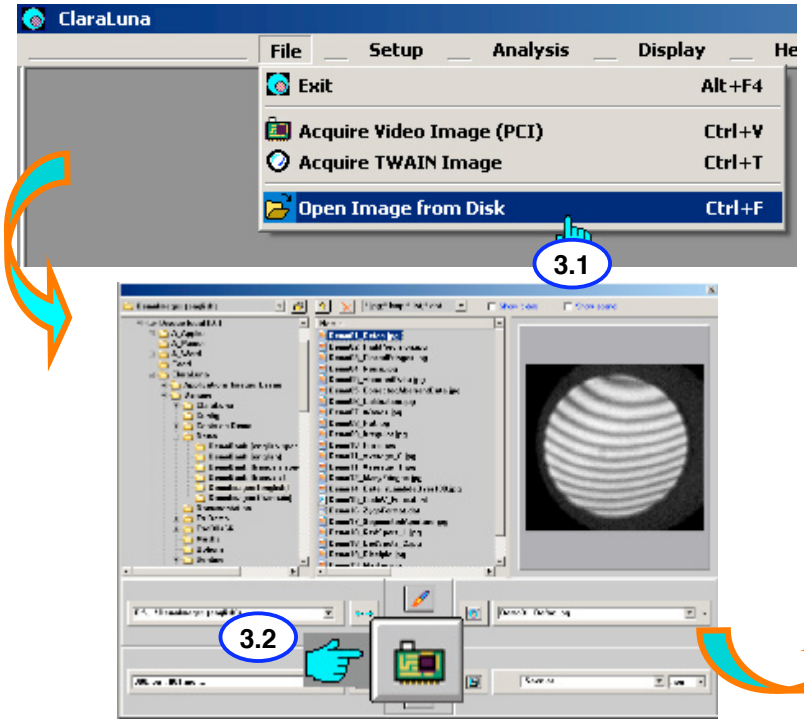


When an interferogram is launched,
the initially prompted Mask is the last used

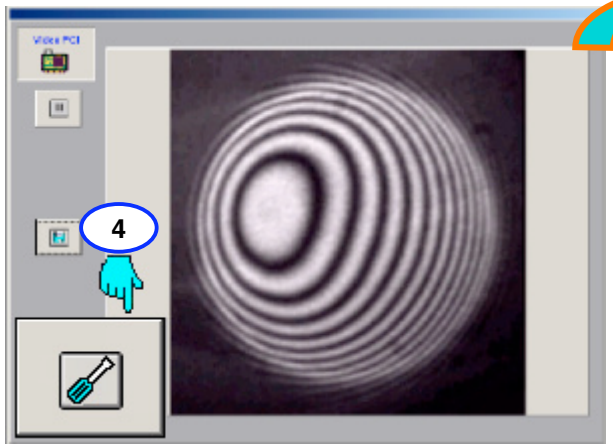
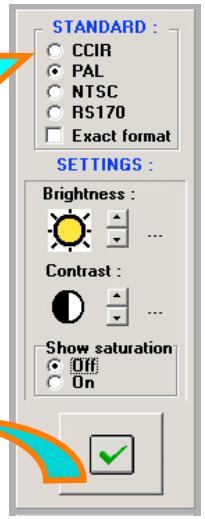
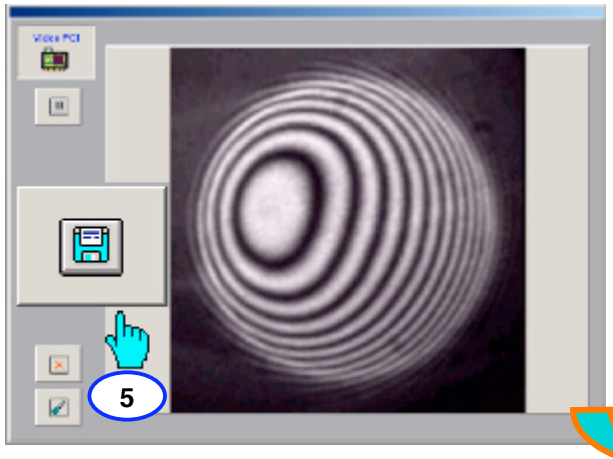
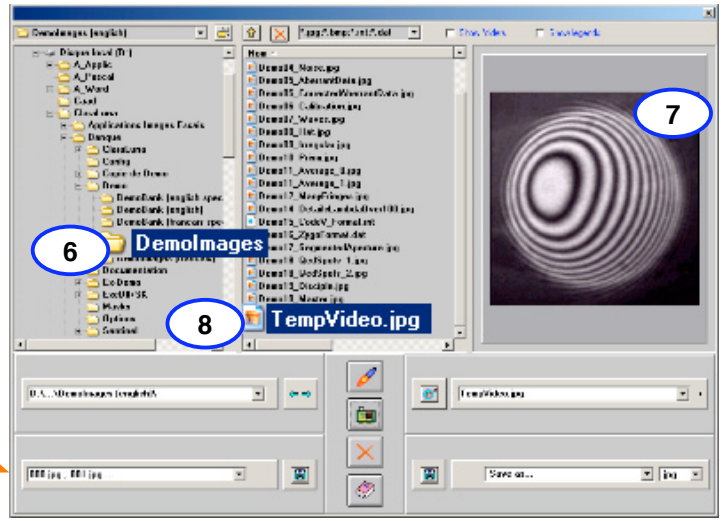


and the initially prompted Options are the last used.

2.2 Getting started with Video in Easy Mode – Step 2 : Open Video window

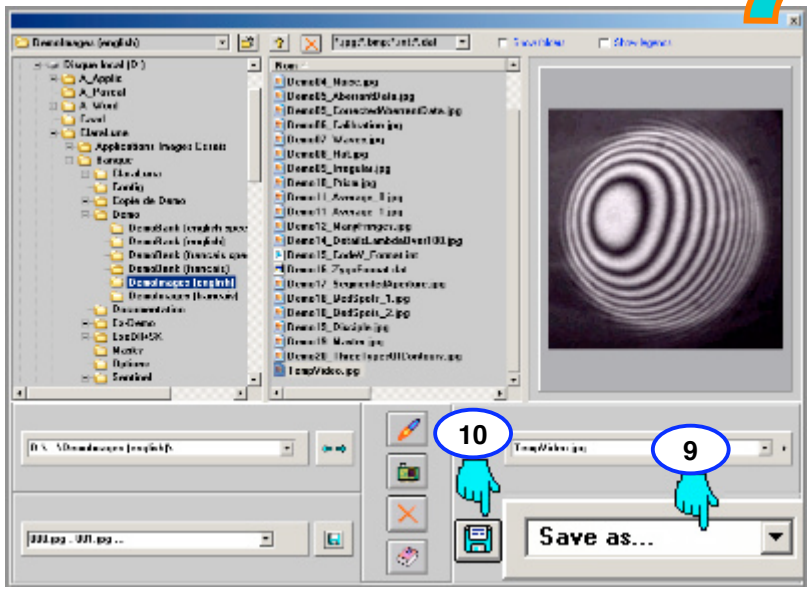
Action	Result
3 **In main menu File, enter Acquire Video Image** 	**Now you are in the Video window** **Because of the Demo Mode you selected, the image does not actually come from a video input. However, the behaviours of most controls are identical to those of real video, without demo.** 
Alternatively you can call Video from the File Explorer **First open File Explorer by menu (3.1) or toolbar button, or click on main window. When in File Explorer, click button (3.2)** 	

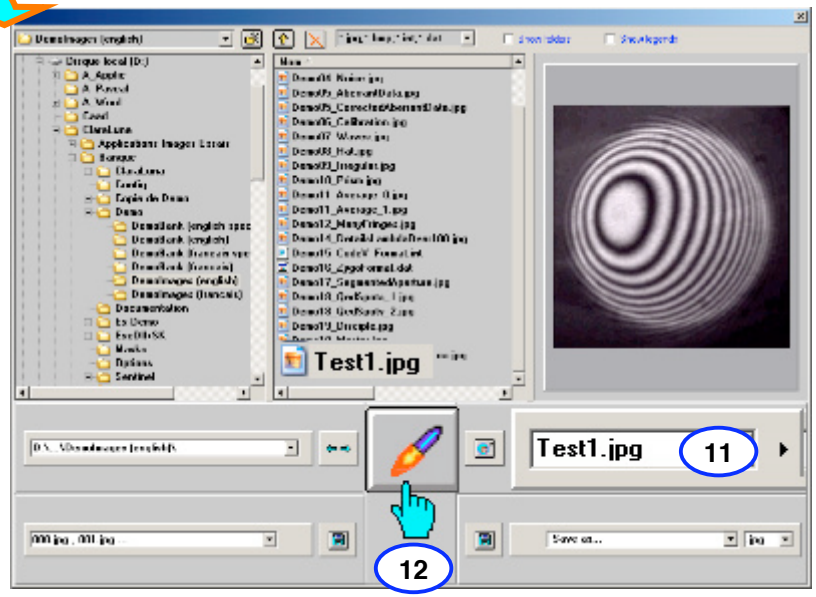
2.3 Getting started with Video in Easy Mode – Step 3 : Adjust video settings - Grab image

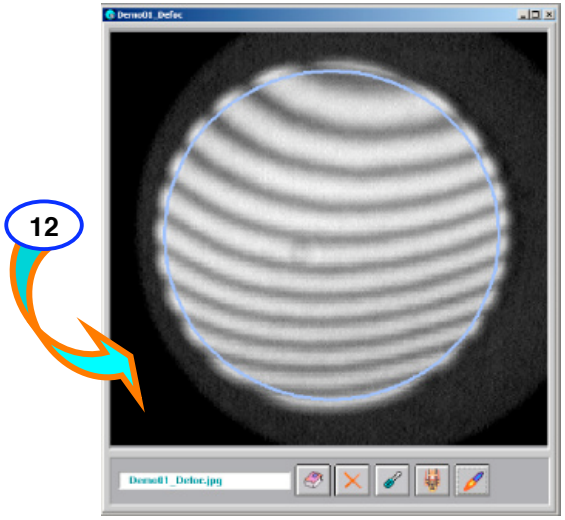
Action	Result
4 **In the Video window, click "Tools" button (4)** 	 In real video, you can adjust the video standard of your camera, and image Brightness/Contrast. "Saturation on" helps you detect whether some areas on the image are too dark or too bright. (Because of the Demo Mode, these controls are deactivated in this tutorial) Click "Ok" button to close video tools.
5 **Then click "Save" button (5)** 	**The File Explorer opens in the last opened folder (6)** **The grabbed image is visible (7). It is called TempVideo.jpg (8)** 

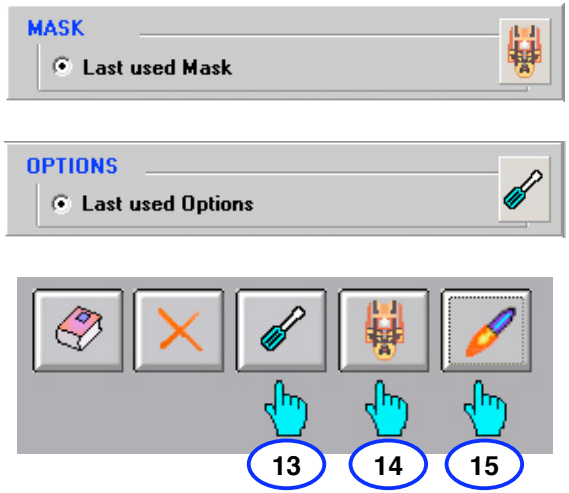
2.4 Getting started with Video in Easy Mode – Step 4 : Rename image and Launch

Action	Result
9 ... 12 **Click "Save as" edit box and enter a new file name, for instance "Test1", then press "Enter" key or click "Save" button (10).**	**Now the grabbed video image is called "Test1.jpg" (11) ready for launching (12)**







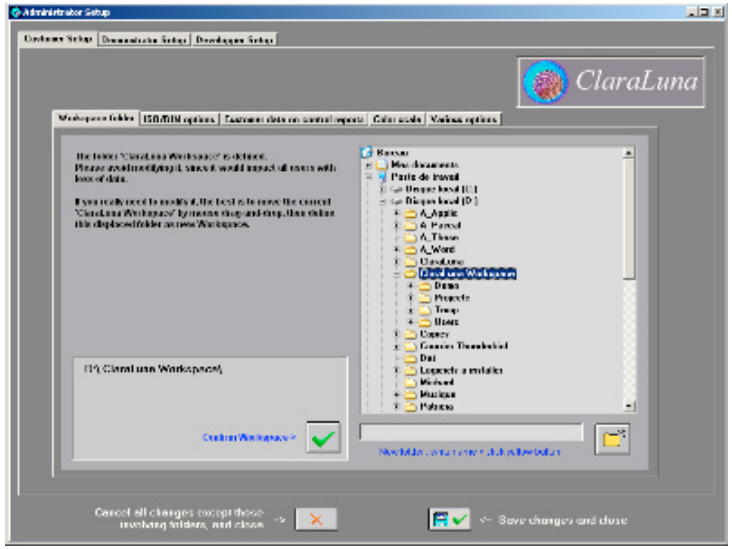


From now on, proceed as in previous chapter "Getting started with an existing fringe image".

Recall that, due to the Easy Mode, the initially prompted Mask and Options are the last used ones.

If necessary, modify them (13,14), then launch computation (15).

3 USING THE ADMINISTRATOR SETUP



In this chapter, set the general behaviour of ClaraLuna common to all users:

- **Define folder ClaraLuna Workspace**
- **Set important ISO/DIN output options**
- **For showing on control reports, enter color scale, customer logo and info**

3.1 Administrator setup : Workspace folder (creating - backing up)

1 **Enter Administrator setup**

by Main menu Setup> Administrator setup

or shortcut Shift+Ctrl+A

2 **Select Customer Setup**

in the outer tabsheet

3 **Select " Workspace folder "** in the inner tabsheet

4
- The default location for "ClaraLuna Workspace" folder is on the usual data partition D:\, if any, and on C:\ if not.

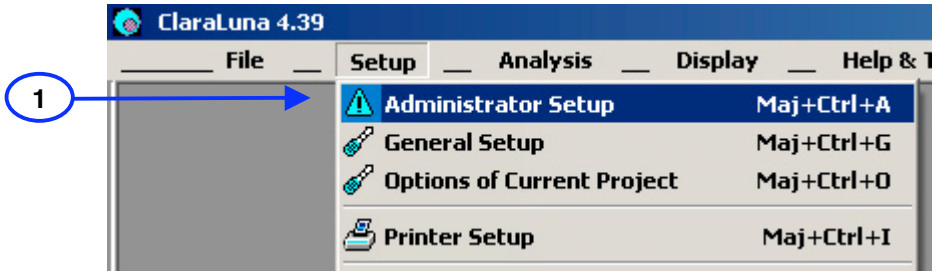
5
- If the current "Workspace folder" is already defined in ClaraLuna Setup file, and/or it can be found at the default location on the disk, you will prompted to confirm it (5).
- If "ClaraLuna Workspace" folder already exists, it is recommended not to create a new one, in order to avoid confusion or loss of data and setup information.

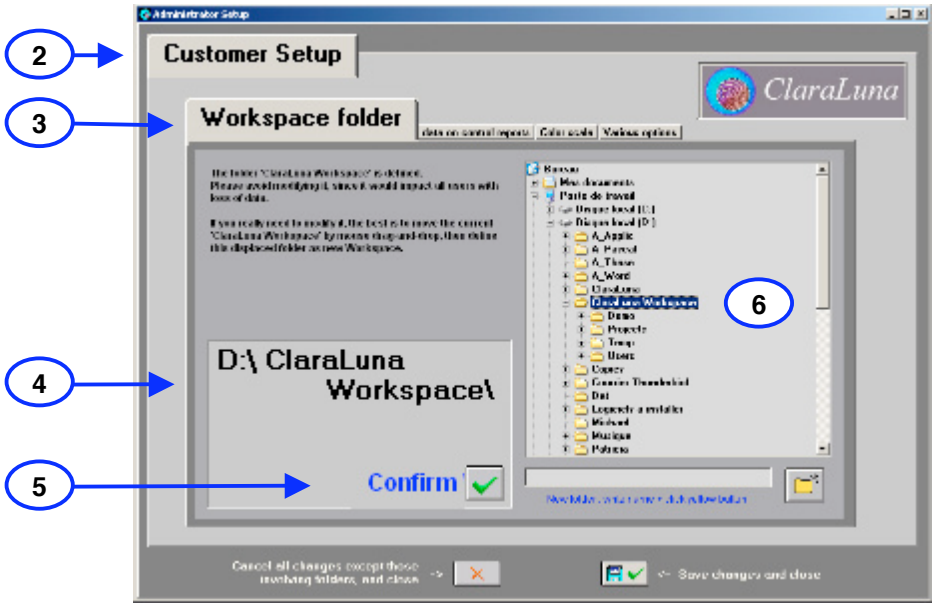
6
- If the "Workspace folder" is not defined in ClaraLuna Setup file, and cannot be found at the default location on the disk, you will be asked to create it at the prompted defaut location, or at a custom location - to be selected on the File Explorer (6) in the same window -

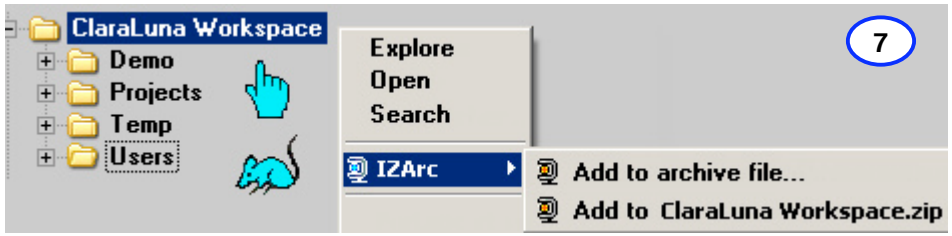
The best Backup policy is to use the Workspace folder for all your projects (saving and computing fringe images).

7 For backing up all you data (i.e. all configuration files, computed projects, masks...) just zip up the whole "ClaraLuna Workspace" folder : use any explorer - Windows' or ClaraLuna's - right-click on the folder icon and call any file archiver such as Winzip, or the freeware IZarc distributed with ClaraLuna, and available for installation in folder C:\Program Files \ClaraLuna\Utilities

Save this archive. To restore, just unzip the archive in the drive where the Workspace is, or should be. If you choose unzip option "overwrite existing files", you will get back all your previous settings and data, without deleting newer files.







3.2 Administrator setup : ISO/DIN options

(1) **Select sheet (1)**

(2) **Making results more specification-sensitve**

As described in Section 10.6, the tolerance (if any) of a given ISO/DIN parameter is shown on the ISO/DIN control report in green or red according to the result. Orange is for parameters with a confidence interval (3).

The setting (2) shifts by s% (a security coefficient) the values that control the specification colors :

- the measured values and the tolerances are unchanged
- the thresholds for color orange or red increase
- as a result, in case ao critical parts and tolerances, the user is warned if the risk of being out of tolerance increases

(4) **In contrast, the setting (4) "Making ISO/DIN results smaller" allows to cut a given percentage (e%) of the surface extreme Z data, for computing ISO/DIN parameters.**

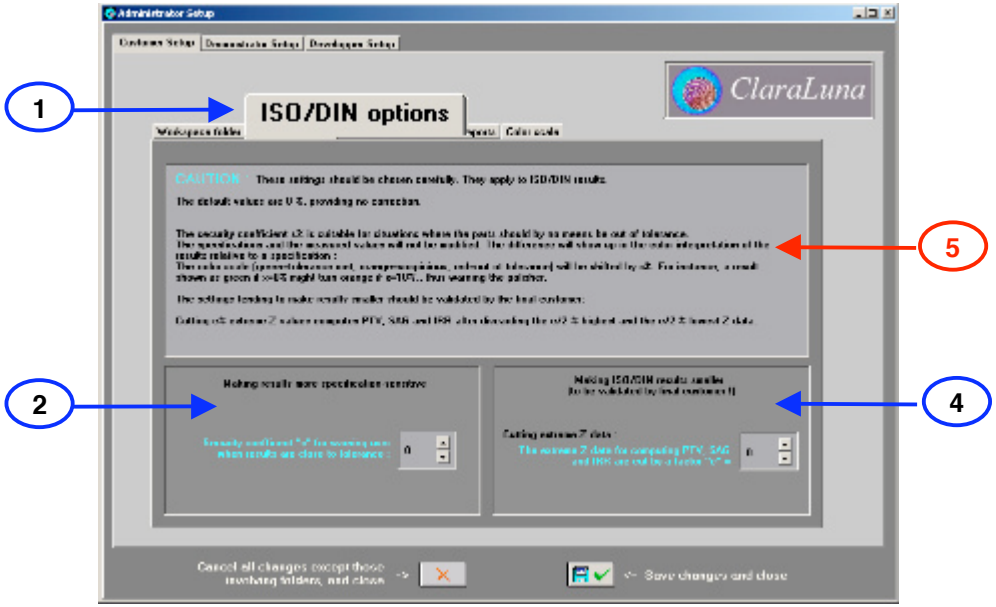
This makes Peak to Valley parameters (PV, B and C) much more robust with respect to noise and random fluctuations. Such an operation makes sense from an optical point of view, since the optical properties of components usually rely on average values (RMS, Strehl ratio...), and seldom on extreme values (such as maximum local slope for power lasers).

(5) This setting truncates the histogram of Z values by e/2 % at both ends, then compute Peak to Valley and RMS on the remaining data.

CAUTION : This setting should be done only by qualified users, aware both of :

- **the technical-commercial meaning of the part drawing,**
- **and how these choices may impact the reception control by the final customer.**

USING THIS SETTING SHOULD BE DONE ONLY AFTER VALIDATION BY THE FINAL CUSTOMER, and the percentage allowed for cutting off should be written on the part drawing.



SPECIFICATIONS ISO 10110 : 3/A/(B/C) RMSx<D		ISO DATA		
PV	60	[41	43	53]
A (sagitta error)			1.4	
B (irregularity)	50	[40	43	53]
C (rotat. irreg.)			3.0	
D : RMS t (total)	6.0	[6.0	6.1	7.6]
RMS i (irreg.)			5.9	
RMS a (asym.)			6.0	

3.3 Administrator setup : Customer data on control reports

1 **Select sheet (1)**

2 **Open bitmap (.bmp) file of firm logo.**

For better graphic results, the image size should be : width ≤ 180 and heigth ≤ 80, and preferably as large as possible. If the original image is larger, it will be reduced to fit. As a result the fine image details, especially characters, will be blurred.

3 The opened image will show in (3)

4 **Write the firm info in the edit box (4)**

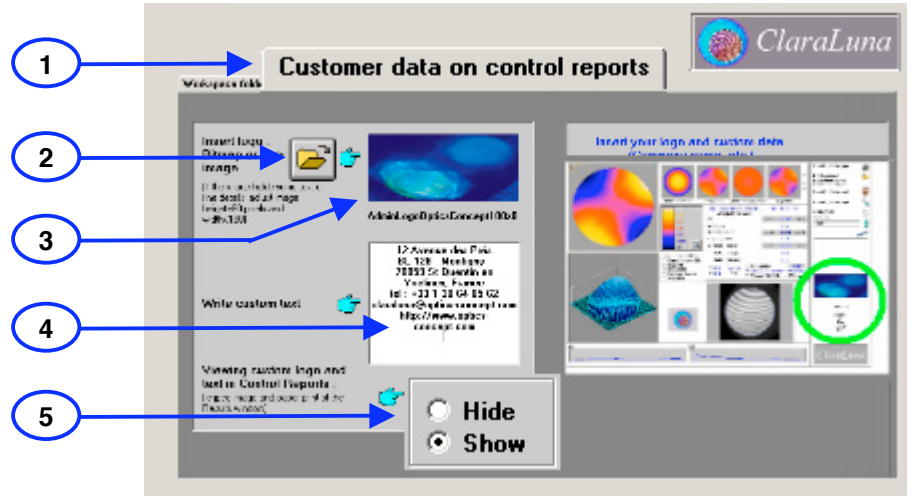
Name, adress, phone, web...

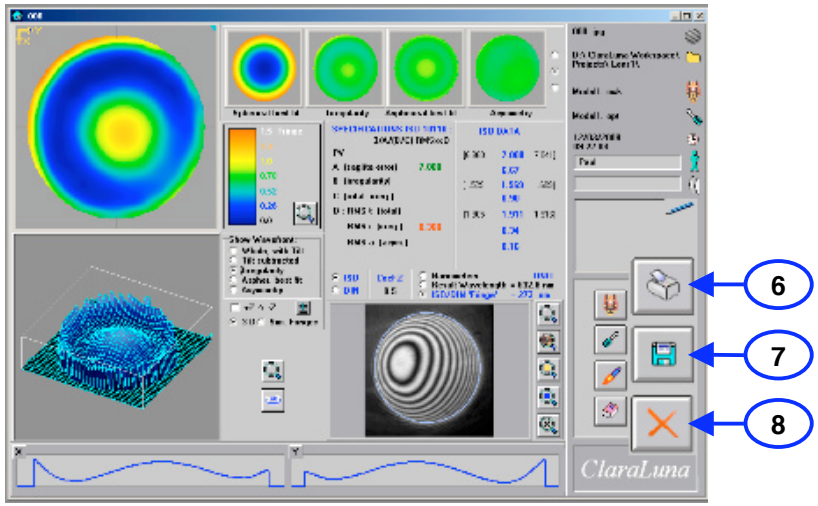
5 **Once the firm logo and info are set** you may want to show them or not on the control reports, by selecting in (5) If “Show “ is selected, logo and info will be shown on the control reports.

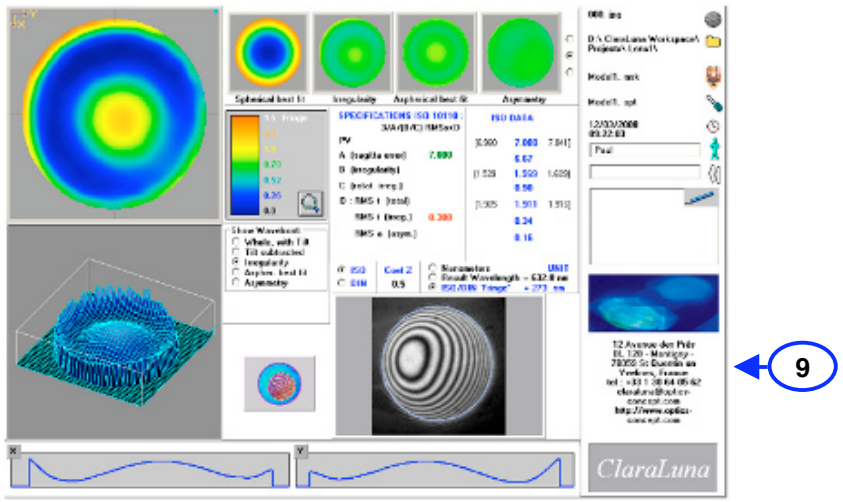
6-8 **The control reports are created when:**

- Printing (6) the ISO/DIN form, in the present stage, to paper or pdf.
- Saving (7) the ISO/DIN form, in the present stage, to jpeg.
- Closing (8) the ISO/DIN form : it will be saved, in its last stage, to jpeg.

9 **The control reports will show the logo and info in (9)**







3.4 Administrator setup : Color scale - Demonstrator setup

(1) **Select sheet (1)**

(2-3) **Select color scale**

(4) **Options for demonstrators** can be set in tabsheet Demonstrator Setup

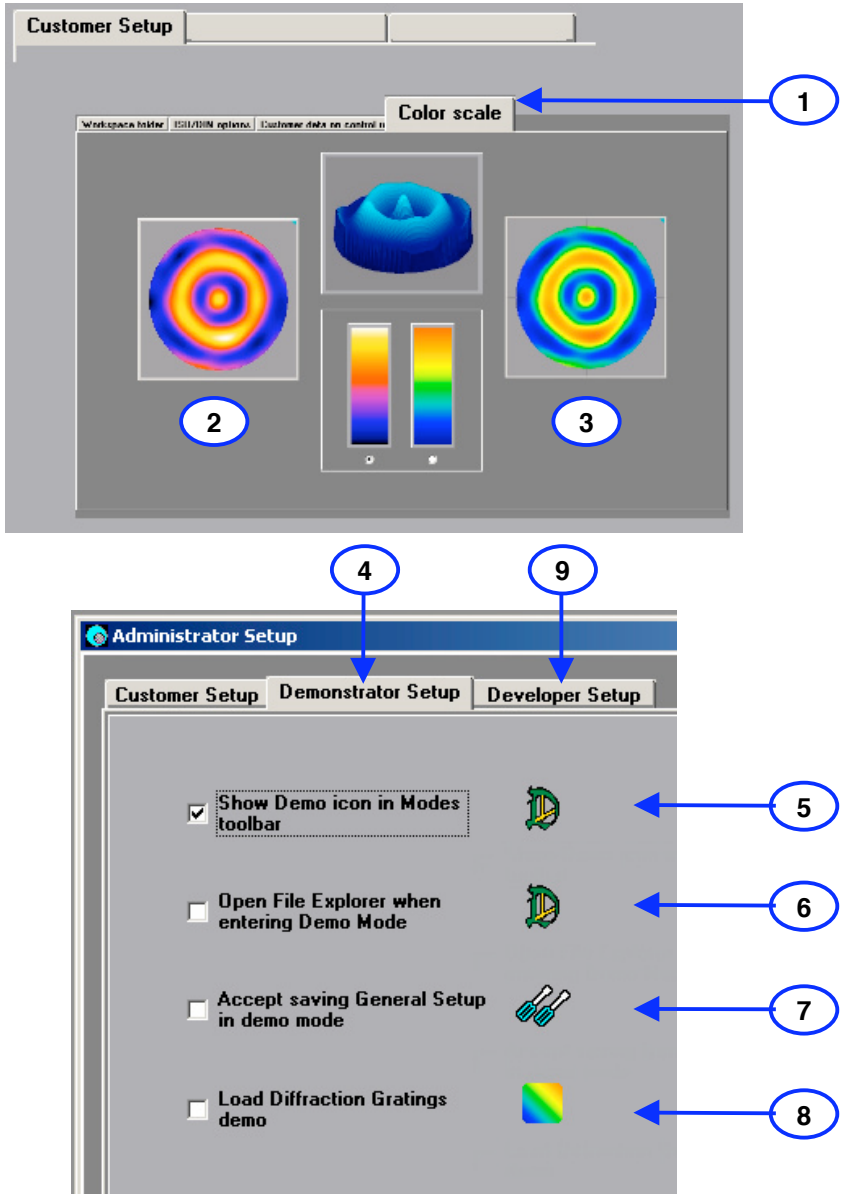
(5)
- Show/hide Demo icon on Modes toolbar at the right hand side of main window

(6)
- On calling the Demo Mode, call/do not call File Explorer

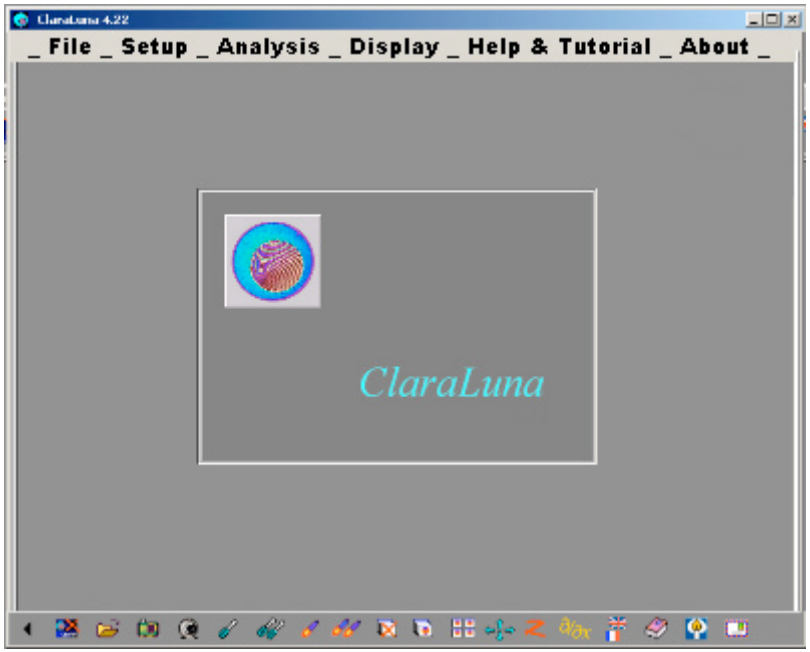
(7)
- As default setting, all changes in General Setup done while Demo Mode is on, are discarded when exiting Demo Mode. For demonstrators, it may however be useful to keep settings, such as Series.

(8)
- Diffraction gratings is a special application, whose demo is time consuming. Keep unchecked in most cases, unless you really need to demonstrate Gratings Mode.

(9) **Developer Setup** is only for maintenance, and is password protected.



4 CLARALUNA MAIN WINDOW - MAIN MENU



This chapter tackles :

- **Main window**
- **Overview of menus and toolbar**

4.1 Main window – Menu : File

1 **Exit**

Closes ClaraLuna.

(In latin, "exit" = "he goes out")

2 **Acquire video image**

Opens Matrox frame grabbing window

3 **Acquire Twain image**

Opens frame grabbing window for all Twain compliant devices : camera, scanner...

4 **Open ClaraLuna File Explorer**

This is the main tool for opening image files from a drive (hard disk, CD-DVD, USB device, local network, or the Web).

Save, copy, rename, change file format.

Define file automatic numbering or dating, with custom names.

For comfortable navigation, all operations are memorised : visited folders, opened images, computed projects...

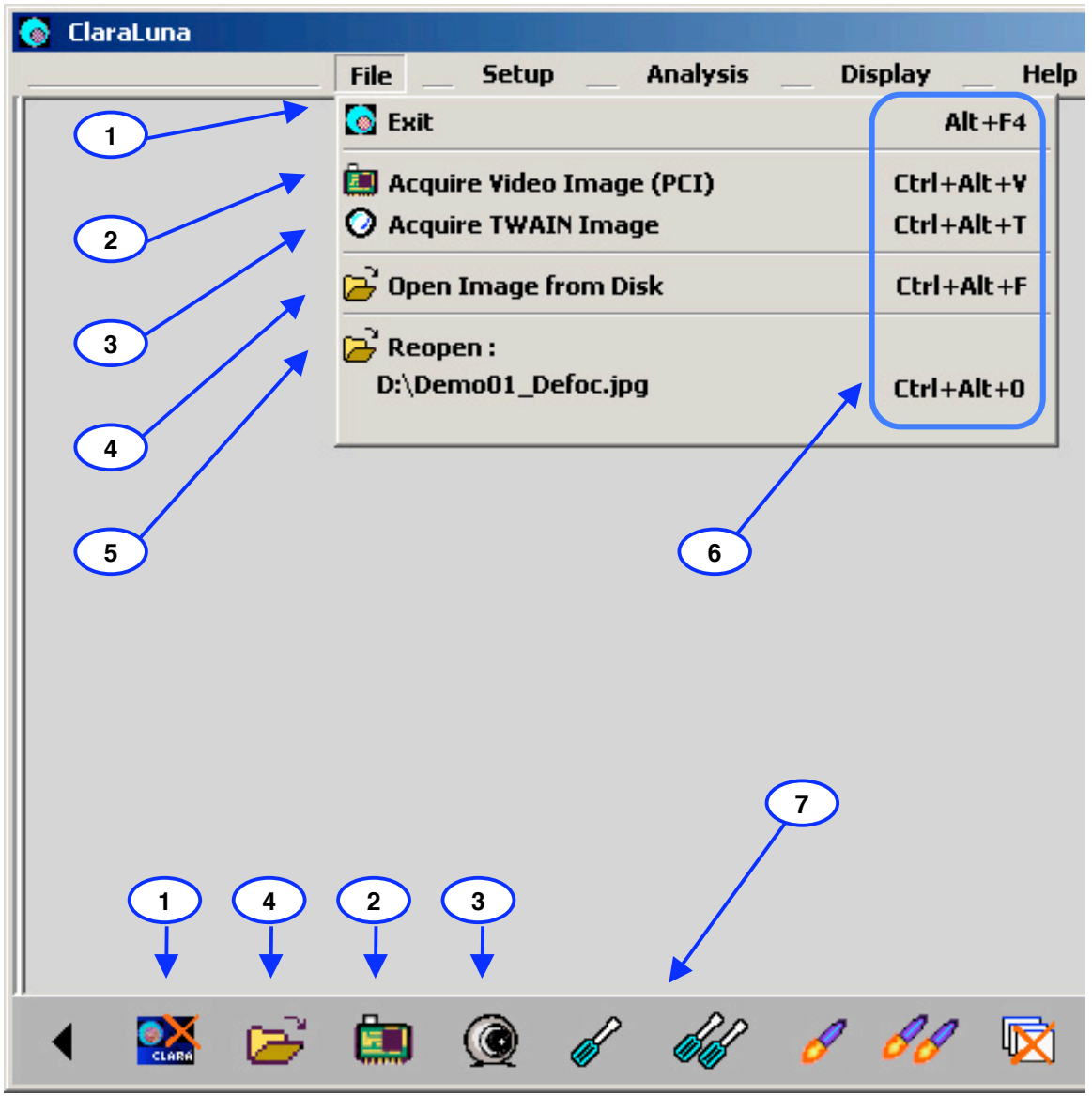
5 **Shortcuts to 10 previous projects**

6 **Keyboard shortcuts for commands**

The usual Windows shortcuts are used (Alt F4 to exit, Ctrl F4 to close active window), but most ClaraLuna's shortcuts are Ctrl+Alt+ some letter).

7 **Toolbar**

Click images for the most usual commands.



4.2 Main window – Menu : Setup

1 General setup

Here you will configure the general behaviour of the software, effective on all projects.

2 Options of current project

Each interferogram, when computed, becomes a Project with a specific configuration, optical parameters, and specifications. The Project Options window is the project's headquarters.

3 Administrator options

Used only for special applications and maintenance.

4 Printer Setup

For sending the Results windows (ISO, Zernike, slopes...) to a printer for paper copy, or PDF file.

5 Regular Mode

Normal way of working with ClaraLuna. Equivalent to driving a car with a manual gearbox.

6 Easy-to-Use Mode

Could be of help for a start : No configuration needed, everything (mask, File Explorer) stays exactly in the state it had been left.

7 One Shot Mode

Calls video and computes without saving, for instant part testing.

8 Easy Production Mode

Minimum configuration needed. Straightforward and fast for large industrial series and low-skilled users

9 Advanced Production Mode

Assistant for advanced configuration when using ClaraLuna for a series of parts. Just like driving a car with an automatic gearbox.

10 QED Production Mode and Spots Mode

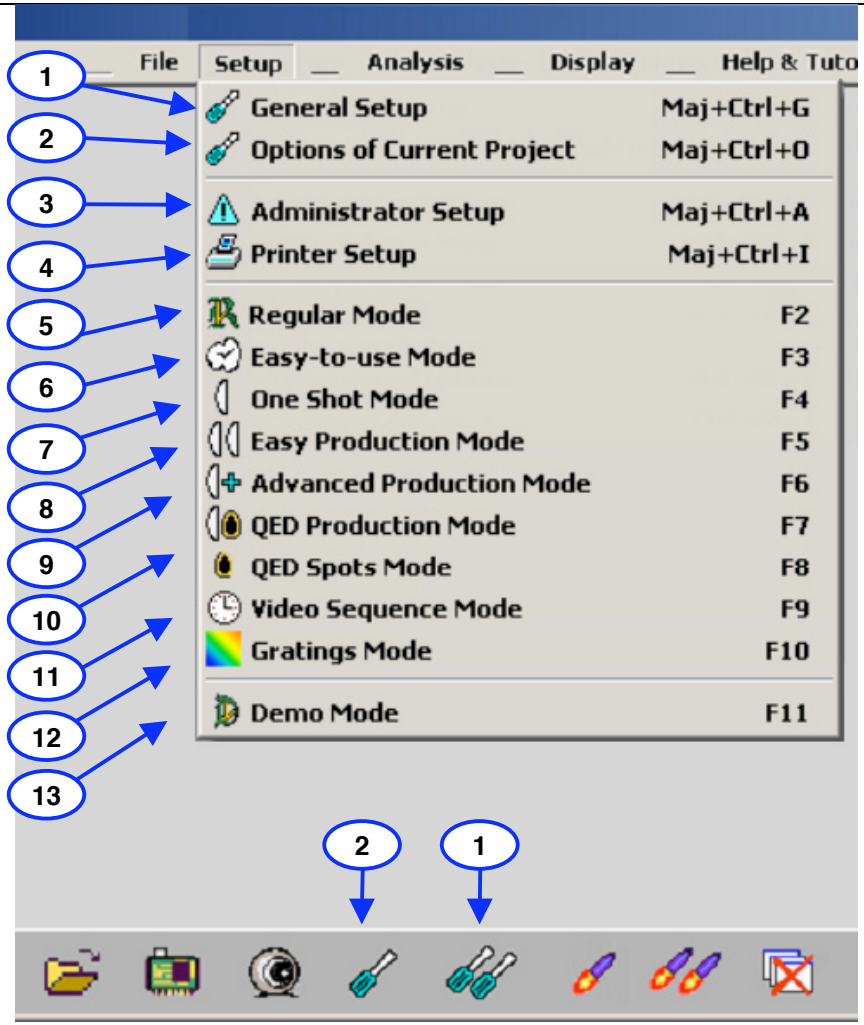
For special applications with QED -MRF ® machines

11 Video Sequence Mode

Programmable time series of video acquisition : N batches of n images are grabbed, with custom delays between batches and between images, followed by computing.

12 Gratings Mode

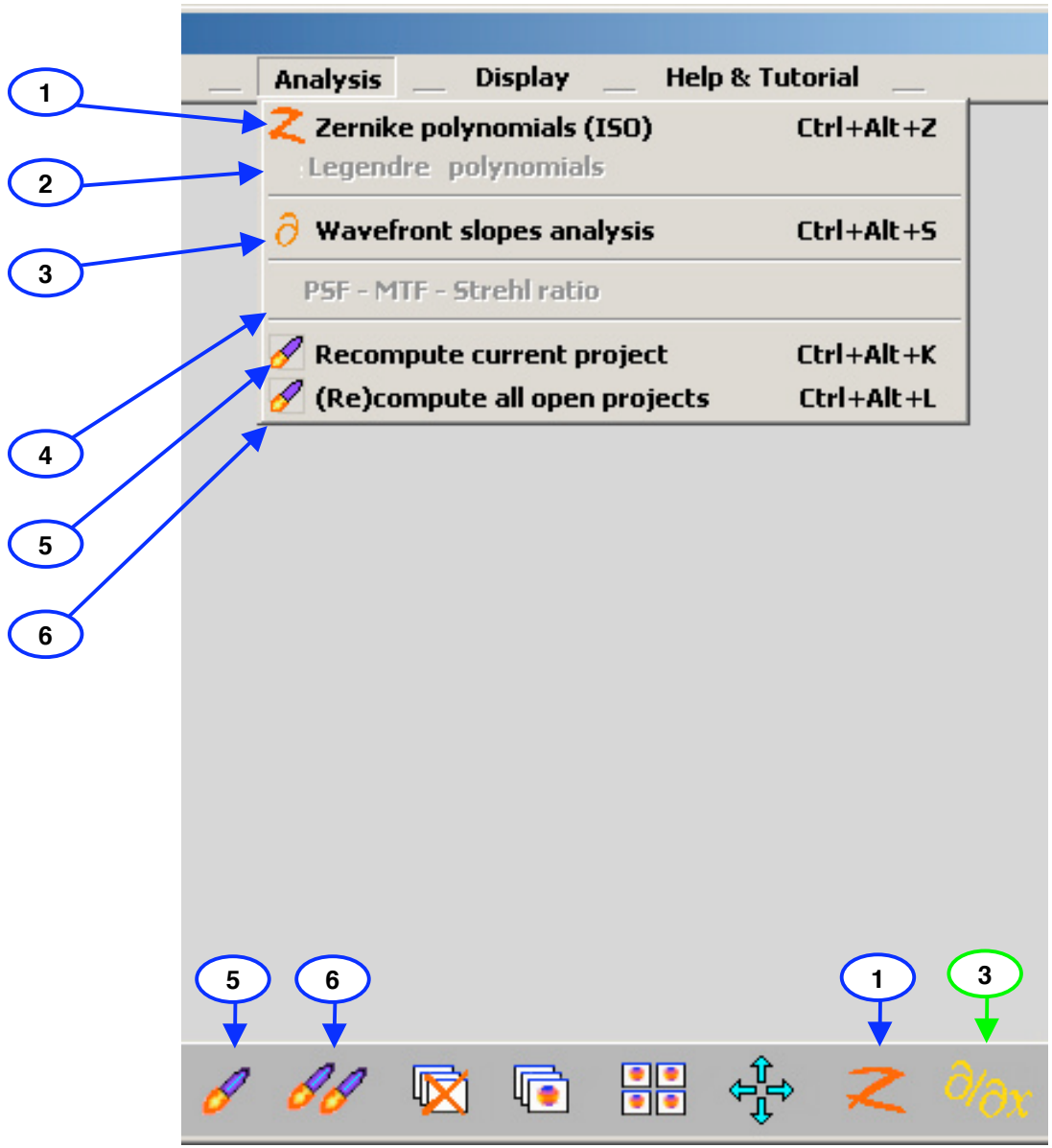
For special applications to interferometric measurement of diffraction gratings.



13 Demo Mode

Emulates a video fringe frame grabbing. Everything else is actual computation. A panel of preset demos is prompted, with typical interferograms ranging from exceptionally high quality and precision, to rather bad conditions (noise, low contrast…)

4.3 Main window – Menu : Analysis



1 **Zernike Polynomials**

Access the Zernike window after computing an interferogram : interactive analysis, removal of any set in the 36 first Z.

2 **Legendre Polynomials**

Advanced feature, suitable for rectangular apertures ; fitting only enhanced versions of ClaraLuna.

3 **Wavefront slopes analysis**

Specifications compared to ptv and rms of slope maps (enhanced versions).

4 **PSF - MTF – Strehl ratio**

In enhanced versions, on request.

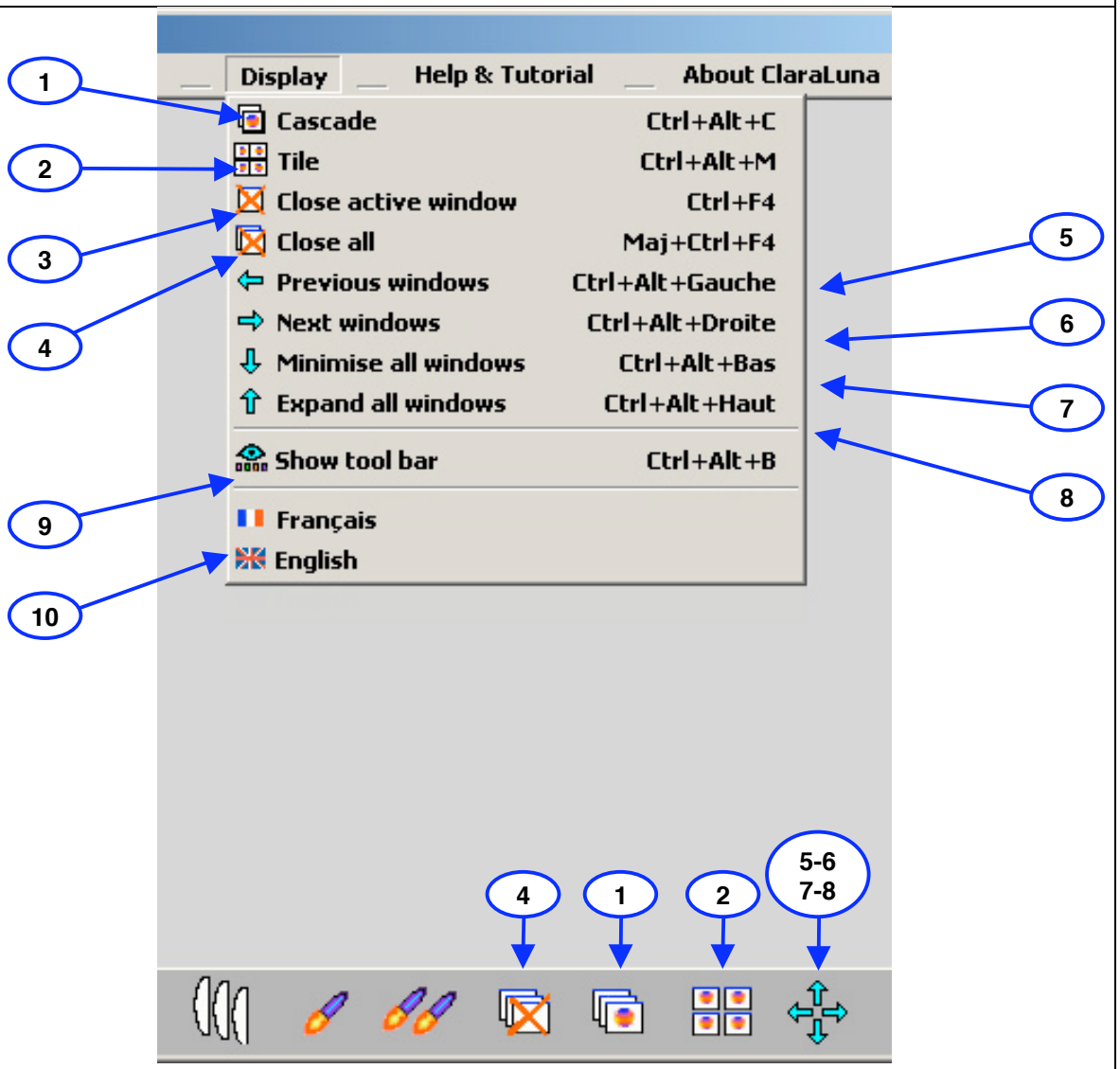
5 **(Re)compute current project**

Launches computation for the project whose window is focused. Recomputes with new options if the previous result is not satisfactory.

6 **(Re)compute all open projects**

Same effect on each project window, already computed or not.

4.4 Main window – Menu : Display



1 **Cascade**

Displays the open project windows

2 **Tile**

Opens the open project windows

3 **Close active window**

Closes the active project window

4 **Close All**

Closes all open projects windows.

5-6 **Previous / Next window**

Selects and brings to front the next open projects window

7 **Minimise all windows**

Reduces the open projects windows

8 **Expand all windows**

Restores the size of the open projects windows

9 **Show tool bar**

Shows/hides toolbar at the bottom of the window

10 **Language**

English - French available.

Chinese is on the way.

Others on request

4.5 Main window – Menu : Help & Tutorial

1 **This Reference guide**

"Getting started" is the first 2 chapters

2 **Help on / help off**

Integrated help (in English or French only) : interactive popup windows provide detailed explanations about what's pointed by the mouse.

3 **Optimising the interferogram**

What fringes are from a geometrical point of view. How ClaraLuna reconstructs the part surface from the fringe data. How to get poor data and results, and how to get better ones.

4 **More information on special functions**

A Shockwave presentation to ClaraLuna's main features

5 **Calling Demo mode**

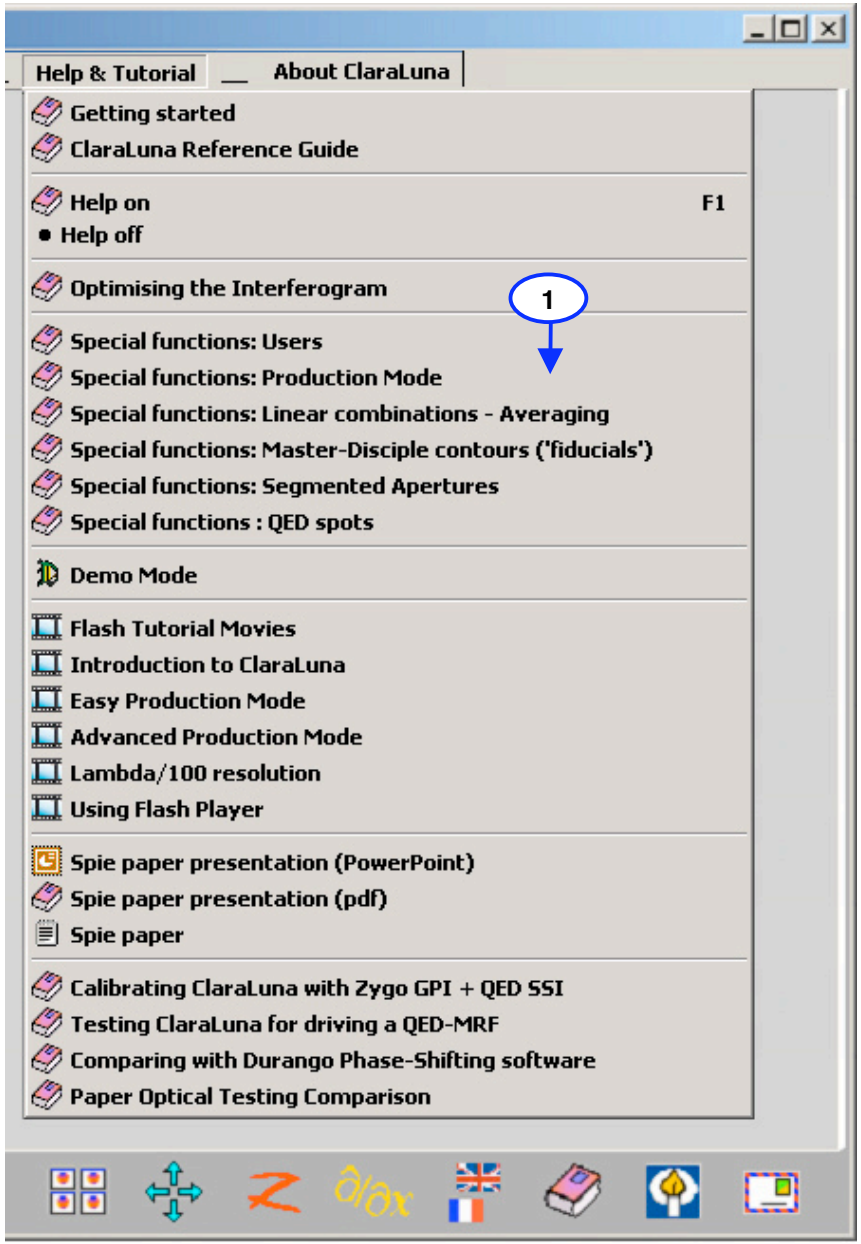
Same Mode than through menu Setup>Demo Mode, with an additional "how to use" message.

6 **Flash movie tutorials**

7 **Scientific background** for ClaraLuna's wavefront reconstruction algorithms

8 **Testbed** for calibrating ClaraLuna with Zygo reference Phase-shifting device and software, giving evidence of λ/100 precision and resolution.

9 **Paper** by J. Briers in Journal of Optics, reporting a inter-laboratory comparison : the same sample of optical components have been sent to various labs. The range of the results is astonishing. This helps putting in perspective the precision in optical metrology...



4.6 Main window – Menu : About ClaraLuna

1 Informations on this version of ClaraLuna

List of all the functions available in the full version of ClaraLuna, and wihich ones are licensed to you.

The license is included in the Sentinel Key provided with the software. All executables of a given version (4.38 etc) are identical, regardless of the license.

For upgrading the license and purchase additional functions, click :

2 Request for upgrading licensed features

You will need to send a ".req" file, receive a ".upw" file, and play it through the Sentinel utility provided.

3 Contact

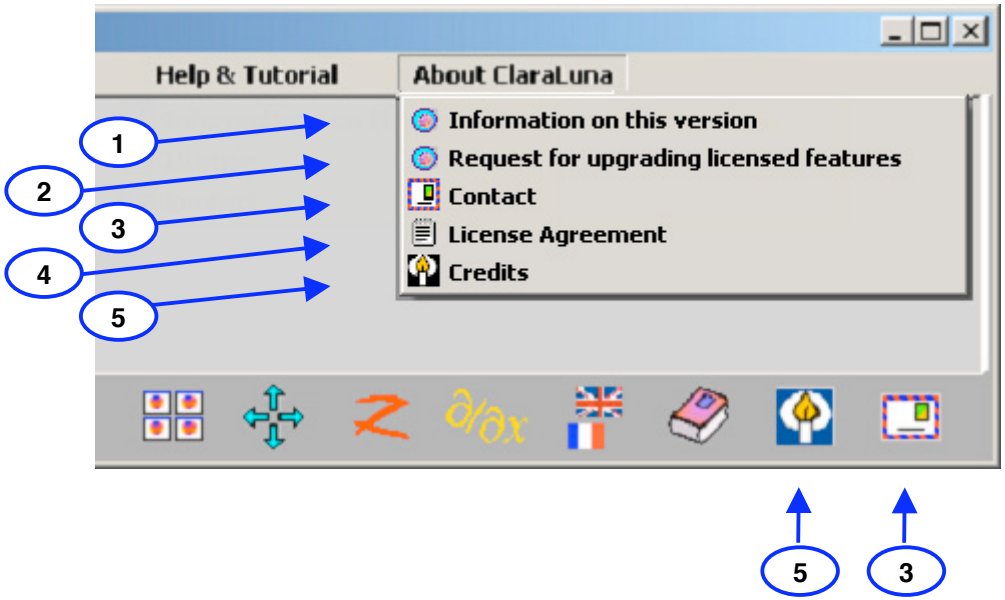
Commercial and technical contacts : asking for help or tutorial, reporting (dis)satisfaction, upgrading towards enhanced functions...

4 License agreement

Legal agreement between the author and the user. Though it is not fun, please read it ! The main idea is that you cannot charge the author or his agents for any trouble or consequence due to using this software ...

5 Credits

Who was involved in the creation of this software, as well as used libraries and utilities.



4.7 Main window – Status panel & Mode toolbar

1

Status panel

At the right hand side of the main window, the status panel shows the current User (2) (see Section 6.9 and Section 7) and the current Mode (3).

2

3

4

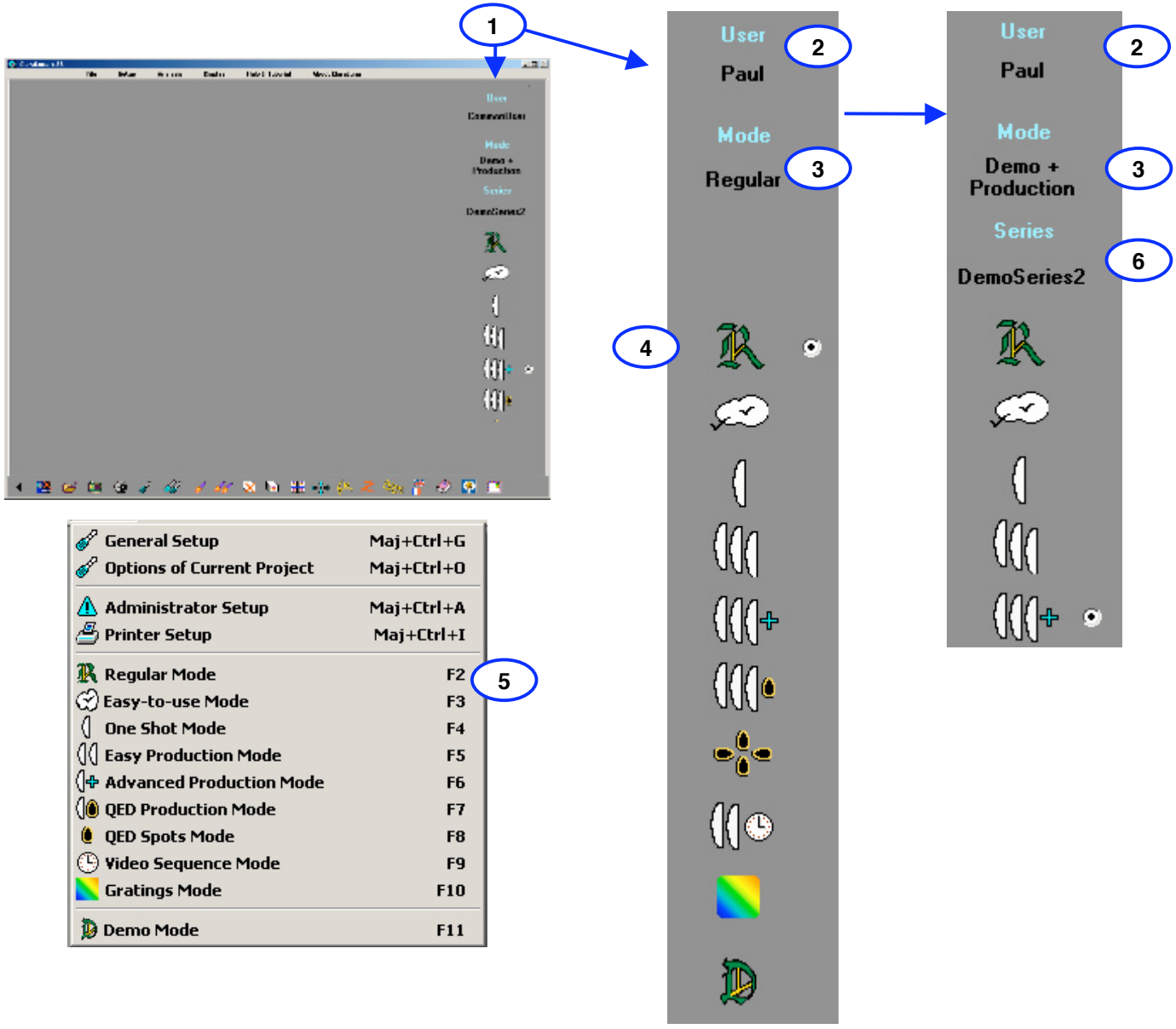
Mode toolbar

The icons (4) are shortcuts to the Modes listed in the Setup menu (5), described in section 4.2.

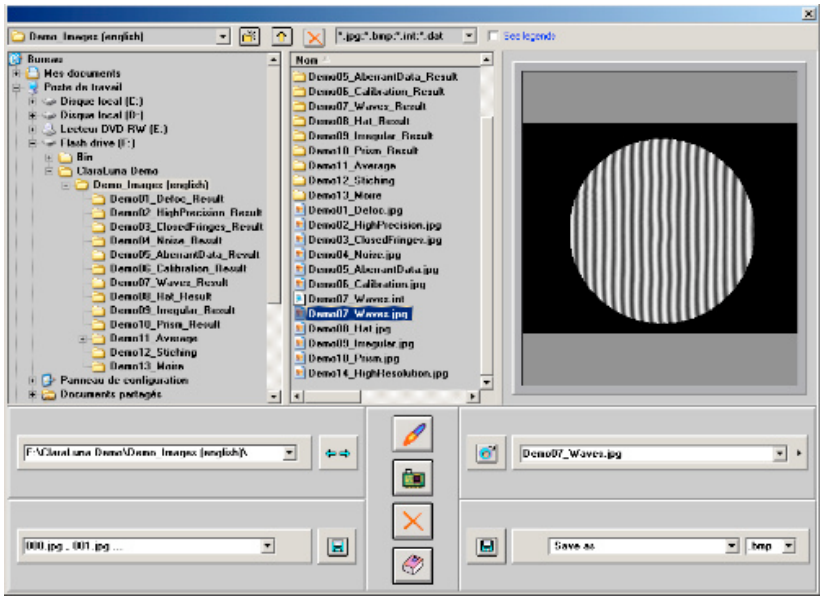
5

6

If the selected Mode is one of the three Production Modes (Easy, Advanced or QED), the current Series of parts is shown on the status panel (6). The keyboard shortcuts for the Modes are the F keys (5): F2…F9 (see Setup menu).



5 USING THE FILE EXPLORER



In this chapter :

- **Open image files from a drive (hard disk, CD-DVD, USB device, local network, or the Web).**
- **Save, copy, rename, change file format.**
- **Define file automatic numbering or dating, with custom names.**

5.1 ClaraLuna File Explorer: Overview

1

Shell tree : Drives and folders

Displays a view of the whole PC working station

2

Shell list : Files

Displays the content of the open folder: subfolders and files.

The right panel shows the selected file if it is a jpg, bmp, int or dat image.

3

"Save as" :

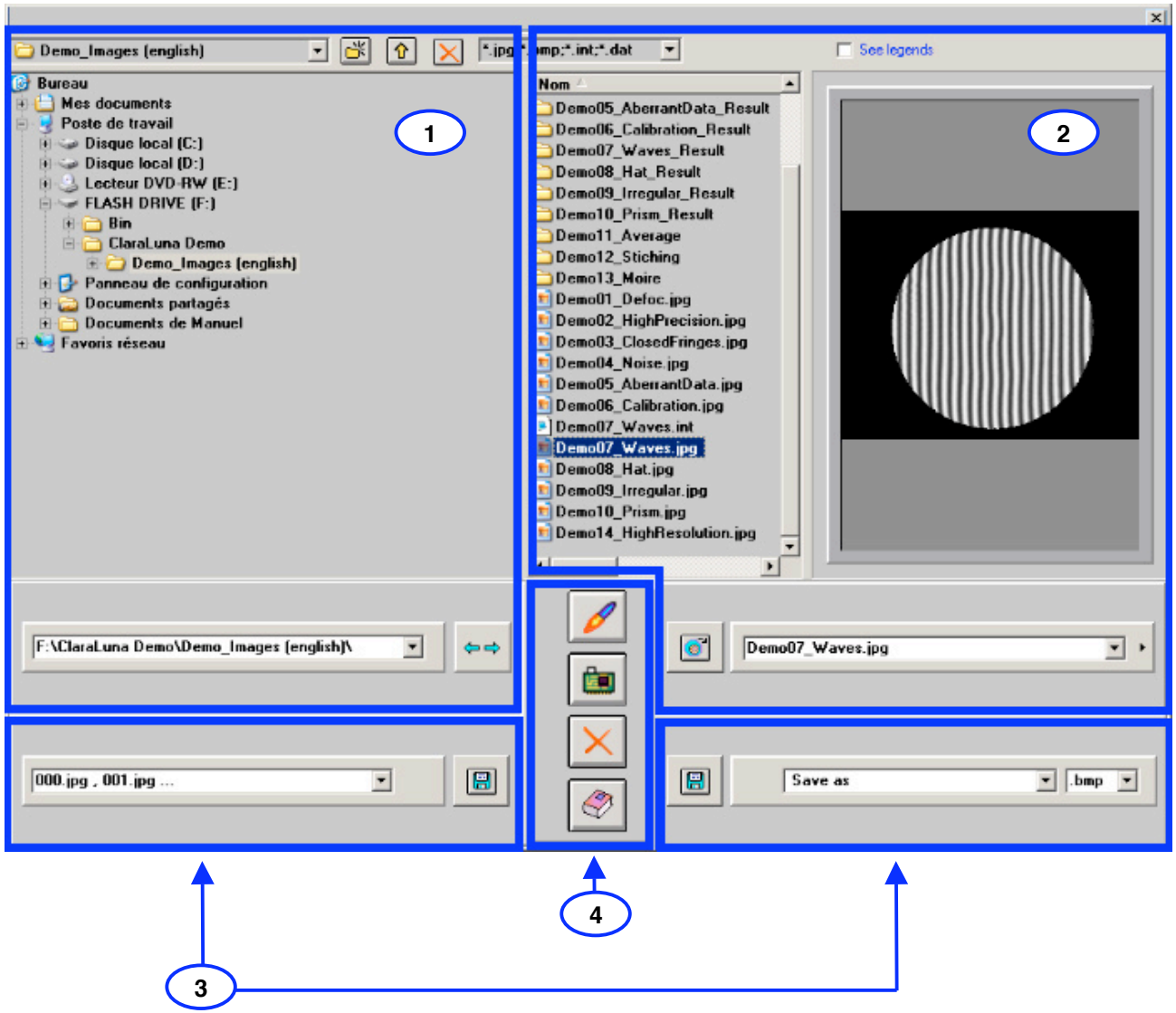
Copies the visible image under a new name.

4

Buttons

ClaraLuna File Explorer vs Windows Explorer :

The ClaraLuna File Explorer is Windows Explorer compliant. The behaviour and keyboard commands are identical. You can use drag and drop within the File Explorer, and also between the File Explorer and Windows Explorer. Right clicking in the File Explorer makes it possible to call the Windows Explorer function "search", or open a file with the associated software....



5.2 File Explorer : Shell tree

1-2 **Select folder**

Click a folder to select and open it. You can as well access a folder by typing or pasting its path in the combo (3) and pressing "Enter" key. This function is useful in particular when opening a file with a very long and known path. This happens after a Search action in the Windows Explorer, by copying the found file complete path from the Windows Exporer (2) to the Clipboard.

3 **History of open folders**

Cilck list and select a previously visited folder.

Selecting a folder in the list opens it in the shell tree (1) and puts its name on top of list (3).Selecting a new folder in the shell tree (1) also puts its name on top of list (3).

4 **Browse folders history**

When selecting a new folder in shell tree (1), the list of the previously visited folders is fixed. In the example, you visited the subfolder \1\, then \2\, then \3\. Clicking the left arrow (3) takes you back in the history list : \2\,\1\, then \3\ again. The right arrow will visit these folders the other way round.

As long as you do not add a new folder, even if you modify the order of the list (3) by selecting an item, the arrows (4) will follow the effective time order of the folder opening.

When closing the window, the history list is saved.

5 **Headlines of PC working station**

Select one of the Desktop folders or one of the drives (Hard disks, CD-DVD, removable storage media)

6 **Create subfolder**

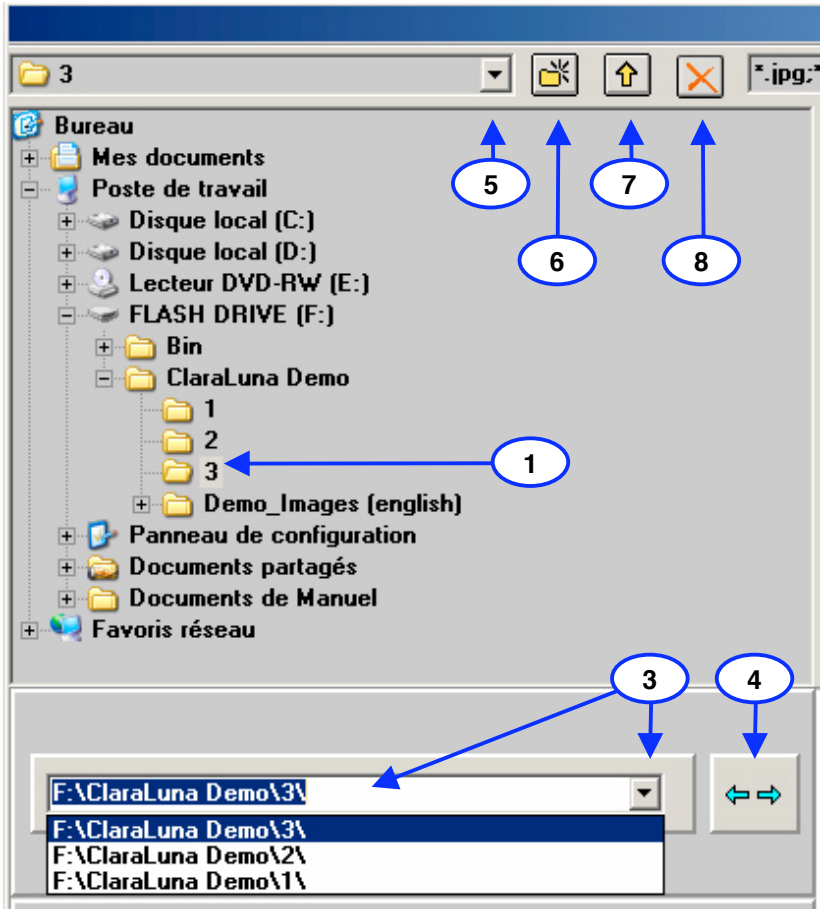
Click to create new subfolder in the selecetd folder, then rename it.

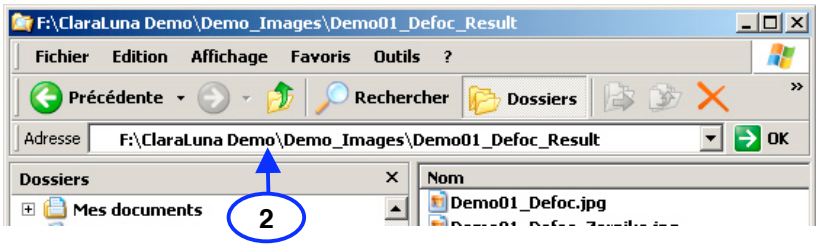
7 **Parent folder**

Click to select the "parent" folder of the current open folder (on the image, \ClaraLuna Demo\ is the parent folder of \1\). Keyboard command: press key "delete left of cursor" (left arrow on top right of keyboard).

8 **Delete selected folder**

... and all its content. Keyboard command: press key "delete" (Del).



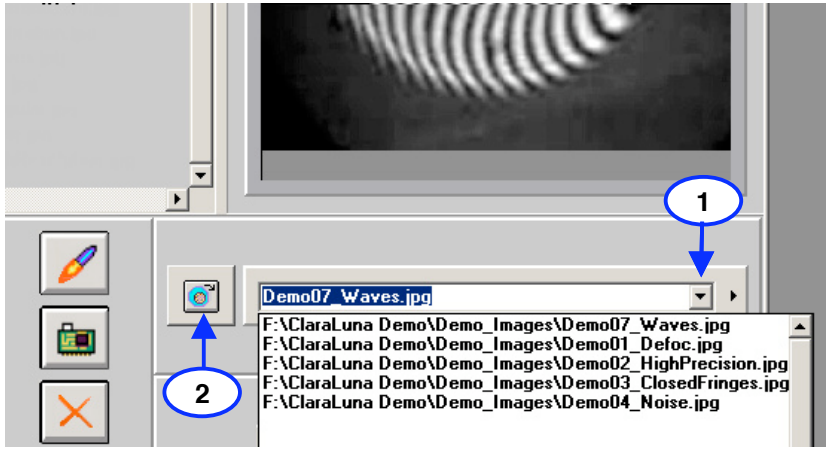


5.3 File Explorer : File list

1

History of displayed images

All images shown in the viewer have their path memorised in this list. Click (1) and select an item to open its folder and view the image.



2

History of projects

When launching a fringe image, a Project is created with the image name: see chapter "Computing an interferogram".

Button (2) opens the history of previously created Projects.

3-7

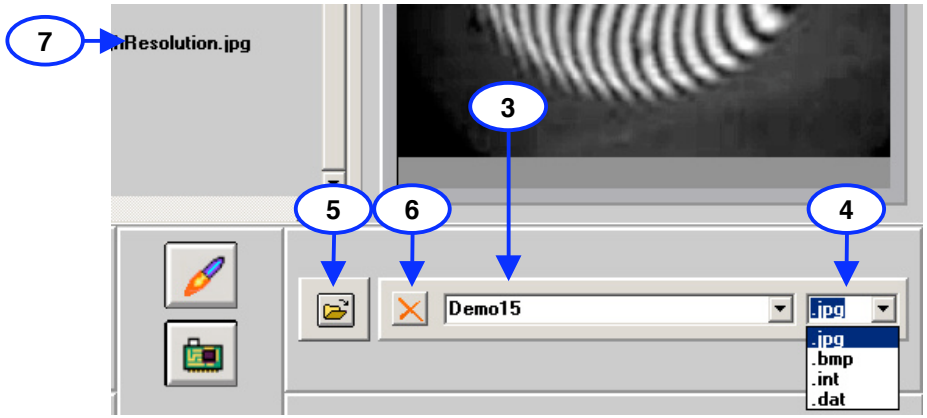
Open a file by entering its name

When clicking combo (3), combo (4) and buttons (5) (6) appear. Enter a file name ("Demo 15") or a full path ("C:\ClaraLunaData\Demo15.jpg").

If you click a file in the list (7), its name is copied in combo (3) for editing.

If you enter just a file name ("Demo 15"), the extension (".jpg") will be added according to selection in combo (4). Otherwise the extension you write ("Demo 15.bmp") will be used.

Finally, click (5) to open file, or (6) to cancel .



5.4 File Explorer window : Saving a file

1-3

Saving the displayed image as ...

The image shown in the viewer can be saved under a new name and/or a new format. Click combo (1) and enter new name. Check or modify format (2) Click button (3).

Automatic file naming and numbering

4 Select in the list a format for file names.

5-6 Choosing "New..." or "...Comment..." will let you enter some text, for instance "Mirror".

7 Validate on green tick.

8 Your custom file name is included in the list. It is saved and can be reused later.

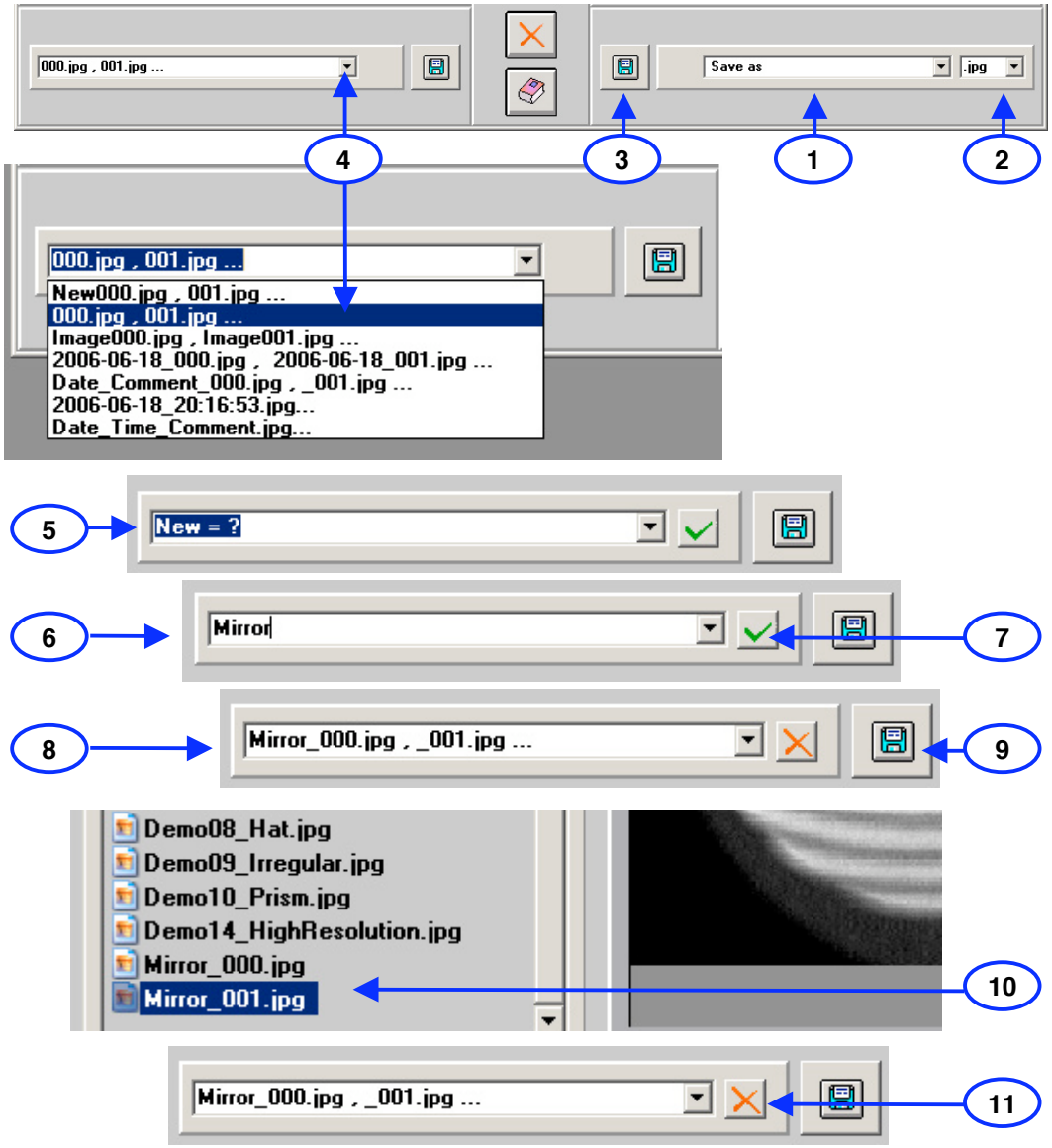
9 Click button to save the displayed image.

10 The first image is saved under "Mirror000.jpg".

The second under "Mirror001.jpg".

11 Click red cross to delete custom file name.

This function is very comfortable when acquiring series of data from a video frame grabber.

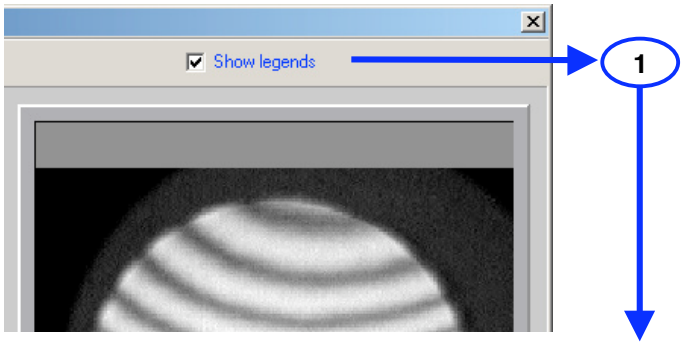


5.5 File Explorer window : Other controls

Showing legends in the File Explorer

1 Check box to show the legends.

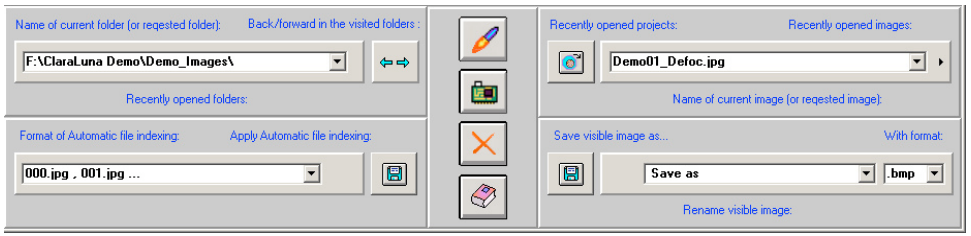
2 Even if the legends are hidden, most controls are described by a "hint", ie a short comment poping up when then mouse cursor stops over the control during one second.



Central buttons

3 Launches computation : the displayed image will now be turned to a Project, with a Results folder created in the image folder, containing all the related files. But what you will see in the first place is the File Explorer being closed, then the interferogram appearing in the Project window.

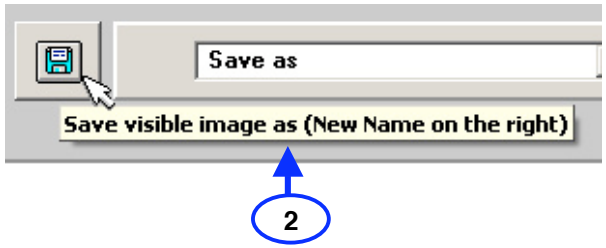
You get the same effect by clicking the fringes image in the viewer, or double-clicking the image name in the file list.

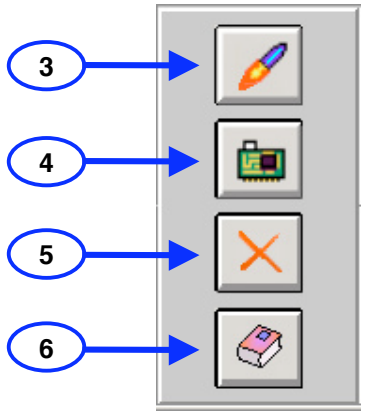


4 Opens Video window (same effect than opening it from the Main window).

5 Closes File Explorer.

6 Opens Help.





Save settings

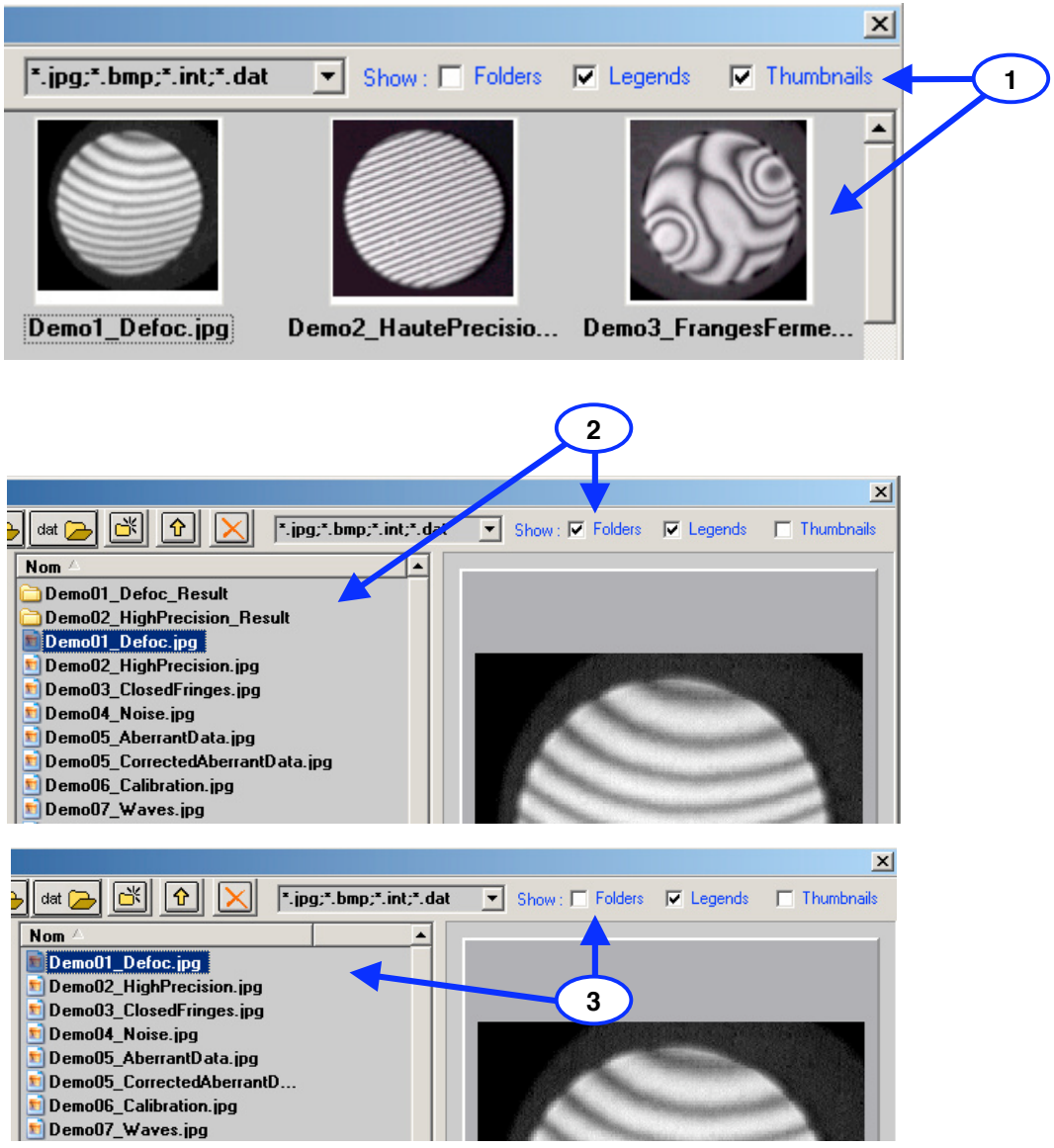
When clicking one of the exit buttons - launch (3), video (4) or cancel (5) - all the File Explorer settings will be saved before closing the File Explorer, and stored into the ClaraConfig.ini file.

5.6 File Explorer window : Other controls

1 **Show thumbnails**

2 **Show folders**

3 **Hide folders**



5.7 File Explorer window : Other controls

1

Current user's personal folder

2

3

Click (1) for reaching the current user's personal folder (2) located in ClaraLuna Workspace\Users

This home folder contains subfolders :

- Config (holding the user's setup ".ini" files)
- Masks (holding a copy of all the Masks created and/or used by the current user)
- Options (holding a copy of all the Project Options files created and/or used by the current user)
- Projects (if the user wants to use this folder instead of the common projects folder ClaraLuna Workspace\Users

Edit Export folder for .dat files

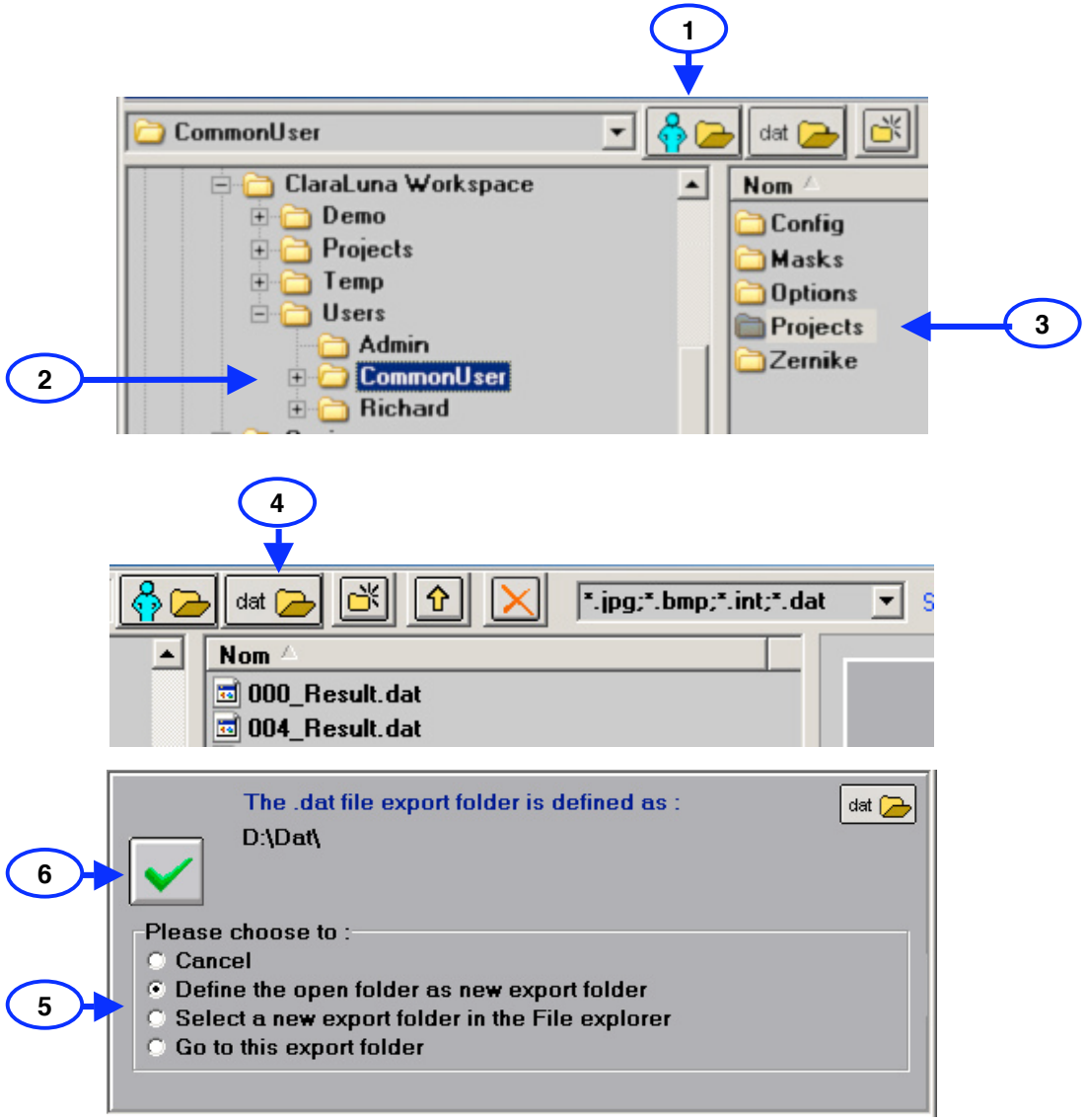
This folder, typically located on the local network, contains the files with format Zygo .dat sent to the QED machine - or for other export use.

4

5

6

- Open dialog
- Choose action
- Accept and close dialog



5.8 ClaraLuna File Explorer vs Windows Explorer : keyboard and mouse commands

1 **ClaraLuna File Explorer is Windows Explorer compliant**

... as mentioned before. The behaviour and keyboard commands are identical.

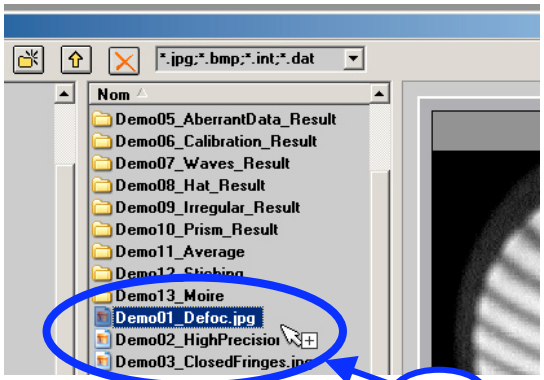
2 **Keyboard commands**

based on the standard windows keyboard shortcut

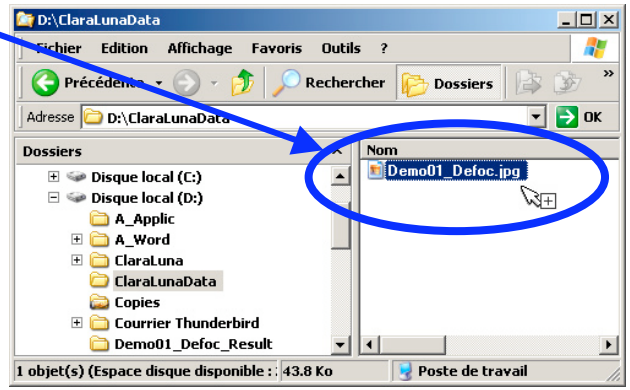
Action	Keyboard commands
Delete selection	Del
Copy selection	Ctrl + C
Cut	Ctrl + X
Paste	Ctrl + V
Select all	Ctrl + A
Go to parent folder	Back space

3 **Mouse commands**

Use Crtl + drag and drop within the File Explorer, and also between the File Explorer and Windows Explorer



2-3



Move or Copy by Drag and drop or Ctrl X / Ctrl C / Ctrl V to/from ClaraLuna File Explorer from/to Windows Explorer

5.9 ClaraLuna File Explorer vs Windows Explorer : popup menus

Mouse commands- Calling Windows Explorer's functions from Claraluna's File Explorer

1

A mouse right click on a folder opens a popup menu for folders.

Selecting "Search" will call the Explorer file search window.

Use whatever programs are installed in the menu : typically an antivirus, or a file compression utility.

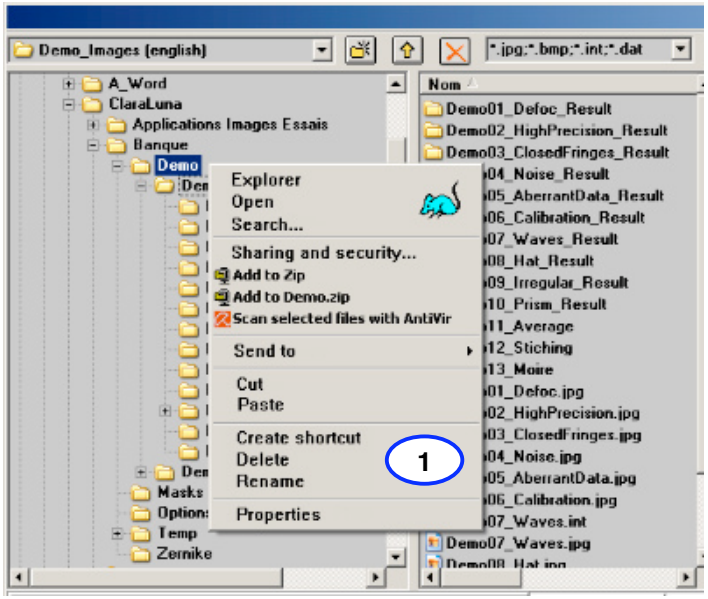
2

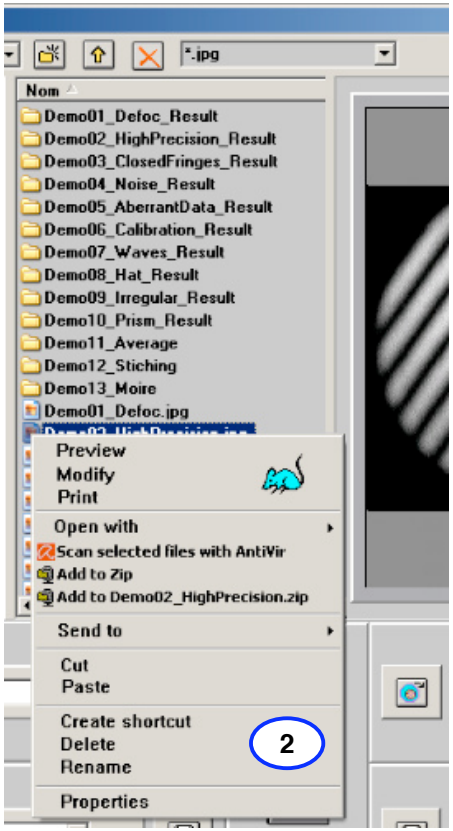
A mouse right click on a file opens a popup menu for files.

Double-clicking a file name in Claraluna File Explorer launches the computation of an interferogram, provided that the image format is read (jpg,bmp,int,dat) and the image is not a postcard from Paris.

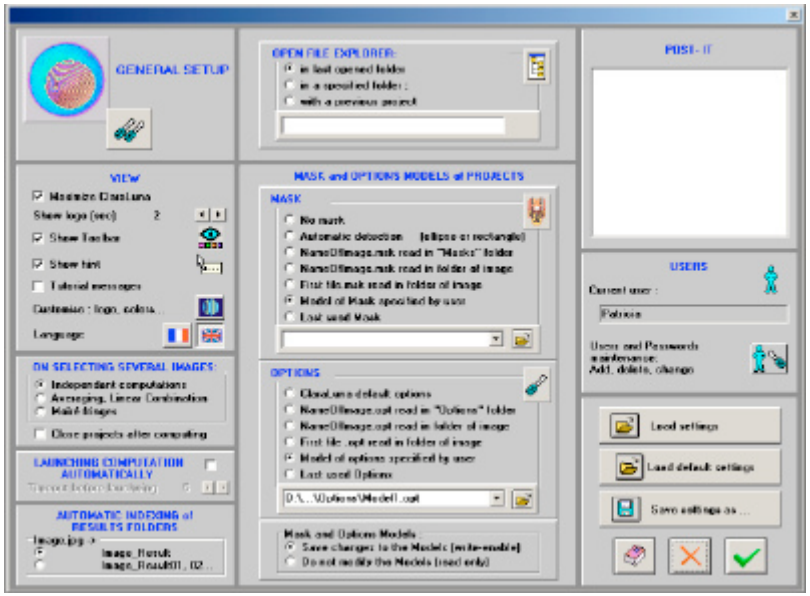
No other action by double-clicking a file is allowed directly from Claraluna File Explorer. However, opening any file associated to a program (say Report.doc) is straightforward : right-click Report.doc, select Open in the popup menu : the file will be opened in MS Word.

Finally, the commands "cut", "copy", "paste" are available as well in these popup menus.





6 USING THE GENERAL SETUP



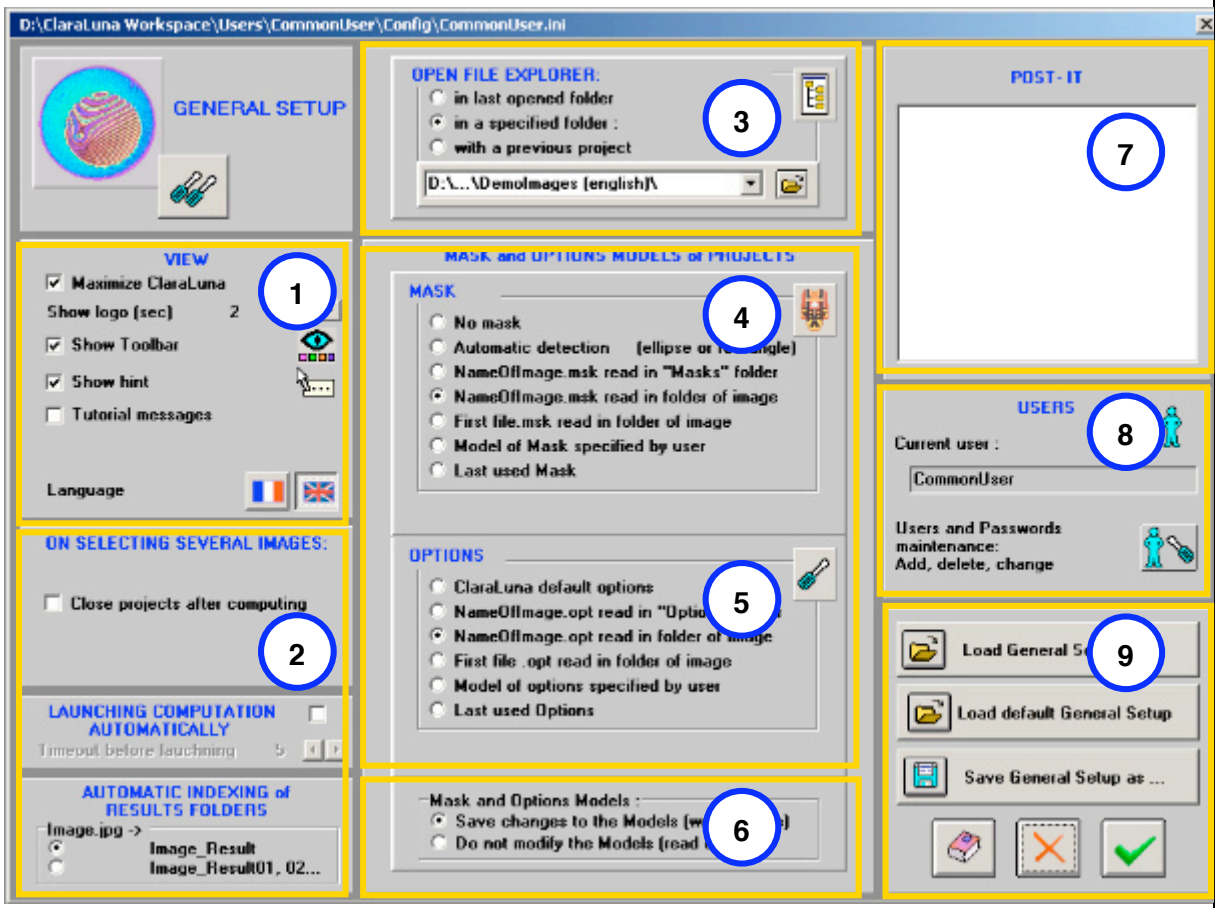
In this chapter :

- **Set the general behaviour of ClaraLuna specific to the current user**
- **Save, retreive your personal configuration**

6.1 General Setup : overview

Purpose

The General Setup manages ClaraLuna's behaviour, common to all Projects. Please read carefully this section. The Setup window contains :



1 **View options**

Some appearence options : toolbar, language…

2 **Automatic choices**

On selecting several images

Timeout for launching computation

Single/multiple results folder.

3 **On opening the File Explorer**

Choose which folder the File Explorer opens

On opening a new Project

4 Choose which Mask model is prompted

5 Choose which Options model is prompted

6 **Options and Mask Models**

Choose the properties Write enabled or read only for the Models

7 **Post it**

Write down any note or general message for the user of this configuration.

8 **Users**

Define Users, each having personal setup, saved to a personal ini file.

9 **Buttons**

for saving the displayed config to a personal file ;

for retreiving your personal setup from that file.

6.2 General Setup - View options

1 **Maximize ClaraLuna :** If checked, the software spreads over the whole screen.

2 **Show logo** On opening ClaraLuna, the logo is shown then hidden after timeout (2).

Show toolbar in main window :

3 

4 **Show hint**

If checked, most controls will be described by a "hint", ie a short comment poping up when then mouse cursor stops over the control during one second.

5 **Tutorial messages**

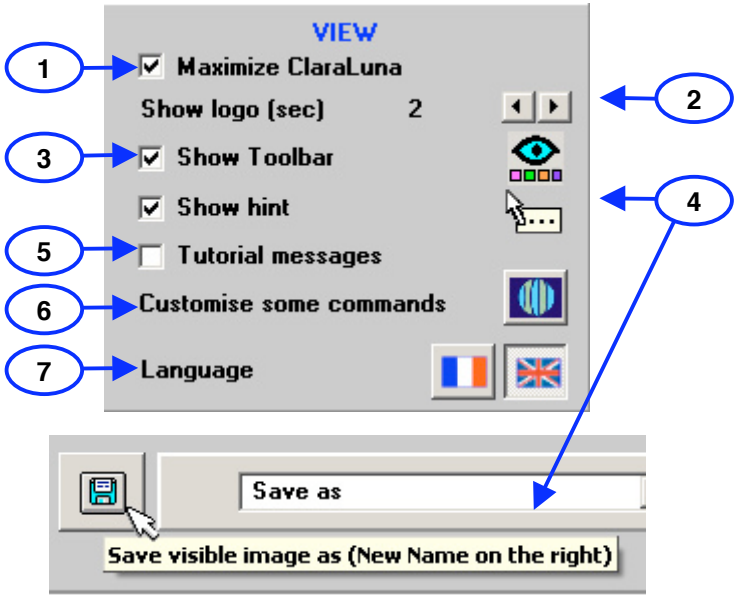
If checked, some messages pop up : "Caution: if you do this, that will happen..."

Uncheck for regular use, as soon as you get familiar with the software.

6 **Customise some commands** : when clicking main form, do nothing / call File Explorer... and similar behaviour options.

7 **Language**

French/English presently available. Other languages on request... if possible.



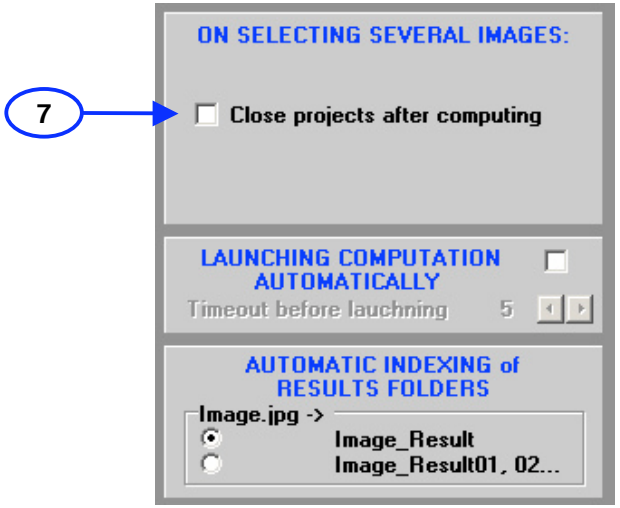
6.3 General Setup - Automatic choices (part 1)

On selecting several images

In the File Explorer, you can select several image files (Ctrl+click, or draw a frame with the mouse over the file names). When launching computation, the files will be computed in a row as :

- Independant projects, or :
- (Enhanced version only) Independant projects followed by an averaging. In this case, before computing, you will be prompted a name for the average. All these Projects results (the image files plus the average) will be stored in separate Results folders created in the same folder as the images, with the related names.

7 After computation, checking box(8) will close the Results windows of all the Projects, but not the final average (if any) Result window.



6.4 General Setup – Automatic choices (part 2)

Launch computation automatically

5

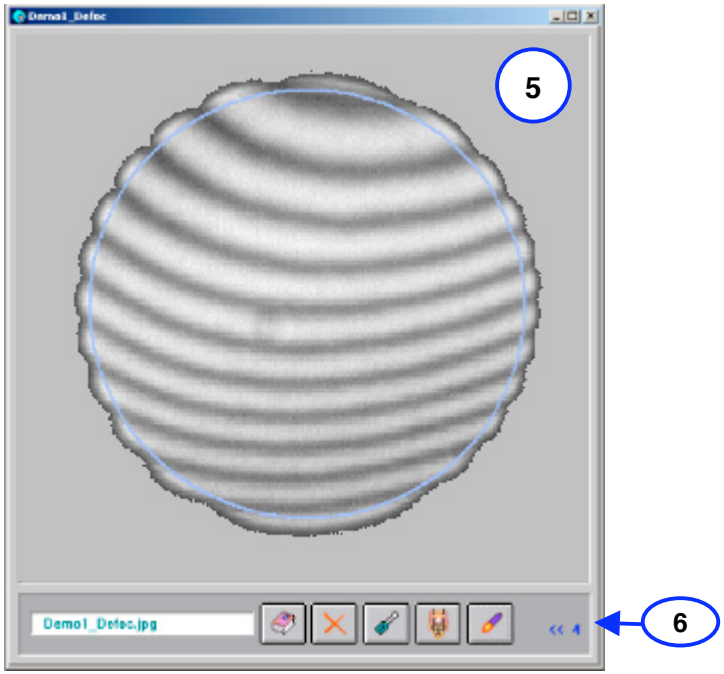
When launching a Project computation from the File Explorer, the first step results in showing Project window (5) for validating the Mask and Project Options.

6-8

If box (7) is unchecked, window (5) will be on standby, waiting for you to click any of the buttons.

By checking box (7) and setting a timeout (8) in seconds, the countdown (6) will automatically trigger the computation in the Project window (5).

Note that this automatic option might stay checked, in case of an unexpected interruption during the computation of a series of images (independant or averaged). In this case, just uncheck box (7).



Automatic indexing of Results folders

A fringe image (say "Image.jpg") will be turned into a Project by starting the computation from the File Explorer or the Video window. This means that the folder " Image_Result" will be created beside Image.jpg, containing all the files related to the Project : Mask, Options, ISO results...

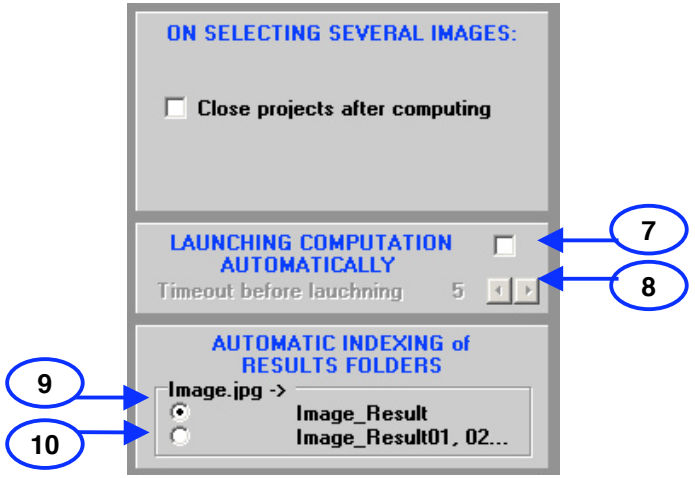
You may want to recompute "Image.jpg" with different settings :

9

If option (9) is on, the new Results folder will overwrite the previous one.

10

If option (10) is on, the Results folders will not be overwritten, and will be named with the common name "Image_Result" followed by an incremented number.



6.5 General Setup – Models of Options and Mask

1

Mask and Options Models of a new Project :

Beside the interferogram (i.e. the fringes image itself), the main ingredients of a Project are a Mask and Options. The mask is a graphic object that defines the data/no data areas on the interferogram, as well as the "horizontal" XY scale.

The Options include all the parameters specific to this particular Project (optical data such as wavelengthes, ISO/DIN specifications, results display and saving).

On opening a new project from the File Explorer or from the Video acquisition window, a Mask and Options will be prompted to the user for validation and/or modification before the actual computation.

These prompted Mask and Options are called "Models", and are similar to document models in word processors.

When launching the computation the validated Mask and Options are integrated in the computation and are saved as files with the name of the Project (= the name of the interferogram) + the extension ".msk" for the Mask and ".opt" for the Options. These files are copied to the Results sub-folder, in the same host folder than the interferogram .

1.1
1.2

The Mask and Options Models are retreived from existing files, that can be chosen by the user : (1.1) for Mask, (1.2) for Options - see details in next Section.

The Mask and Options Models are independant, and the way of choosing them is independant, too.

If the Mask and/or the Options are modified by the user before computation, the changes can be saved to their respective Model or not, depending on the user's will :

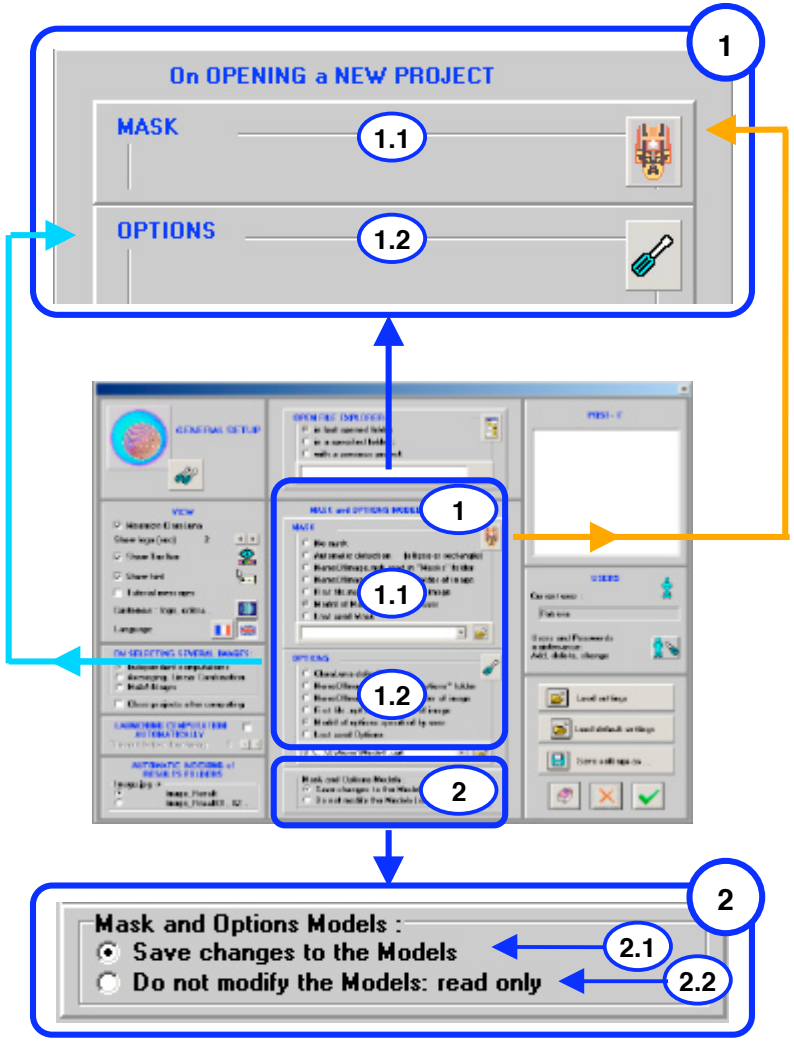
2

Saving to Mask and Options Models :

2.1
2.2

- Save changes to the Models (set a Write-enabled property)
- Do not modify these models (set a Read-only property).

Note that the latter choice holds for **both** Mask and Options Models.



6.6 General Setup - On opening the File Explorer / On creating a new project

Open File Explorer

When opening it, the File Explorer will display a given folder. Choose :

1
- In the last folder opened (you will find it in the same place where you last left it). The dispayed image will be the first one in the folder whose name is read by ClaraLuna.

2-3
- In a specified folder : browse by button (4) for calling the File Explorer and selecting a folder. This option is the best choice when working with a series of parts.

4
- With a previous project : come back to the folder of the last Project that was computed, and display its image.

On opening a new Project : Mask

When launching an interferogram from the File Explorer, a Mask will be created from of Model of Mask, and prompted for validation or modification, before the actual computation. Choose :

5
- **No mask** if you want to start from a blank. But you cannot compute without defining at least one aperture.

6
- **Automatic selection** : finds an ellipse or a rectangle with axes horizontal and vertical. It works well only for a bright fringe image on a dark background.

All Projects (for instance "Demo1_Defoc.jpg") create a mask file with the same name and extension ".msk", and makes two copies : one in the Project Results folder ("Demo1_Defoc_Result"), another in the common folder "Masks" located in the ClaraLuna program folder. If computing several Projects with the same interferogram, the last mask will overwrite the previous one in the "Masks" folder, but not in the Results folder (provided that you choose the option "Automatic indexing of Results folders") :

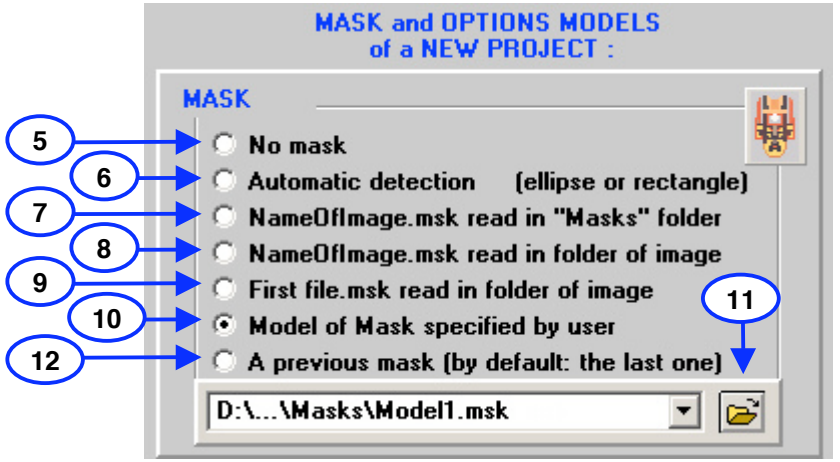
7
- **NameOfImage.msk read in the "Masks" folder**

8
- **NameOfImage.msk in the folder of image**

9
- **First file .msk read in folder of image :** drop any msk file beside the image

10-11
- **Model of Mask specified by user** : browse and select with button (11). This option is the best choice when working with a series of parts.

12
- **A previous mask (by default: the last one).** Easy to use for a first run on ClaraLuna, but not suitable for working with a series of parts.

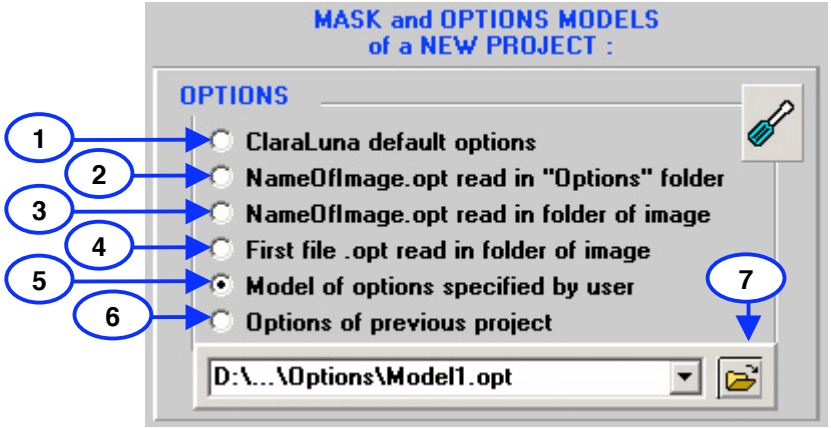


6.7 General Setup - On opening a new project

On opening a new Project : Options

The choices for Project Options are very similar to those for Masks.

1. **ClaraLuna default options** calls the built-in factory settings, ie the most common and easy-to-use.
2. **NameOfImage.opt read in the "Options" folder** (see page above, # 7)
3. **NameOfImage.opt in the folder of image** (see page above, # 8).
4. **First file . opt read in folder of image** : drop any msk file beside the image
5. **Model of Options specified by user** browse and select with button (7). This option is the best choice when working with a series of parts.
6. **Options of previous Project**

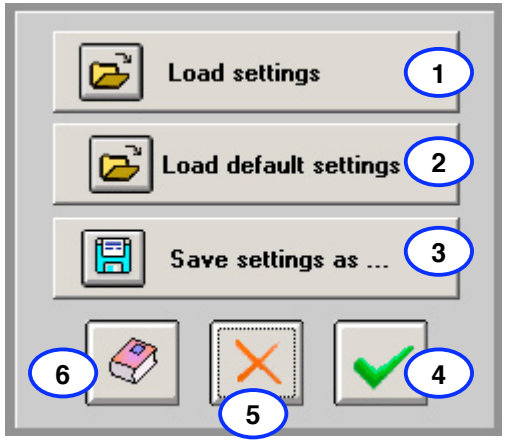


Options and Mask Models :

- **Save changes to the models**: if checked, the Options Model is write-enabled
- **Do not modify the models : read only**

The same checkbox controls the "read only" behaviour of both the Mask and the Options Models

6.8 General Setup - Buttons



1. **Load settings**

   Reads a .ini file and loads the settings to the General Setup window.

2. **Load default settings**

   Loads the built-in factory settings

3. **Save settings as**

   Creates a .ini file with the settings of the General Setup window.

4. **Accept**

   Saves the settings of the General Setup window to the default file ClaraConfig.ini, located in the "Options" folder - When starting the program ClaraLuna, this configuration file ClaraConfig.ini will be loaded. Note that that the last config will be loaded for the next session. For changing to another saved config, use button (1).

5. **Cancel**

   Closes window, discards all modifications done to the settings since opening the General Setup window.

6. **Help**

6.9 General Setup - Users

1-2 **The current user logs in awhen ClaraLuna opens.**

3 The current user's name is shown in edit (1).
Click button (2) to open the Users Maintenance window.

4-5 **In the Users maintenance window,**

3
- create new user
- switch to next user
- delete user

5
- change password

Back to general Setup window

6
- If next user has logged in, the change will be taken into account only if closing the General Setup window by button (4),

6-7 **In the Main window status panel** the new user will be visible (5)
The current User's name is shown in the status panel, top right of main window