TWAIN Driver User Manual

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Summary

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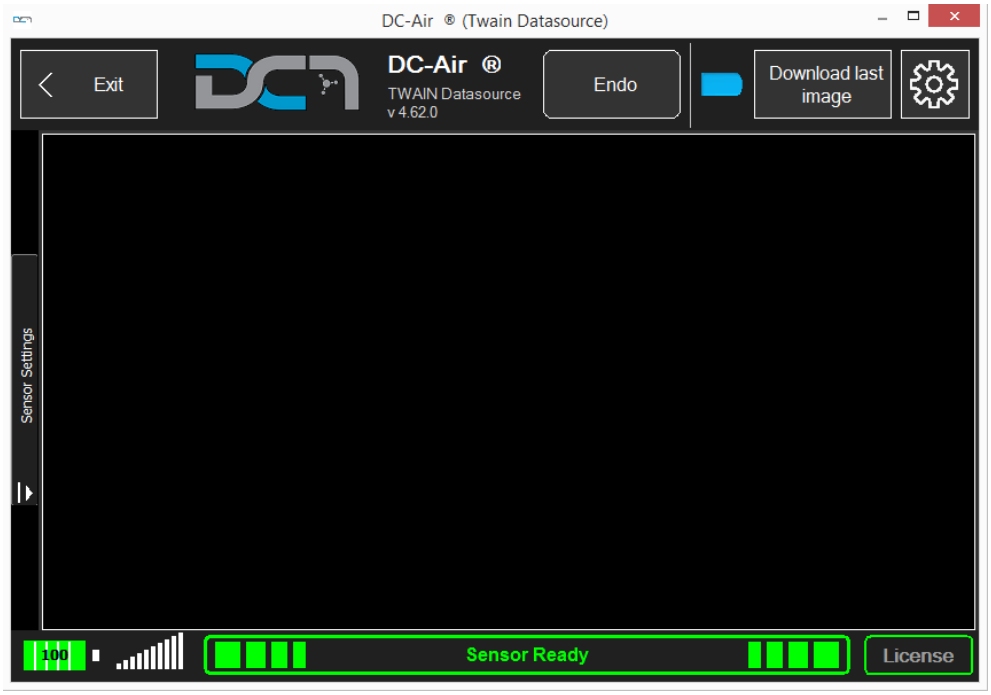
Presentation

The DC-Air™ TWAIN Driver allows you to manage the acquisition of images and their processing directly from a third part PMS (Practice Management Software).
DC-Air™ TWAIN Driver connects to the intraoral sensor via USB Docking Station, allowing you to start acquiring images and other functions that will be described in the following manual.



Minimum computer requirements

The following table describes the minimum computer requirements for using the DC-Air™ TWAIN Driver.

Operating System	**Windows 8.1 (recommended Windows 10)**
Processor	**Intel i5 dual core** (recommended **Intel i7 quad core**)
Display	**15 inches 1024x768 pixels** (recommended **19 inches full HD**)
RAM Memory	**4 GB** (recommended **8 GB**)

The DC-Air™ TWAIN Driver uses the local USB 2.x / 3.x connection. It's highly recommended to check the power settings of the USB port to avoid problems in using the intraoral sensor.

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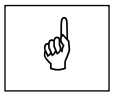
TWAIN Driver technical information

The DC-Air™ TWAIN Driver is 32-bit software. It can also be used on a 64-bit operating system.
It works as a Windows service to increase the speed of using the intraoral sensor.
This driver captures a single image. When the image was captured, there are two options:

- automatically send the captured image to the host application and hide the service
- show the captured image for processing in the TWAIN Driver

The user can choose one of these options from the settings.



Note
The TWAIN driver needs the sensor calibration file and license file to function properly. These files are automatically downloaded from the WEB server when an internet connection is available. If no internet connection is available, the user should manually copy these files to the computer.

The calibration file is stored in the following folder:

C:\ProgramData\DC-Air\Sensors\AthlosAir\Calibrations

If you have more than one sensor, this folder can contain many files.

The license file is stored in the following folder.

C:\ProgramData\DC-Air\Sensors\AthlosAir\Licenses

If you have more than one sensor, this folder contains one file for each sensor.

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Software License

Note
DC-Air™ TWAIN Driver requires a user license. If you do not have a license, you can obtain it automatically from WEB or manually copy it into your computer. If you need a license file to copy manually, you should ask your local technical support for it.

License activation

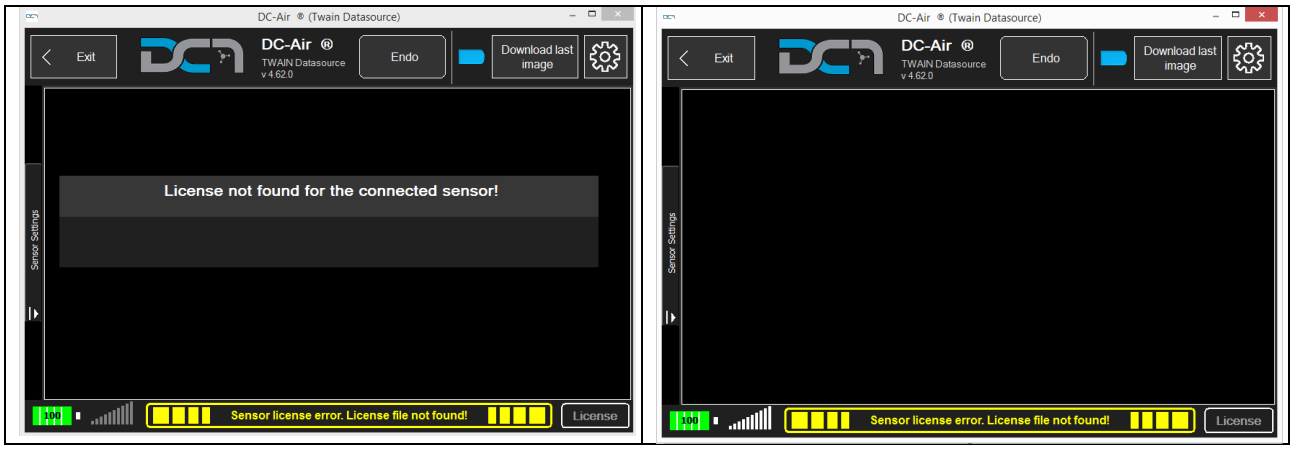
The TWAIN Driver automatically downloads the license file from the internet when the license exists and the internet connection is active.

When starting the TWAIN Driver for the first time, it looks for the sensor. If a sensor is found, the following actions will be performed:

- Look for the calibration files based on the Sensor serial number
- Look for the license files based on the Sensor serial number

These actions are independent of each other.

If you see any of the following windows, it is because the TWAIN Driver could not find the software license.



If the software does not find the license, please verify:

- There is an internet connection
- You have received a software license for the intraoral sensor

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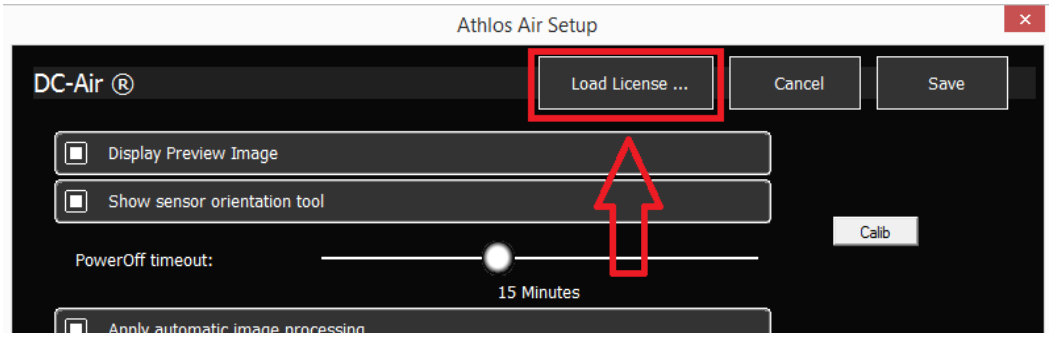
Copy License file to your computer

If you need to manually copy the license file to your computer please proceed as following.
Click the “Settings” button as shown in the picture.

Click the “Load License …” button as shown in the picture.



Select the license file that you received, then click the OK button. The license file will be copied to the license folder. If the license is ok, the status message “Sensor license error. License file not found!” disappears. If it does not, please verify you have copied the correct license file.

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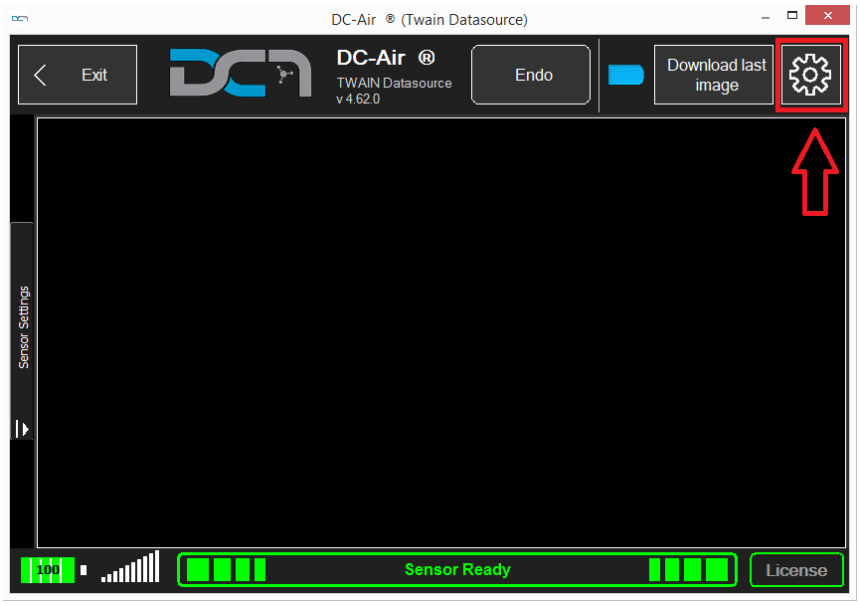
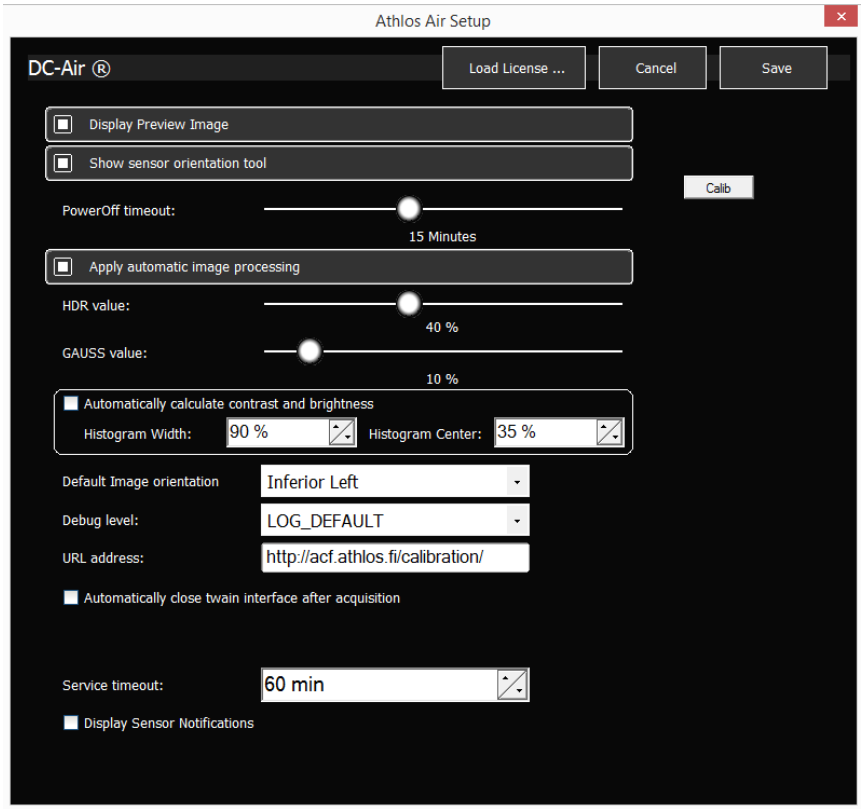
Software configuration

Configuring the TWAIN Driver allows you to set many parameters.
Click the “Settings” button as shown in the picture.



The following window will be shown.



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Display Preview Image

This option is on by default.

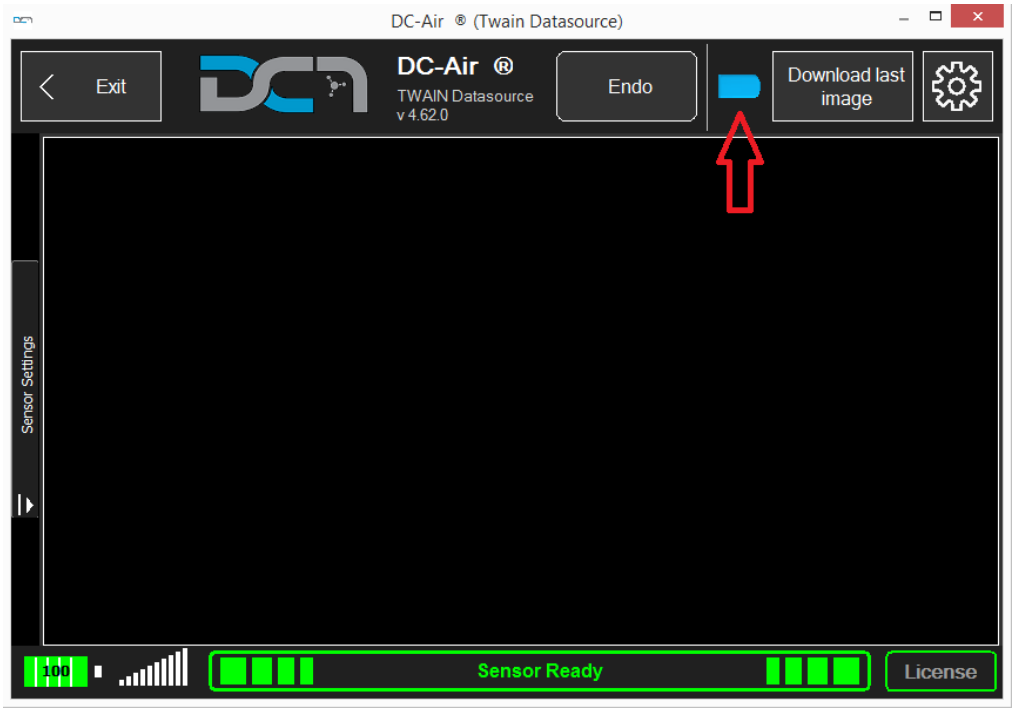
When you capture an image from the intraoral sensor, you can choose to show the preview image while the full image is being transferred. The preview image is the same image as the full one, but it is smaller. Since the transfer takes place via Bluetooth, the complete image transfer may take about ten seconds, while the preview image transfer takes less than five seconds.

Show sensor orientation tool

This option is enabled by default.

When this option is activated, the TWAIN Driver shows the tool in which the sensor orientation can be chosen. Sensor orientation is the physical orientation within the patient's mouth.

The orientation tool is visible as shown in the following picture.



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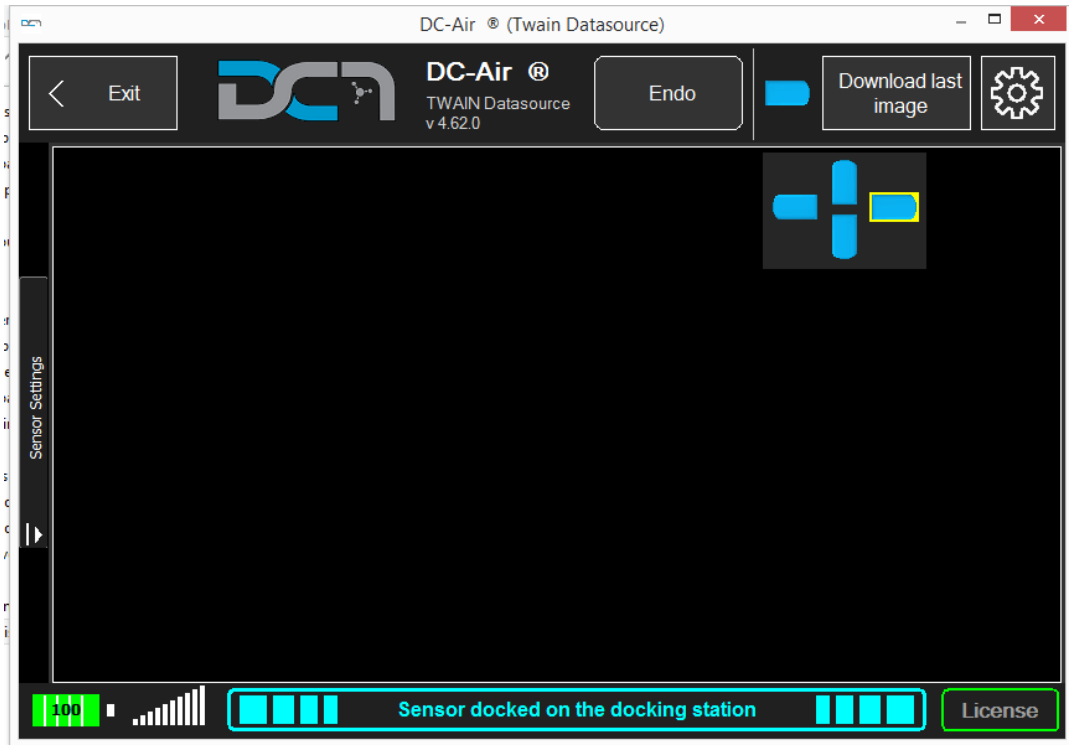
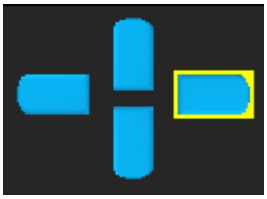
When you click on the “Sensor icon” the TWAIN Driver shows the following options:





You can click on one of the four orientation icons to select the automatic image rotation of the image to be acquired. If you don’t need any automatic orientation you can click on the background of this orientation tool.

Note
The automatic orientation will be applied on the next acquired image.

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PowerOff timeout

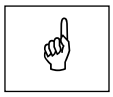
This option is set by default to 15 minutes.

The timeout is the time elapsed since the sensor was undocked from the docking station or since the last image was captured. When the time reaches the timeout, the sensor turns off.

Apply automatic image processing

This option is enabled by default.

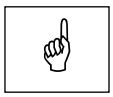
When this option is enabled, the TWAIN driver automatically processes the image using the processing parameters: HDR and GAUSS.



Note
This is a setting reserved for an expert user. Please do not change the setting if you are not sure how it works.

HDR value

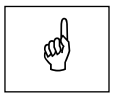
The default value for this option is: 40.
This parameter is applied for the image processing only when the “Apply automatic image processing” is active.



Note
This is a setting reserved for an expert user. Please do not change the setting if you are not sure how it works.

GAUSS value

The default value for this option is: 10.
This parameter is applied for the image processing only when the “Apply automatic image processing” is active.



Note
This is a setting reserved for an expert user. Please do not change the setting if you are not sure how it works.

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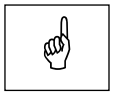
Automatic calculate contrast and brightness

This option is disabled by default.
When this option is enabled, the TWAIN Driver will automatically calculate the contrast and brightness by analyzing the image

When this option is disabled, the TWAIN Driver apply the values: Histogram Width and Histogram Center.



Note
This is a setting reserved for an expert user. Please do not change the setting if you are not sure how it works.

Default Image Orientation

The default value for this option is: lower right.

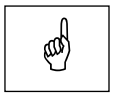
When the user specifies the orientation, it will be applied by default to any acquired image. This option has the same result as if the user selects a sensor orientation from the GUI.

The default orientation could be different for some host applications. This because of the automatic image orientation of the host application.

Debug level

The default value for this option is: LOG_DEFAULT.

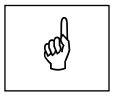
The level of the log indicates the level of the information needed by a technician to analyse a problem.



Note
This is a setting reserved for an expert user. Please do not change the setting if you are not sure how it works.

URL address

This is the URL address where the calibration files are stored.



Note
This is a setting reserved for an expert user. Please do not change the setting if you are not sure how it works.

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Automatically close twain interface after acquisition

This option is disabled by default.

When this option is disabled, the TWAIN Driver acquires the image, processes it when requested, and keeps the TWAIN GUI opened. In this way, you can process the image by changing the LUT or other parameters. When you have finished, click on “Exit” to send the image to the host application.

When this option is enabled, the TWAIN Driver acquires the image, processes it, and automatically sends the image to the host application before closing itself.

Service timeout

The default value for this option is: 600 minutes (10 hours).
Since the twain driver runs as a Windows service, you can set the maximum time that the service will remain active. The timeout is calculated from the last service wakeup and/or image acquisition.

Note
This is a setting reserved for an expert user. Please do not change the setting if you are not sure how it works.

Display Sensor Notifications

This option is disabled by default.

When this option is enabled, the sensor pushes notifications to the operating system. The notification is a balloon message near to the Windows Tray Icon area.

The notification may indicate sensor status changes, image acquisitions, and other information.

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User interface

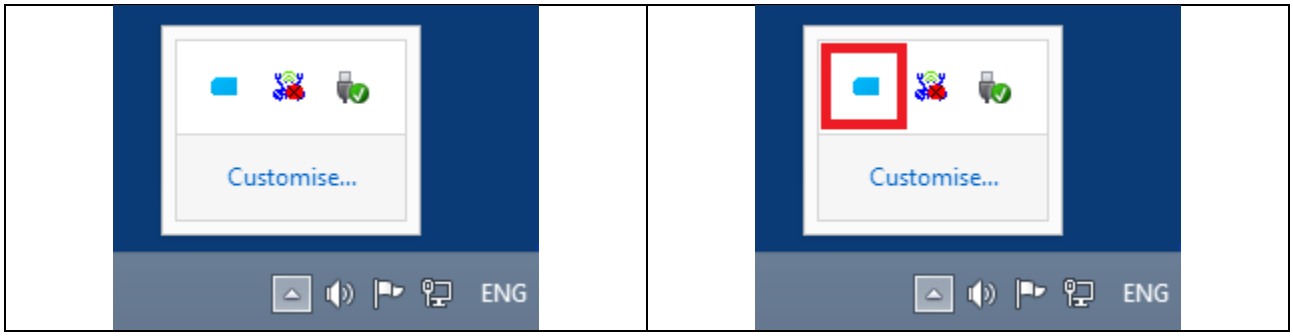
In this chapter we describe the user interface. There are two GUIs:

- Windows service as tray icon
- Standard interface during acquisition

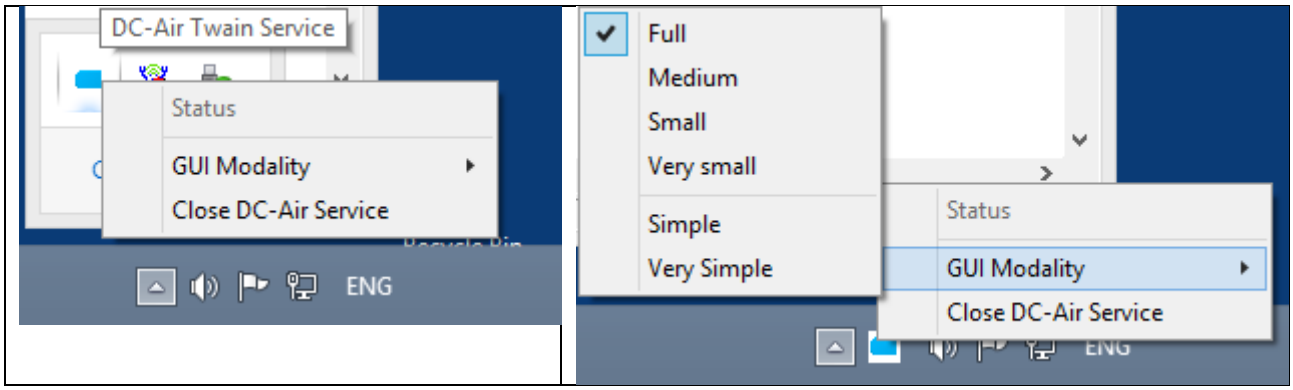
Windows service as Tray Icon

The TWAIN Driver is executed as a service. The service starts when a host application calls the TWAIN acquisition. When you click on “Exit” or acquire an image and the TWAIN Driver completes the acquisition cycle, it disappears from the screen but remains active as a service. You can find it in the “tray icons”. The tray icons are usually displayed on the bottom-right of the screen, near the clock in the Windows taskbar.

The icon appears in the system tray as a small blue shape similar in shape to the DC-Air™ ™ wireless x-ray sensor (it is highlighted by a red box in the example image below.)



If you right click with the mouse on this icon, you will see the following menu.



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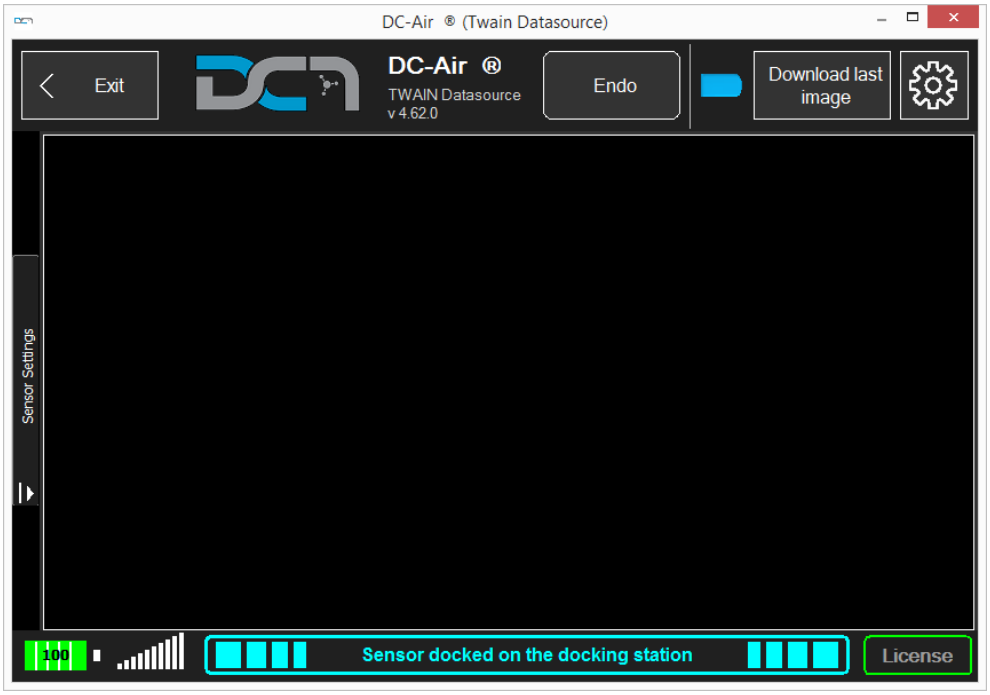
GUI Modality

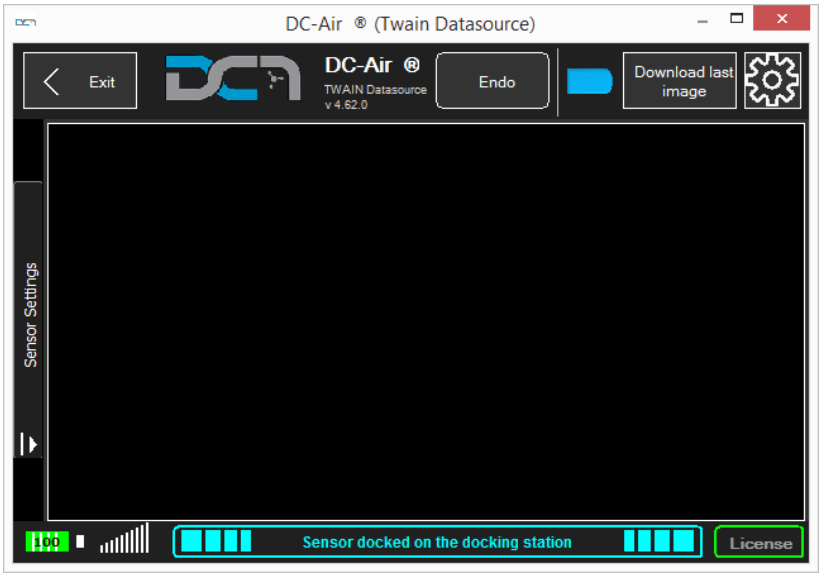
The GUI Modality has several options: Full, Medium, Small, Very small, Simple and Very Simple.

GUI Modality: Full.



This is the complete GUI in full size. The user can access all available functions.

GUI Modality: Medium.



This is the complete GUI in medium size. The user can access all available functions.

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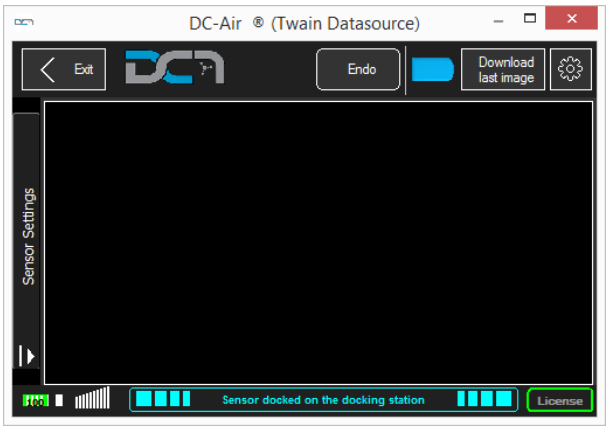
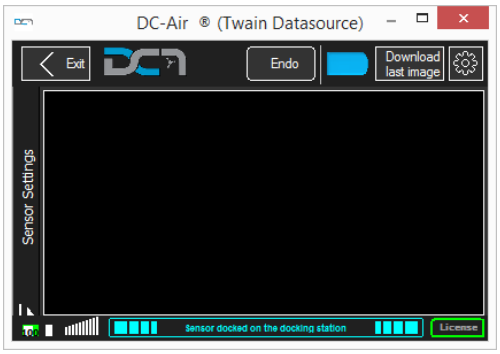
GUI Modality: Small.



This is the complete GUI in small size. The user can access all available functions.

GUI Modality: Very small.



This is the complete GUI in small size. The user can access all available functions.

This GUI mode is very useful for FMX acquisition as the smallest size is minimally obstructive to the layout images on the screen.

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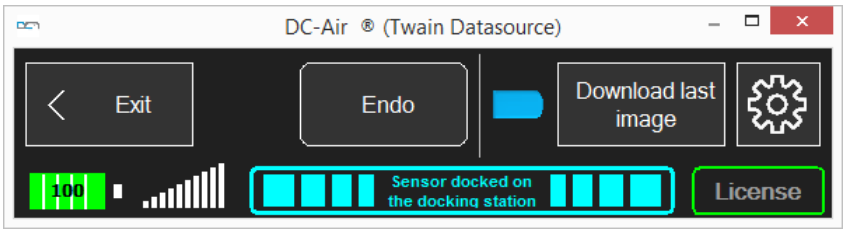
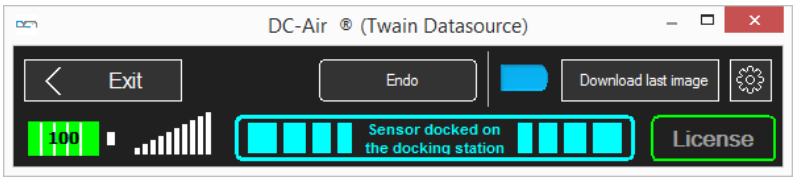
GUI Modality: Simple.



This is a small GUI without the image preview. It isn't possible to process the image manually.

GUI Modality: Very Simple.



This is a small GUI without the image preview. The window is size is even smaller than the Simple GUI. It isn't possible to process the image manually.

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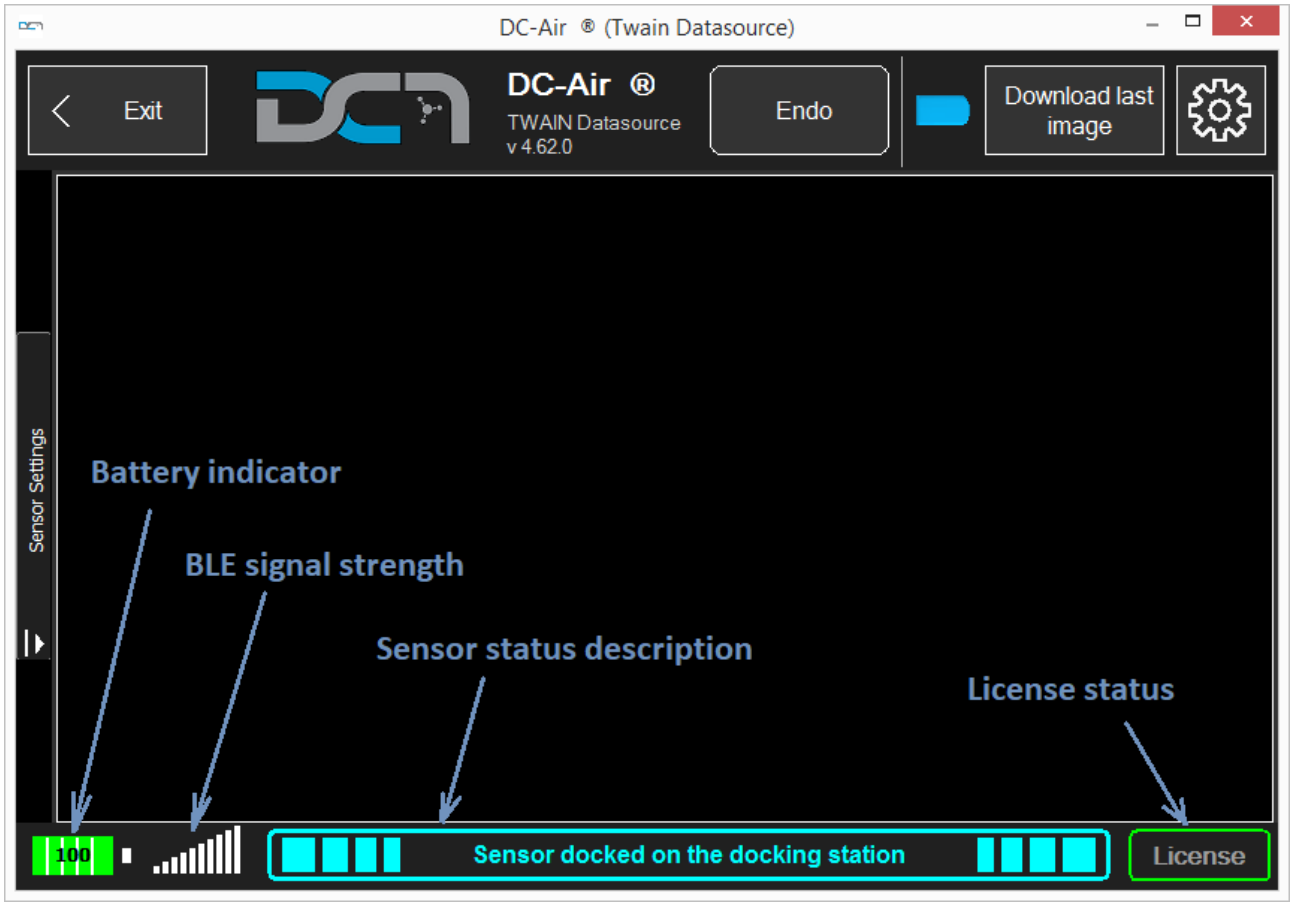
Standard interface during acquisition.

In this chapter we explain the TWAIN Driver functions considering the “Full” GUI mode.



Standard interface: Sensor information.

The GUI give some sensor information like battery level, BLE signal strength, sensor status etc.

Standard interface: Battery level.

The battery level shows the current battery level. If the battery level is more than 50%, the icon is green. It the level is less than or equal to 50%, the icon is yellow. When the battery is less than or equal to 25%, the TWAIN Driver shows a warning message that prompts you to place the sensor on the docking station to recharge it.

Note
If the battery level is less than or equal 25%, we strongly recommend you recharge it as soon as possible to avoid image loss.

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Standard interface: Exit.

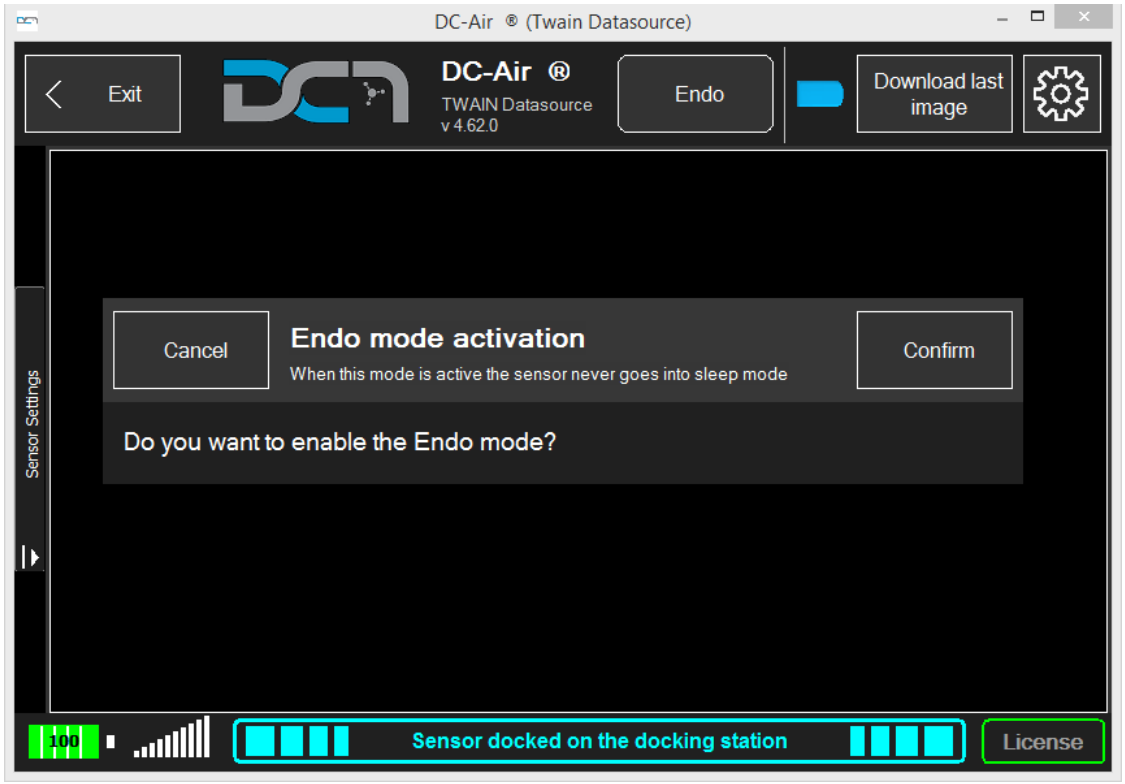
The “Exit” button closes the acquisition GUI without closing the service. If there is an acquired image in the GUI, the TWAIN Driver will send the image to the host application before closing the GUI.

Standard interface: Endo.

Note
You can set the endo mode only when the intraoral sensor is docked on the docking station.

The “Endo” button enables the endo mode acquisition. When the endo mode is enabled, the sensor never goes in Power Off mode. This setting is normally used during surgery when the doctor needs to take an image every 30-40 minutes or more. This mode may drain the entire battery of the sensor.

When you click on Endo button, you will be asked for a confirmation.



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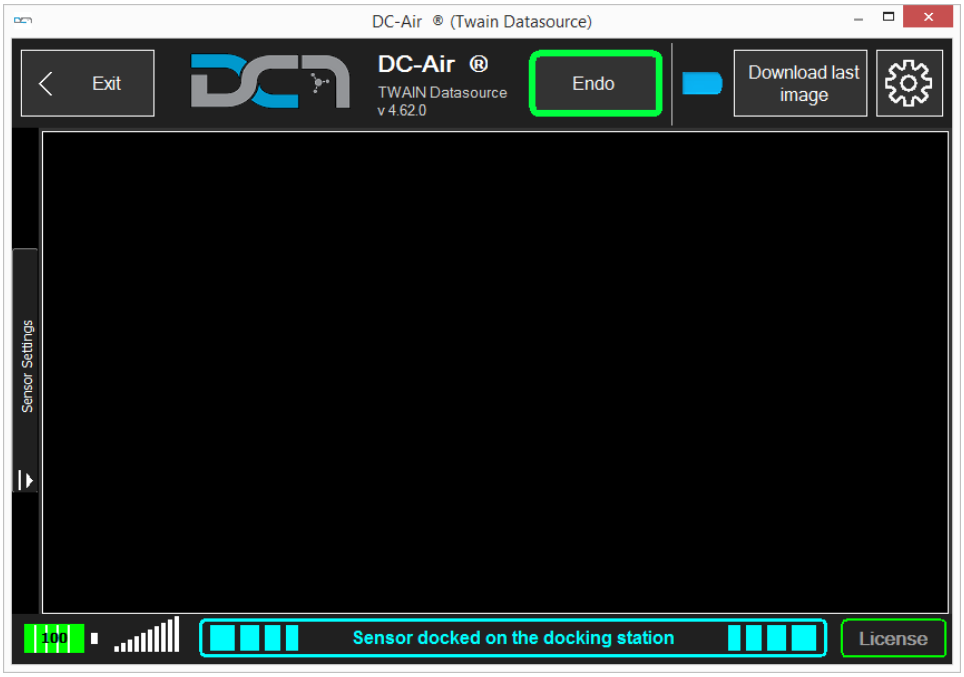
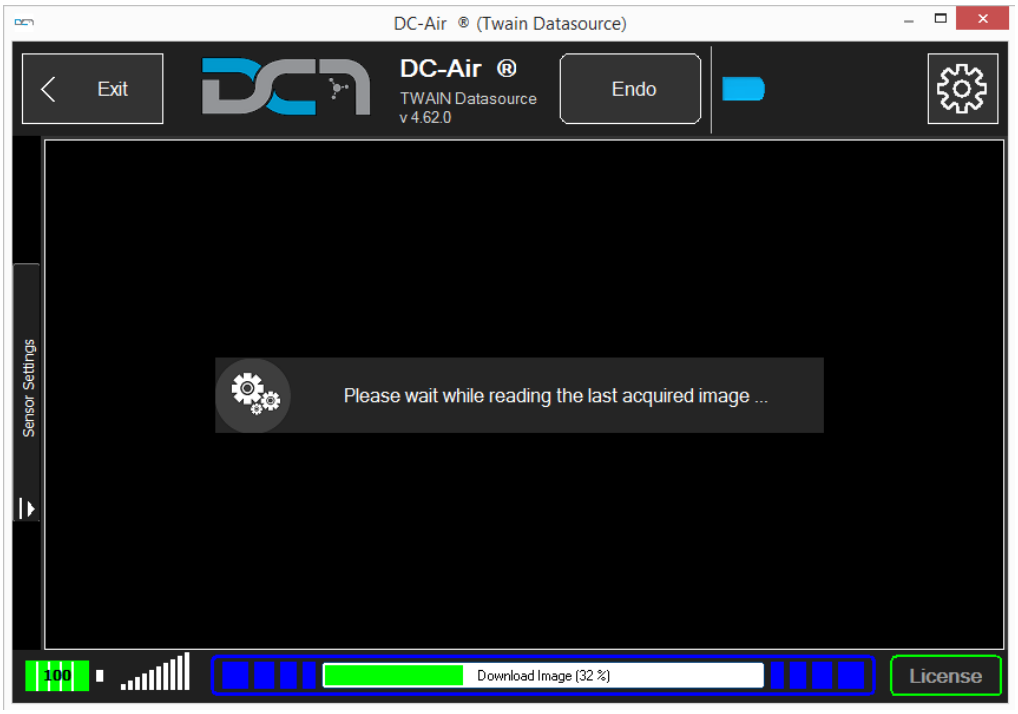
When the Endo mode is active, the Endo button is highlighted as in the following picture.



The TWAIN Driver will keep endo mode enabled until you click again on “Endo” to disable it.

Standard interface: Download last image.

When you click on this button, the TWAIN Driver will attempt to retrieve the last captured image directly from the sensor memory. If there isn't any image to retrieve, this function does not have any effect.



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Sensor Status

In this chapter we describe all the sensor status.

GUI Message	Description
Sensor unknown status	The status received by the sensor is unexpected and cannot be identified. Sometimes this sensor state occurs during the first connection.
Sensor not connected	The docking station is connected but the sensor is unreachable.
Sensor Drivers Error	The drivers of the sensor are not installed.
Sensor Initializing	The application is initializing the sensor connection. If this status appears for longer than 30 seconds, we suggest you dock the sensor on the docking station, disconnect the USB cable and reconnect it.
Sensor Ready	The sensor is ready for the image acquisition. **This is the only condition where you can shoot an x-ray.**
Sensor Error	An error occurred while connecting.
Sensor busy	The sensor is busy. Please wait for status change.
Sensor docked on the docking station	The sensor is docked on the docking station. In this condition you can enable endo mode acquisition or remove the sensor from the docking station to arm it normally.
Calibration files not found	The calibration file was not found. Please check if you have a working internet connection. If you do not have an internet connection, you can manually copy the calibration file.
Receiving image	The application is receiving the image from the sensor.
Download Calibration Files ...	The application is downloading the calibration files. Wait for the download to complete.
Sensor not connected. Place the sensor on docking station.	The application cannot find the sensor via the docking station. This could be due to depleted battery. Please place the sensor on the docking station to recharge it or reconnect it.
Sensor sleeping. Place the sensor on docking station to wake up.	The sensor is sleeping. The sensor has exceeded the timeout time. Please place the sensor on the docking station to reconnect it and wake up it.
Sensor license error. License file not found!	There is not license for the sensor used. Please check if you have a working internet connection. If you do not have an Internet connection, you can manually copy the license file.

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