

# CharruaSoft S.A.

User Manual  
CWS – User Manual\_en

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## User Manual DICOM Viewer – CWS

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## 1. Introduction

**CWS** is a software for personal computers, that works under MS-Windows, XP/7/8, and is designed for DICOM image processing and visualization. It works with any Imaging system that supports the DICOM protocol.

## 2. Computer Platform

The minimum configuration for the personal computer is:

4 GBytes RAM  
Ethernet card  
Wheeled Mouse  
17" Monitor  
Windows 7/10

The images are transmitted through the Ethernet network.

## 3. Software Specifications

The software has the following characteristics:

- Study reception with DICOM Storage SCP service.
- Image presentation with all demographics data on screen.
- Window Width and Level modification with slide controls.
- 4 pre-programmed windows.
- Annotation of comments with indicating arrows.
- Distance Measurements, angle Measurements.
- Density and Area measurements, with Rectangular and Ellipsoidal ROI.
- Zoom.
- Cine Display.
- Multiformat DICOM printing or on paper with any Windows printer.
- Creation of autoexecutable CD-ROMs with the images from the study, including a free visualizer for revision.

## 4. Software installation

1. Download the Installer from <http://www.charruasoft.com/>
2. Run cws\_install.exe
3. Follow the Wizard to correctly install the software.

**Note:** It is suggested to install the Software in the path recommended by the installation Wizard (C:\CharruaSoft).

## 5. Starting the Program

Double clicking on the Program (cws.exe), you will see the following screen:

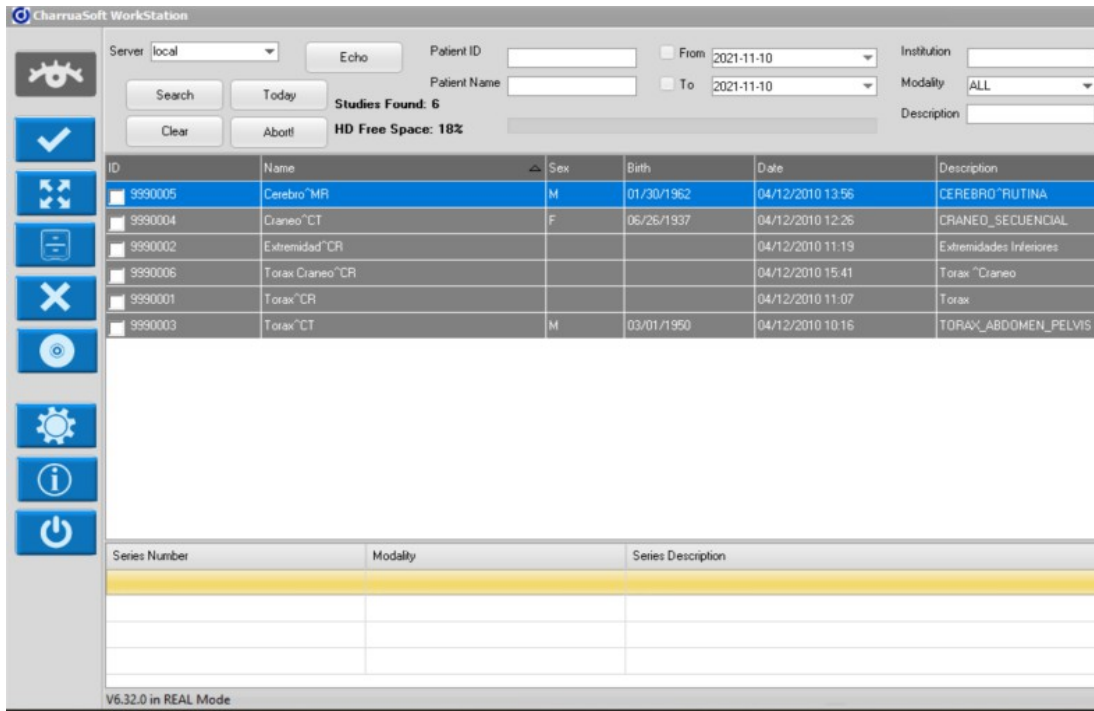


Figure 1.- Starting screen

### 5.1 Patient loading

Double clicking on the patient name or selecting several patients and clicking the “View” button on the left menu, the patient images will be loaded in the viewer.



Figure 2.- Screen showing patient loaded.

## 5.2 Controls

At the left of the screen, there is an image localizer, any image can be selected with a mouse double-click.

## 6. Viewer Menu

### 6.1 Image Toolbar

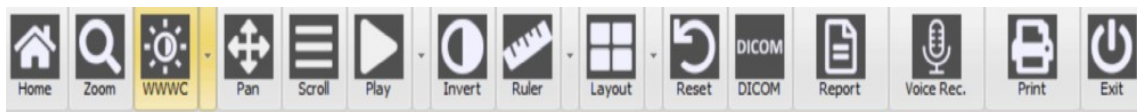


Figure 4. Image tab controls.

- Home – Goes back to the study list.
- Zoom – zoom with mouse in selected window.
- WWWC – adjust Window Center and Window Width..
- Pan – Moves the selected image within the viewport.
- Scroll – change image with mouse movement.
- Play – Images are displayed in Cine mode, with speed adjustment.
- Invert – Positive/Negative selection
- Measurements: distance, angle, ROI, Text and arrows.
- Layout – modify the number of viewports.
- Reset – goes back to default condition.
- DICOM – Shows DICOM Header.
- Report – Write a text report for the current study.
- Voice Recording – record a voice audio for the current study.
- Print – DICOM or Windows printing.
- Exit – Closes the viewer.

## 7. Main Window functionality

### 7.1 Search for patients using filters.

Figure 8. Search for Patients.

There are many options to filter patient searches.

You can search for Today Patients, clicking on the left menu “Today”, or you can filter patient results by:

- Patient ID
- Study date (looking between a specified period),
- Patient Name
- The Institution that the patient belongs
- Description of the study
- The modality
- A specific server where the study is located (Local is the local image server)

Note: If you press the Query button, without selecting any filter, a dialog will appear saying there are no filters and the query can take a long time, press OK.

## 7.2 DICOM Query & Retrieve

This window allows to Q&R other remote image servers.



Figure 9. Q&R to remote image servers.

Doing Q&R to a remote server requires the following steps:

1. Select the server you would like to query: Local or any of the servers added as Remote in the setup window.
2. The system will show a list of patients from the remote server.
4. Doing click on the patient name, it will show all the study series in the lower grid.
5. Doing double click on any serie, it will move it to the local server and show it in the viewer.

## 7.3 Move Study (Storage SCU Dicom)

Selecting studies with the checkbox, and pressing Move Study Button, allows to send them to a remote server.

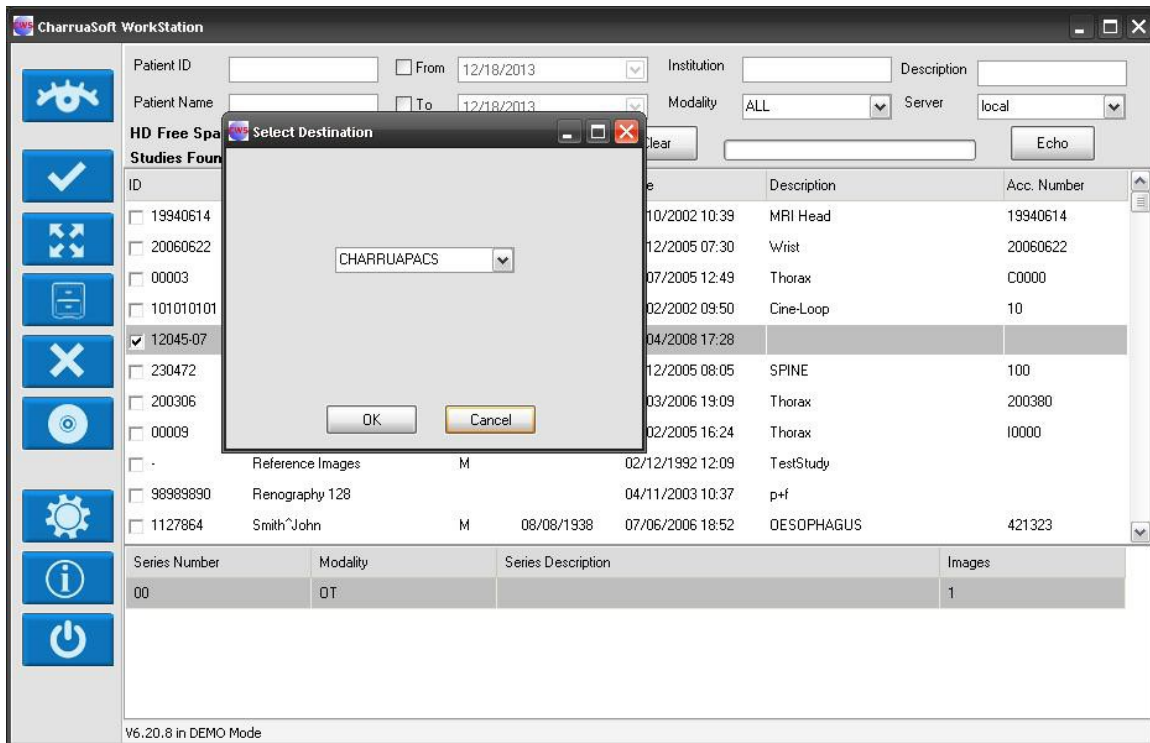


Figure 10. DICOM Storage SCU

## 7.4 Archive

### 7.4.1 Scan Folder

The archive functionality has three different purposes:

- To load DICOM images from the file system.
- To backup selected studies to an external folder.
- Do a database regeneration based on the images in the imagebox, in case of database corruption.

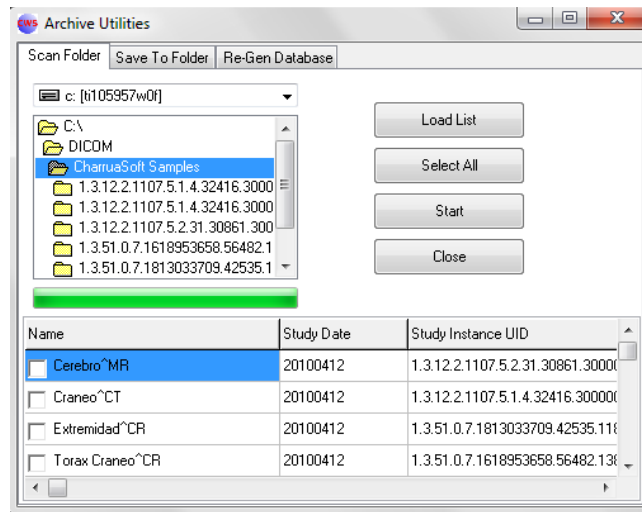


Figure 11. How to select the Folder for scanning.

The different options mean:

- **Load List:** displays all the DICOM studies in the current folder.
- **Select All:** selects all the displayed studies, otherwise the user can choose them manually.
- **Start:** loads the selected studies into CWS database.
- **Close:** closes the current dialog window.

## 7.4.2 Save to folder

This option will save the selected studies to an external folder.

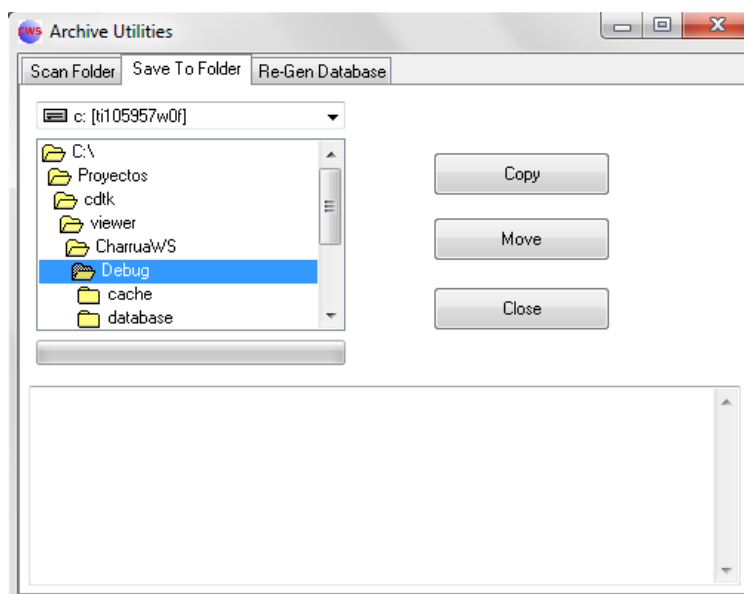


Figure 12. Save to Folder



The different options mean:

- **Copy:** makes a copy and keep the study in CWS database.
- **Move:** makes a copy and delete the study and the images from CWS database and imagebox.
- **Close:** closes the current dialog window.

## 7.5 Delete Study

Selecting studies with the checkbox and pressing Delete Study will delete all of selected items.

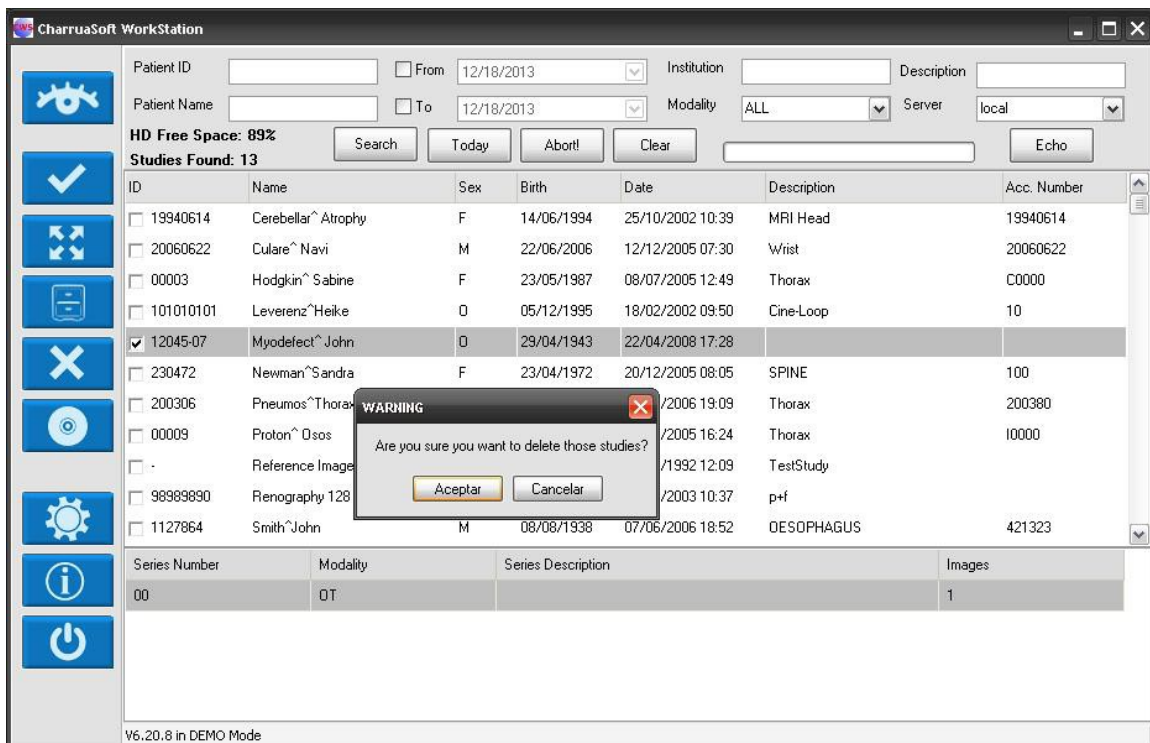


Figure 13. How to select studies for deletion

## 7.6 Backup CD

This option creates a complete DICOM CD/DVD.

You can select the studies that you want to backup and press the Backup CD button. The system will create a CD/DVD with an autorun viewer. This viewer will start automatically when the CD/DVD is inserted in the computer, with no need for other software.

## 7.7 Setup

### 7.7.1 SCP Configuration

The first tab has the local server configuration for receiving images as a DICOM Storage SCP. Port Number and AE Title need to be provided. The archiving compression can be selected from here.

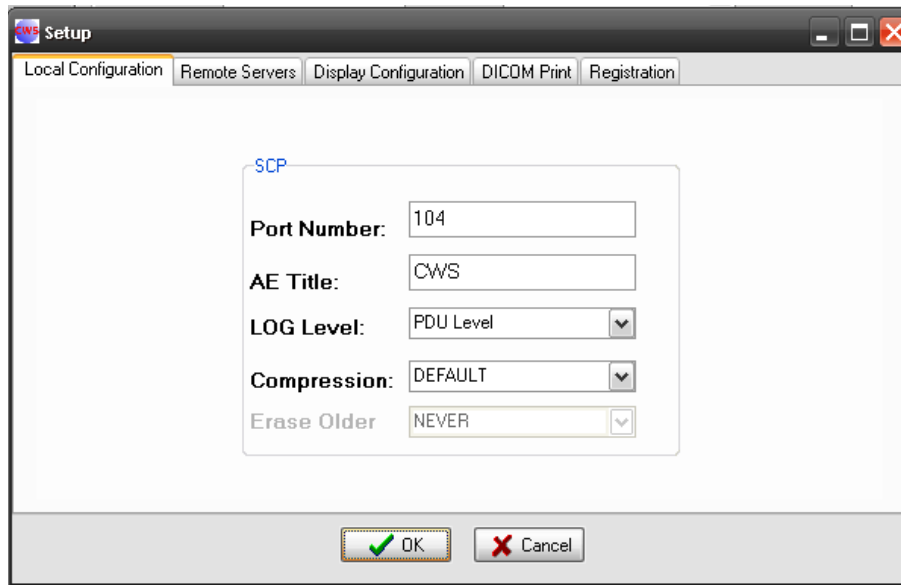


Figure 14. DICOM Storage SCP configuration

### 7.7.2 Remote Servers

This tab is for adding Remote Servers, for querying or sending images to them. You need to provide AE Title, IP Address and Port Number.

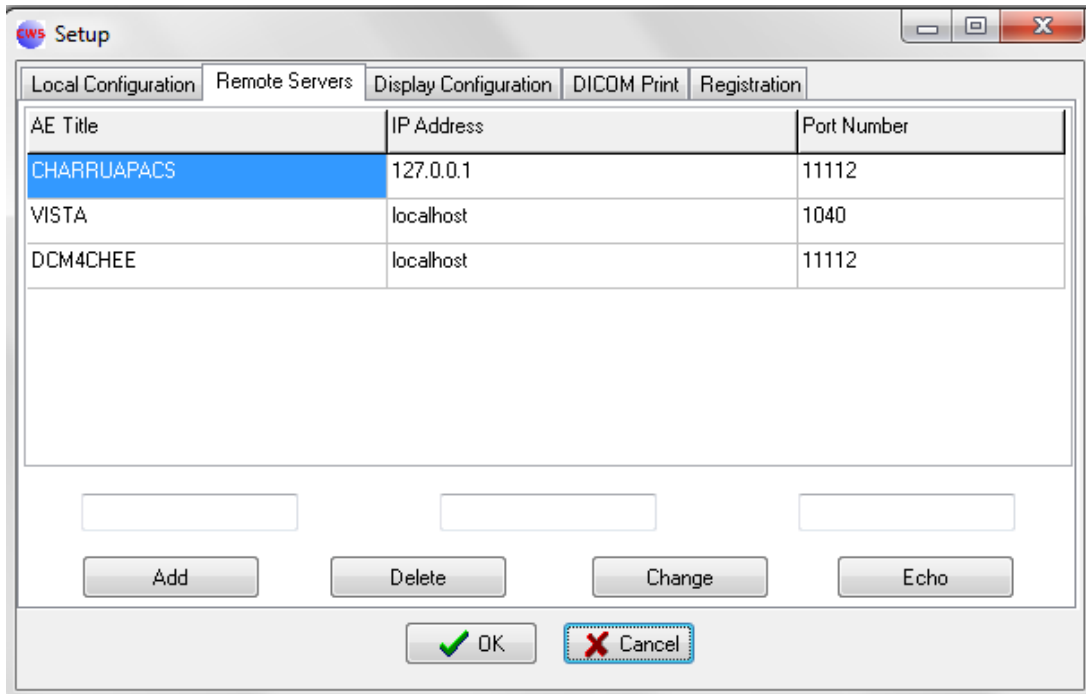


Figure 15. Remote Servers configuration.

The Echo button allows testing DICOM connectivity with the remote server.

### 7.7.3 Display Configuration

In this tab the Window Width/Level presets can be modified. Each preset has a name and a Level and Width value.

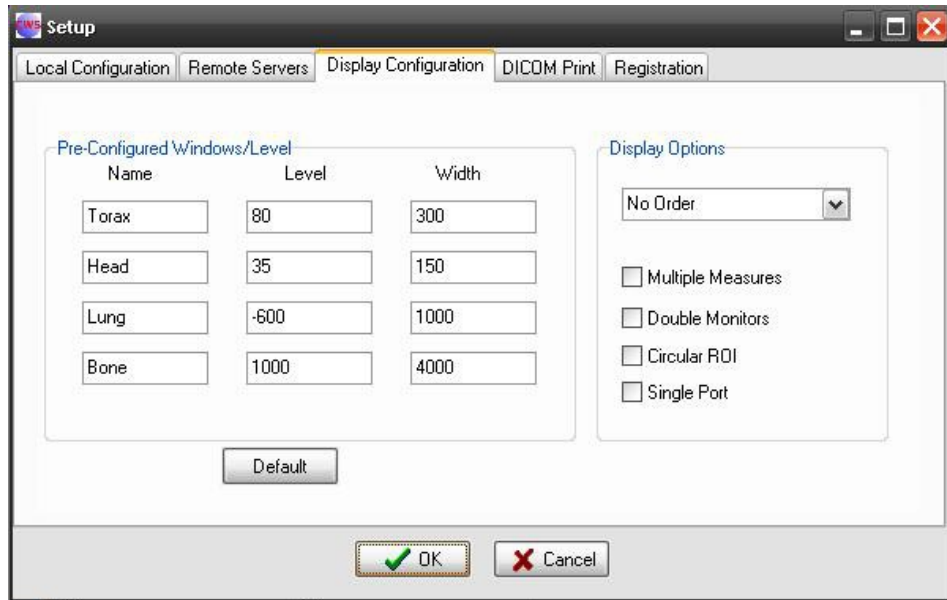


Figure 16. Display configuration

The image ordering can be selected.

If Multiple Measures is checked, the selected measurement will be kept selected.

Double Monitors allow the application to use two displays.

### 7.7.4 Dicom Print

For the DICOM Print functionality you need to set the DICOM Printer IP Address, Port Number and AE Title. Also the final printout can be calibrated using Gamma and Contrast values. Destination, Orientation, Medium Type and Film Size ID can be selected also.

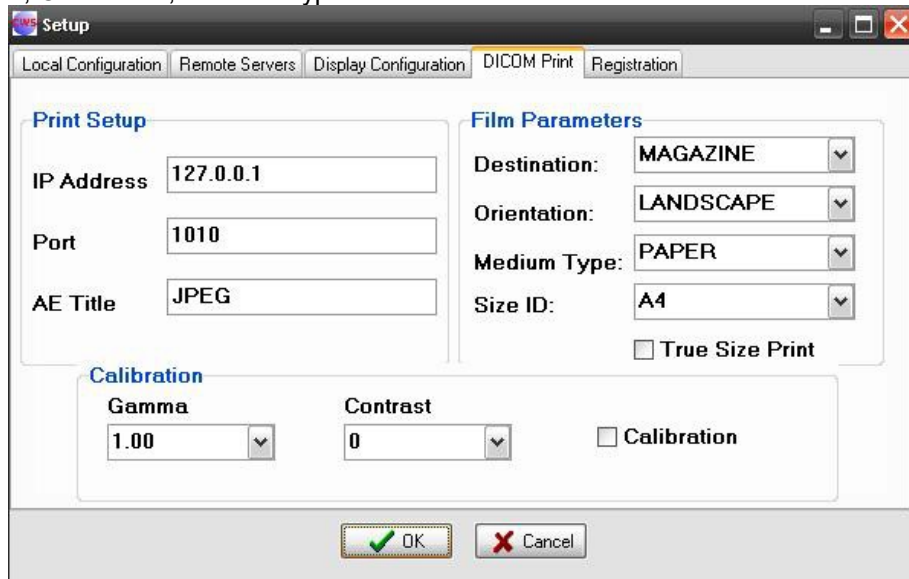


Figure 17. DICOM Print configuration.

### 7.7.5 Registration



*Figure 18. CWS Registration.*

After installing the software it will work in "demo" mode, and its main functions will be blocked. To un-block these functions, you have to send the `cws_register.txt` file to the software provider.

The software provider will send you back a key number to input in this window for enabling the software.

NOTE: The key sent enables the software to run only in the computer where it is actually installed. It won't work in other machines.

## 8. .ini setting

The .ini archive can be configured directly. The configuration options are presented below:

### [FindForm]

#### ConfigPass=

- = 1: enable a password to access to the settings (cws1234).
- = 0: don't enable any password.

#### DeleteOlder=

- = 1: enable to delete old studies by date (2 years, 1 year, 6 months, 3 months, 1 month and 7 days).
- = 0: don't enable to delete studies.

### [ViewerFrm]

#### ImageSortOrder=

- = 0: No Order
- = 1: Acquisition Order
- = 2: Image Number
- = 3: Ascend. Pos.
- = 4: Descend. Pos.
- = 5: Acquisition Time

#### ROIType=

- = 0: the region of interest is rectangular.
- = 1: the region of interest is elliptical.

#### MultipleOperations=

- = 1: Allow to repeat the selected measurement.
- = 0: Don't allow repeating measurements.

#### DoubleMonitors=

- = 1: Double monitors
- = 0: Single monitor

#### SinglePort=

- = 1: Allow to view every series in the same viewport.

= 0: Don't allow using the same viewport.

#### **Thumbnails=**

= 1: Shows thumb images.

= 0: Hides the thumb images.

#### **SecondLevelText=**

= 0: Displays all the text.

= 1: Hides the text of second level.

#### **For each programmed Window:**

**WNx** = Window's name.

**WLx** = Window's center.

**WWx** = Window's width.

#### *Examples:*

*WN1=Body*

*WL1=80*

*WW1=300*

*WN2=Head*

*WL2=35*

*WW2=150*

*WN3=Lung*

*WL3=-600*

*WW3=1000*

*WN4=Bone*

*WL4=1000*

*WW4=4000*

## 9. Contact

For any comments or suggestions about this manual, or to ask more information about **Charrua WorkStation**, please contact CharruaSoft at:

[info@charruasoft.com](mailto:info@charruasoft.com)  
<http://www.charruasoft.com>