

Smart Monitor Web Solution

Version 3.0

2020-12-03

Digistat Suite version 7.1

The Digistat suite is composed by the following products:

Digistat® Care version 1.1

Digistat® Docs version 1.1

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1. Smart Monitor Web



For general and detailed information about the Product environment and the intended use of the product, see the specific documents. The knowledge and understanding of these documents is mandatory for an appropriate and safe use of the Smart Monitor Web, described in this document.

1.1 Introduction

Smart Monitor Web is a web application used to display historical collected data for a set of patients connected to wearable devices. It provides an overview of dozens or hundreds of patients displaying, for every patient, the history of collected vital signs parameters.

Smart Monitor Web is split in two different sections:

- **Global Dashboard:** providing an overview of all patients with the latest parameters available.
- **Patient Dashboard:** a detailed view of the patient, displaying historical data and events.

Additional administrative functionalities are available: association between Gateway App and patients, creation/editing of patient registry.

1.2 Intended use

Smart Monitor Web is part of the Digistat Suite. Digistat Suite is split in two different products according to the functionalities implemented in the different modules (see the product manuals for a description). Smart Monitor Web is part of Digistat Docs and inherits the same intended use.

Read the product manuals (USR ENG Digistat Docs) for a detailed description of the intended use and disclaimer notes.

The Digistat Suite can transfer the collected data to third party systems. Please, verify on the third party system how the information provided by the Digistat Suite will be used.

2. Wearables

Smart Monitor Web displays historical data coming from a set of “kits” connected to the patients. Every kit collects data from a single patient.

A “kit” has the following components:

- Supported Android Smartphone (ex. Ascom Myco 3).
- Ascom Gateway App (see user manual).
- One or more wearable devices (see Ascom Gateway app for the list of supported wearable devices).

Once a kit has been assembled (a smartphone with the Gateway app installed and wearables) and configured, it is possible to associate it to a patient via Smart Monitor Web. After a kit is associated, it is possible to see the status of the collection of parameters in the main dashboard or in the patient dashboard.

Smart Monitor Web makes it also possible to disassociate the kit from the patient when data collection is no longer required.

3. Login

Open the entry page of Smart Monitor Web. The following view is displayed:

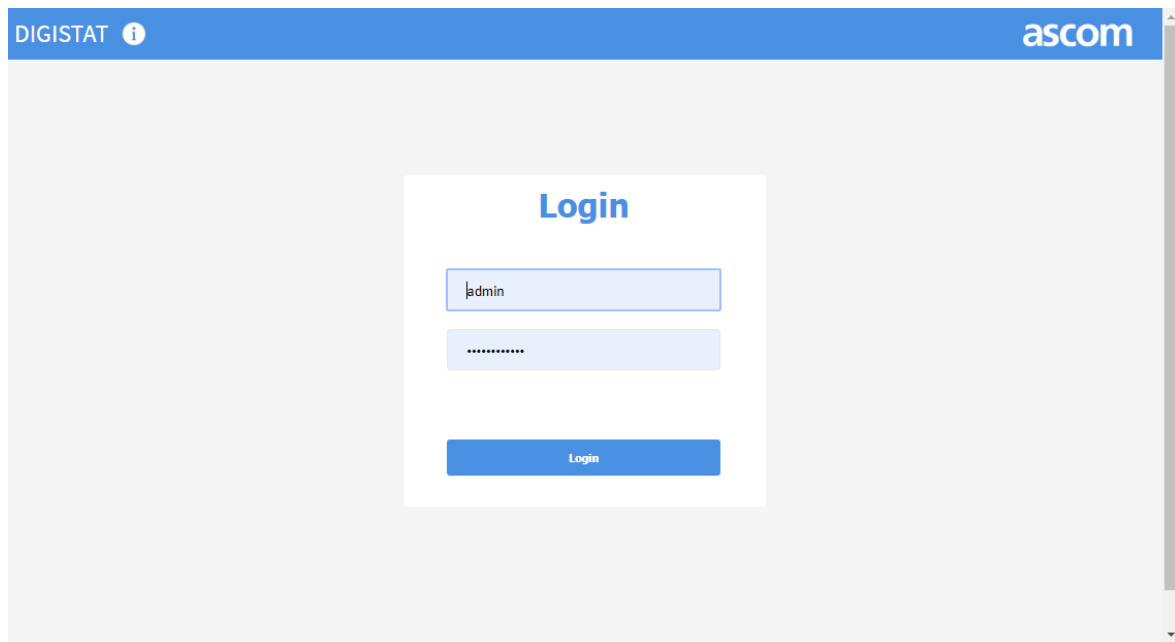


Fig. 1

Enter user credentials: username and password. Click **Login** to authenticate the user. If an error is displayed, try again checking for typos. If the problem persists, contact system administrators. If authentication is successful, the global menu will be displayed to navigate the application.

4. Main menu

The main menu allows users to navigate the application:

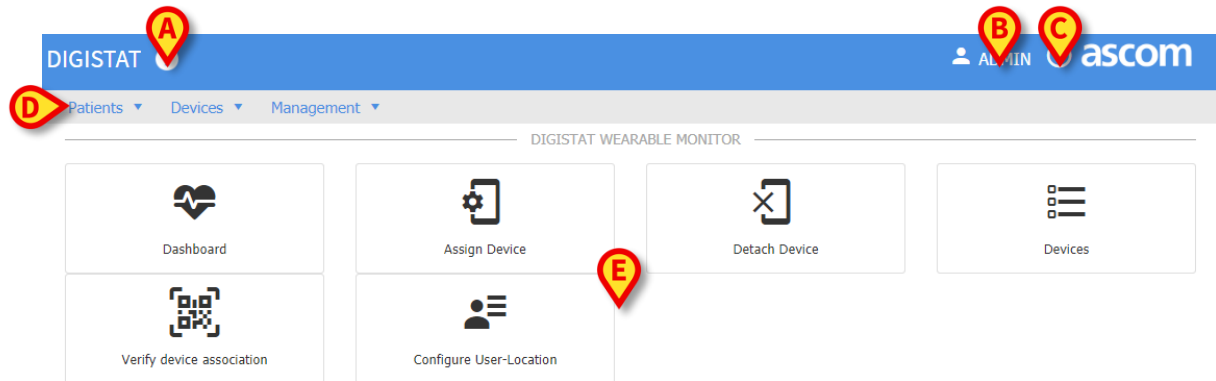


Fig. 2

Every page of the application is composed of different areas, which are:

- Top bar, always displayed, containing:
 - Information button (Fig. 2 **A**) to display the product labelling (including installed version).
 - Current logged user (Fig. 2 **B**)
 - Help button, opening the existing user manuals (Fig. 2 **C**)
- Menus (Fig. 2 **D**), always present, making it possible to navigate the following areas:
 - **PATIENTS**
 - Main dashboard: display the main dashboard with the list of patients
 - New patient: allows the creation of new patients
 - **DEVICES**
 - Wearable Gateways: display the list of all kits connected to the system with associated wearables.
 - Assign Device: associate a kit to a patient
 - Detach device: detach a kit from a patient
 - Verify device association: permits to verify the association between a kit and a patient
 - **MANAGEMENT**
 - Configure User-Locations: associate a user to one or more locations
 - Information: display system information
 - Change Password: allows current user to change his password
 - Logout: logout current user. User is redirected to the login page.
- Screen content: the main view related to the selected menu entry (Fig. 2 **E**).

After login, the user is redirected to the main page, containing shortcuts to the main functionalities of the application. This page can be displayed, on any page, clicking on the **DIGISTAT** text, in the top bar.

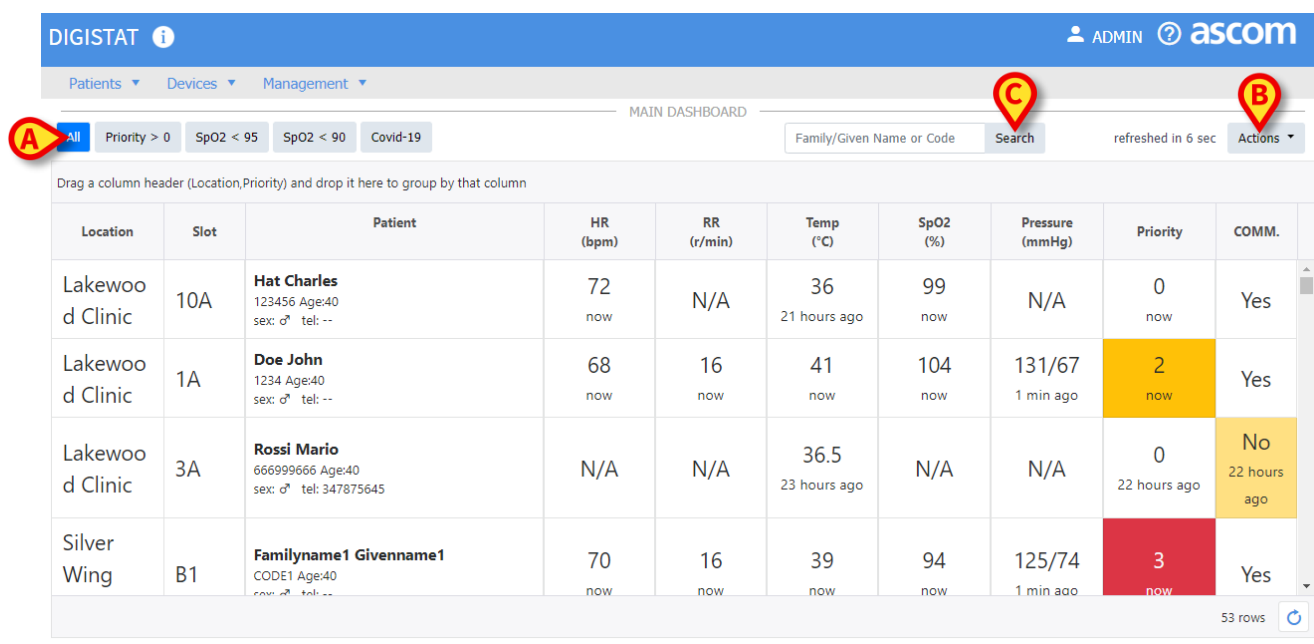
The shortcuts displayed are:

- Main Dashboard
- Assign Device
- Detach Device
- Wearable Gateways
- Verify device association
- Configure User-Locations

Click a shortcut to access the corresponding section. The same shortcuts are present in the menu included in every page (4).

5. Global Dashboard

The global dashboard displays the latest collected vital parameters for a set (small or large) of patients. A logged user can display only the patients that belong to his “visible” locations (see User-Location association chapter).



DIGISTAT ADMIN ascom

Patients Devices Management

MAIN DASHBOARD

Family/Given Name or Code Search refreshed in 6 sec Actions

Drag a column header (Location,Priority) and drop it here to group by that column

Location	Slot	Patient	HR (bpm)	RR (r/min)	Temp (°C)	SpO2 (%)	Pressure (mmHg)	Priority	COMM.
Lakewood Clinic	10A	Hat Charles 123456 Age:40 sex: ♂ tel: --	72 now	N/A	36 21 hours ago	99 now	N/A	0 now	Yes
Lakewood Clinic	1A	Doe John 1234 Age:40 sex: ♂ tel: --	68 now	16 now	41 now	104 now	131/67 1 min ago	2 now	Yes
Lakewood Clinic	3A	Rossi Mario 666999666 Age:40 sex: ♂ tel: 347875645	N/A	N/A	36.5 23 hours ago	N/A	N/A	0 22 hours ago	No 22 hours ago
Silver Wing	B1	Familyname1 Givenname1 CODE1 Age:40 sex: ♂ tel: --	70 now	16 now	39 now	94 now	125/74 1 min ago	3 now	Yes

53 rows

Fig. 3

The main table displays the following information:

- **Location:** hospital/clinic/ward to which the patient is associated or admitted (patients can be either physically located in a hospital or at home).
- **Slot:** it represents a bed or a virtual position (slot) used to virtually locate the patient.
- **Patient:** patient personal data
- **List of vital sign parameters:** a list of columns displaying some vital signs parameters. Every vital parameter is displayed with the following information: value and collection time (ex. 1 min ago, 1 hour ago).
- **Priority:** “priority” of the patient according to a rule configured in the Clinical Decision Support System. The cell color changes according to the numeric value displayed inside the cell in order to highlight priorities.
- **Comm:** **YES** if the device is connected and communicating; **NO** if not, with a timestamp indicating the last time the device was connected.

The table can be sorted clicking on any header. Location and priority columns support grouping by dragging the column header to the area on top of the table.

It is also possible to filter the table using the buttons located on the upper-left corner (Fig. 3 **A** – “All”, “Priority > 0” etc.). Click a button to filter the table according to a “customized” rule associated to the button. Filter buttons can be deleted, edited or added, using the **Action** menu in the upper right corner of the table (Fig. 3 **B** - see section 5.1.1).

It is possible to search for a specific patient using the search filter located in the upper part of the table; insert patient last name or first name and press **SEARCH** (Fig. 3 C).

To select a patient and navigate to his specific dashboard, click the corresponding row on the table.

The **Actions** menu (Fig. 3 B) on top of the table, makes it possible to access the following functionalities:

- Associate device: associate a kit to a patient (the same functionality is on the **Device** menu).
- Detach device: detach a kit from a patient (the same functionality is on the **Device** menu).
- New Patient: create a new patient (the same functionality is on the **Patient** menu).
- Manage filters: Create/Delete/Edit search filter buttons.

5.1.1 Creating a search filter

To create or edit the pre-defined search filters, on the **ACTION** menu, select the **Manage Filters** option. The following window is displayed:

Filter Name	Index
Test Filter	0

add new: Test Filter

Index: 0

And Or

HR Greater or equal to 100.00

Temperature Greater or equal to 38.00

SpO2 Less or equal to 93.00

(HR Greater or equal to '100' AND Temperature Greater or equal to '38' AND SpO2 Less or equal to '93')

Save Cancel

Fig. 4

The existing filters are listed on the left. The “edit filter” functionalities are on the right.

Click the **+** button to create a new filter (Fig. 4 A).

Select an existing filter on the left to edit it.

A filter has the following properties:

- Name: name of the filter. This text is displayed on the button in the main dashboard. Use short names.
- Index: it is the sorting index, not editable.
- Expression: it is possible to create a logical expression to specify the filter rules. It is possible to add as many logical constructs as necessary. For example: the

configured filter displays the patients with HR greater than 100 bpm AND temperature greater than 38 C° and SpO2 less than 93%.

Press **SAVE** to save the filters and close the filters window.

To delete an existing filter, click the **X** icon placed alongside the filter name on the list of existing filters.

6. Patient Dashboard

To display the patient dashboard: click the row corresponding to the relevant patient on the main dashboard table. The Patient dashboard is then displayed:

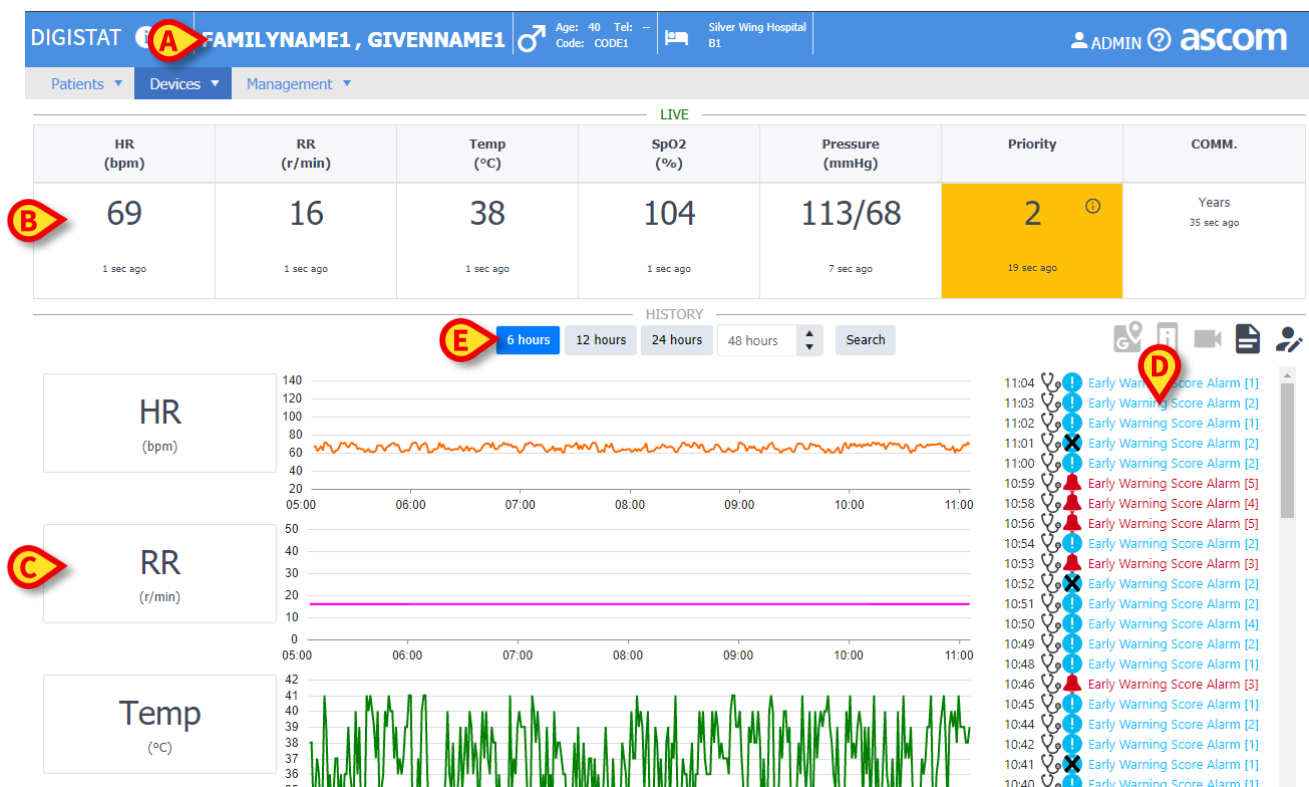


Fig. 5

Note: Patient Dashboard section and kit-patient association and disassociation functionalities are part of the Digistat Docs product. They are included in the present manual as they are directly accessible from Smart Monitor Web.

The main application bar displays the data of the selected patient (Fig. 5 A).

The latest collected parameters can be read on top part, in the same format as in the main dashboard (Fig. 5 B).

Parameter trends are displayed in the charts below (Fig. 5 C).

On the right all the “events” are listed (Fig. 5 D), both those communicated by the patient (using the Gateway App) and those auto-generated (for example: “device disconnected”).

Charts display data in a 6-hour time period. X-Axis represents the time; y-axis represents values. Click any chart to display the value at a certain time in a tooltip.

Use the buttons “6 hours”, “12 hours” and “24 hours” to change the displayed time interval (Fig. 5 E). It is also possible to manually specify a time value, in number of hours, and press the **SEARCH** button.

Above the event table the following buttons are displayed:



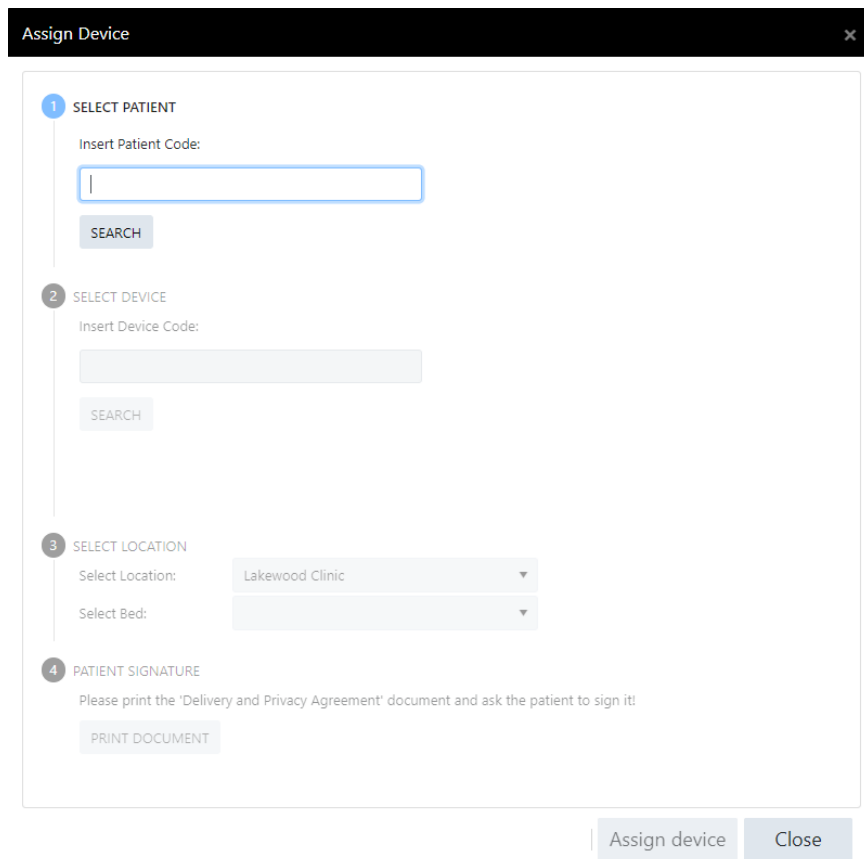
Grey buttons are disabled, black buttons are enabled. These buttons activate the following functionalities (left to right):

- Back to the main dashboard
- Tracking: display, on a map, where the kit is located. To enable this functionality the Gateway app must read GPS coordinates.
- Info: displays the kit unique identifier.
- Start a telephone call.
- Patient Privacy Document: displays the Patient Privacy Document, generated during the association procedure (see section 7).
- Patient Edit: makes it possible to edit patient data.

7. Associating a kit to a patient

To start the patient-kit association process, the smartphone must have been connected at least once to the system, in order to have it correctly registered. To start the association workflow:

- Click **Associate device** either on the “Devices” menu or in the “Actions” menu. The following window is displayed.

The image shows a web application window titled "Assign Device" with a close button (X) in the top right corner. The window contains a vertical sequence of four steps, each with a numbered circle icon. Step 1, "SELECT PATIENT", includes a text input field labeled "Insert Patient Code:" and a "SEARCH" button below it. Step 2, "SELECT DEVICE", includes a text input field labeled "Insert Device Code:" and a "SEARCH" button below it. Step 3, "SELECT LOCATION", includes two dropdown menus: "Select Location:" (showing "Lakewood Clinic") and "Select Bed:". Step 4, "PATIENT SIGNATURE", includes a text instruction "Please print the 'Delivery and Privacy Agreement' document and ask the patient to sign it!" and a "PRINT DOCUMENT" button. At the bottom right of the window, there are two buttons: "Assign device" and "Close".

Assign Device

1 SELECT PATIENT

Insert Patient Code:

SEARCH

2 SELECT DEVICE

Insert Device Code:

SEARCH

3 SELECT LOCATION

Select Location: Lakewood Clinic

Select Bed:

4 PATIENT SIGNATURE

Please print the 'Delivery and Privacy Agreement' document and ask the patient to sign it!

PRINT DOCUMENT

Assign device Close

Fig. 6

The association workflow can be completed in four steps:

Step 1

Insert the patient code used in this specific installation (ex. MRN) and press the **SEARCH** button. If the patient already exists, then the related record is displayed. If the patient is not found, then the system requests to create a new patient. Press **NEW** to create a new patient (see section 10).

When the patient is found it is possible to move to the next step.

Step 2

Write the id of the gateway app (or kit id). The kit id can be read on a label attached to the smartphone (if present) or in the Gateway app, selecting the nurse modality (see the relevant documentation for more instructions).

Press **SEARCH** to search for a valid kit. If the kit is not found, then it is necessary to check for typos. If no typos is detected, it may be the case that the kit is new to the network. In this case, connect the kit to the network and try again.

If the kit is already associated to a patient the following view is displayed:

2
SELECT DEVICE
Insert Device Code:

SEARCH

FOUND DEVICE

Gateway
Code: SK00000266
Status: ASSIGNED TO PATIENT: Rossi, Mario - Code: 666999666

DETACH DEVICE

Fig. 7

In this case, either quit the current workflow or press **DETACH DEVICE** to start the detachment workflow for the current device/kit. The detachment of the device from the previous patient enables the subsequent attachment to the current patient.

Step 3

Select the location where you want the patient to be associated and one free slot. It is possible to see only locations that are enabled for current user.

Step 4

To complete the association workflow (and thus activate the ASSOCIATE DEVICE button) it is necessary to press the **PRINT DOCUMENT** button. A privacy report is displayed. If the specific healthcare organization procedures require it, it is possible to print the document for patient signature. After the document has been displayed, the **ASSOCIATE DEVICE** button enables. Click it to confirm the association.

After the association workflow is completed, the associated patient is displayed in the global dashboard (it requires one minute app.).

8. Detaching a kit from a patient

To detach a kit from a patient:

The detachment procedure can be triggered either on the main menu or the ACTION menu on the global dashboard. After clicking **Detach device** the following window is displayed:

Detach Device

SELECT DEVICE
Insert Device Code:

SEARCH

Detach device and close

Close

Fig. 8

Type the kit id and press **SEARCH**. If the kit is not found an error message is displayed. If a kit id is found, then the following window is displayed:

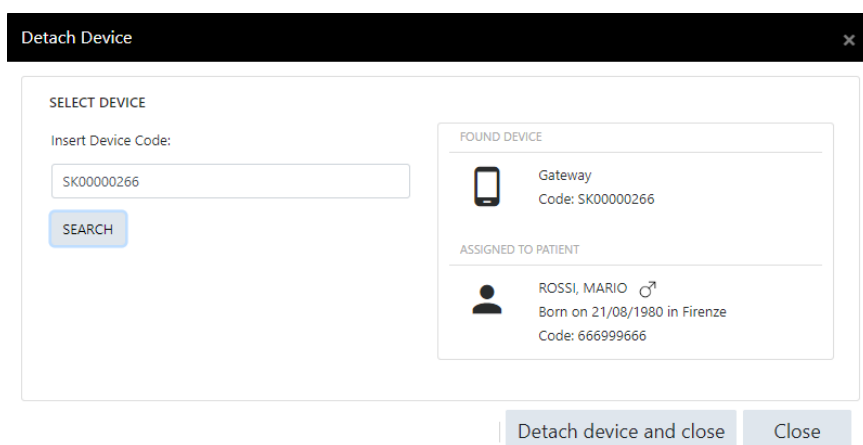


Fig. 9

On the right, the specific kit data is displayed with the data of the associated patient. Press **DETACH DEVICE AND CLOSE** to complete the disassociation workflow. The kit is now available for another patient.

If that kit is the only kit associated to the previous patient, then the patient data disappears from the main dashboard.

9. Association check

The **CHECK DEVICE ASSOCIATION** functionality makes it possible to verify if a kit is correctly associated to a patient. This workflow performs a double check in order to reduce risks of a wrong association. It can be performed, for example, in case the association workflow is performed before the actual “live” association to a patient.

To check the association:

- Click **CHECK DEVICE ASSOCIATION** on the “Device” menu. The following window opens.

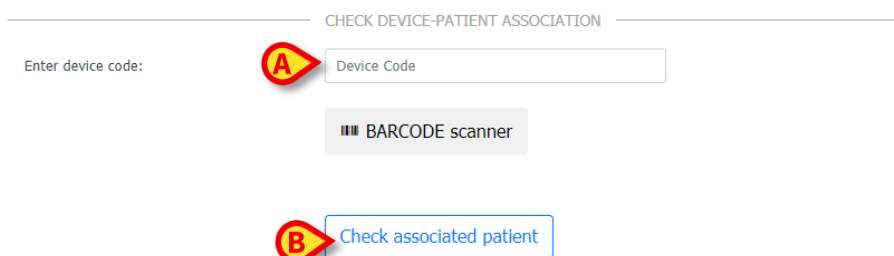


Fig. 10

Type the device code (Fig. 10 **A**) and press **CHECK ASSOCIATED PATIENT** (Fig. 10 **B**).

If using an Android device (ex. a smartphone), it is possible to tap the **BARCODE scanner** button to read the device barcode. To read the barcode it is necessary to install, on the smartphone, the “Barcode Scanner” third party app (by ZXing Team).

If the kit is found and it is already assigned to a patient, then the associated patient data is displayed (Fig. 11 **A**).

CHECK DEVICE-PATIENT ASSOCIATION

Enter device code:

 **BARCODE scanner**



FOUND PATIENT



ROSSI, MARIO ♂
Born on 21/08/1980 in Firenze
Code: 666999666

Fig. 11

An error message is displayed if neither kit nor patient data is found.

10. Create a new patient

If a patient's personal data is not in the system, it is necessary to "create the patient" using the procedure described in this section. This procedure is not necessary if the system is configured to automatically import patient data from an external system (contact your system administrators for more information).

- Click **New Patient** either on the "Patients" menu or on the "Actions" menu.

The following window is displayed:

New Patient
✕

Family Name *	<input type="text"/>	Given Name *	<input type="text"/>
Patient Code *	<input type="text"/>	Telephone 1	<input type="text"/>
Email	<input type="text"/>	Telephone 2	<input type="text"/>
Birth date	<input type="text" value="(dd/mm/yyyy)"/>	Sex	<input type="text"/>
City of birth	<input type="text"/>	State/Province of birth	<input type="text"/>

RESIDENCE

Address	<input type="text"/>	Zip code	<input type="text"/>
State/Province	<input type="text"/>	City	<input type="text"/>

DOMICILE (IF DIFFERENT FROM RESIDENCE)

Address	<input type="text"/>	Zip code	<input type="text"/>
State/Province	<input type="text"/>	City	<input type="text"/>

Notes

Fig. 12

- Specify the new patient data. The mandatory fields are "Family Name", "Given Name" and Patient Code.

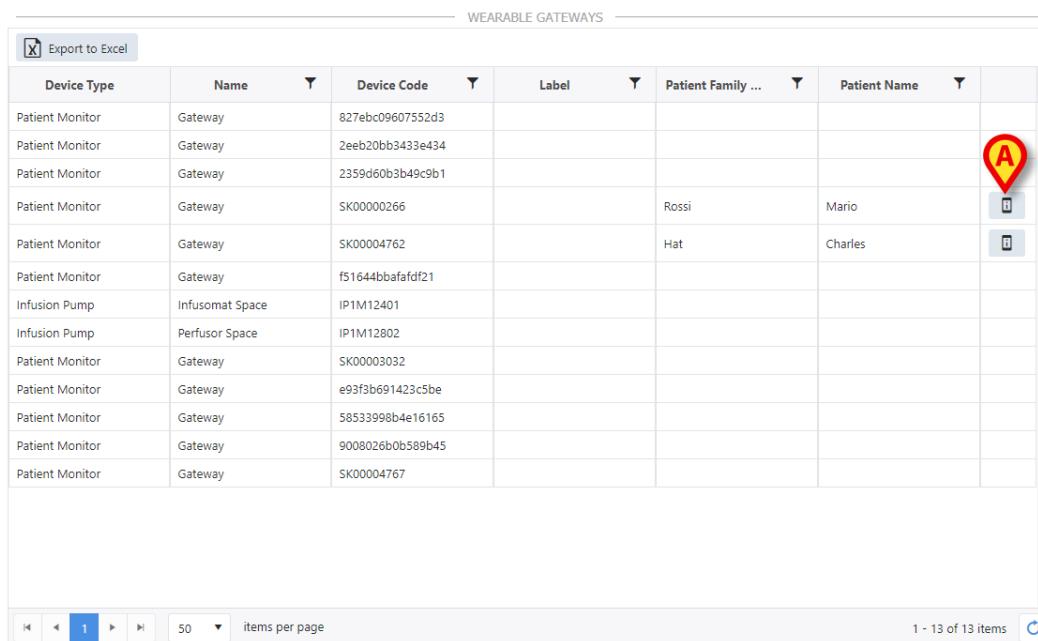
The patient code to be used here is the one used by the healthcare organization to identify univocally patients (for example MRN).

- Click **SAVE** to confirm data and close the window.

11. Wearable Devices

It is possible to display the list of all kits that have been connected to the system. To do that

- Click **WEARABLE DEVICES** on the **Devices** menu. The following screen is displayed



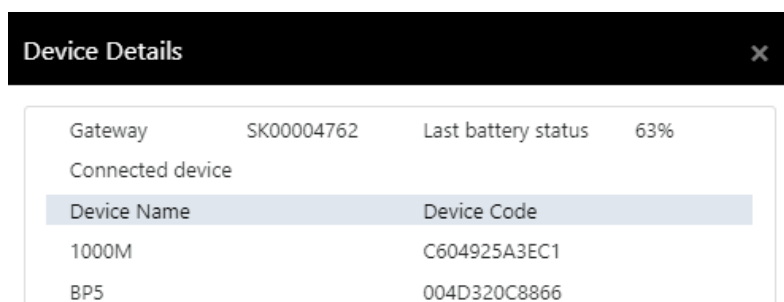
Device Type	Name	Device Code	Label	Patient Family ...	Patient Name
Patient Monitor	Gateway	827ebc09607552d3			
Patient Monitor	Gateway	2eeb20bb3433e434			
Patient Monitor	Gateway	2359d60b3b49c9b1			
Patient Monitor	Gateway	SK00000266		Rossi	Mario
Patient Monitor	Gateway	SK00004762		Hat	Charles
Patient Monitor	Gateway	f51644bbafafdf21			
Infusion Pump	Infusomat Space	IP1M12401			
Infusion Pump	Perfusor Space	IP1M12802			
Patient Monitor	Gateway	SK00003032			
Patient Monitor	Gateway	e93f3b691423c5be			
Patient Monitor	Gateway	58533998b4e16165			
Patient Monitor	Gateway	9008026b0b589b45			
Patient Monitor	Gateway	SK00004767			

Fig. 13

This table displays the list of all the kits that, at least once, have been connected to the system.

The “Device Code” column contains the kit id. If the kit is already associated to a patient, the “Family name” and “First Name” columns contain the name and surname of the patient that is currently associated.

- Click the icon on the right (Fig. 13 **A**) to display the following window:



Device Name	Device Code
1000M	C604925A3EC1
BP5	004D320C8866

Fig. 14

This window lists all the wearable devices that were connected to the Gateway App during the last communication of the Gateway with the system.



The information provided in this view can be not updated if the kit is disconnected from the network and at the same time one or more wearables are detached from the gateway.

12. User-Location Configuration

It is possible to associate users to one or more locations using the functionality **User-Location Configuration** in the main menu.

This procedure can be performed only by users with specific permissions.

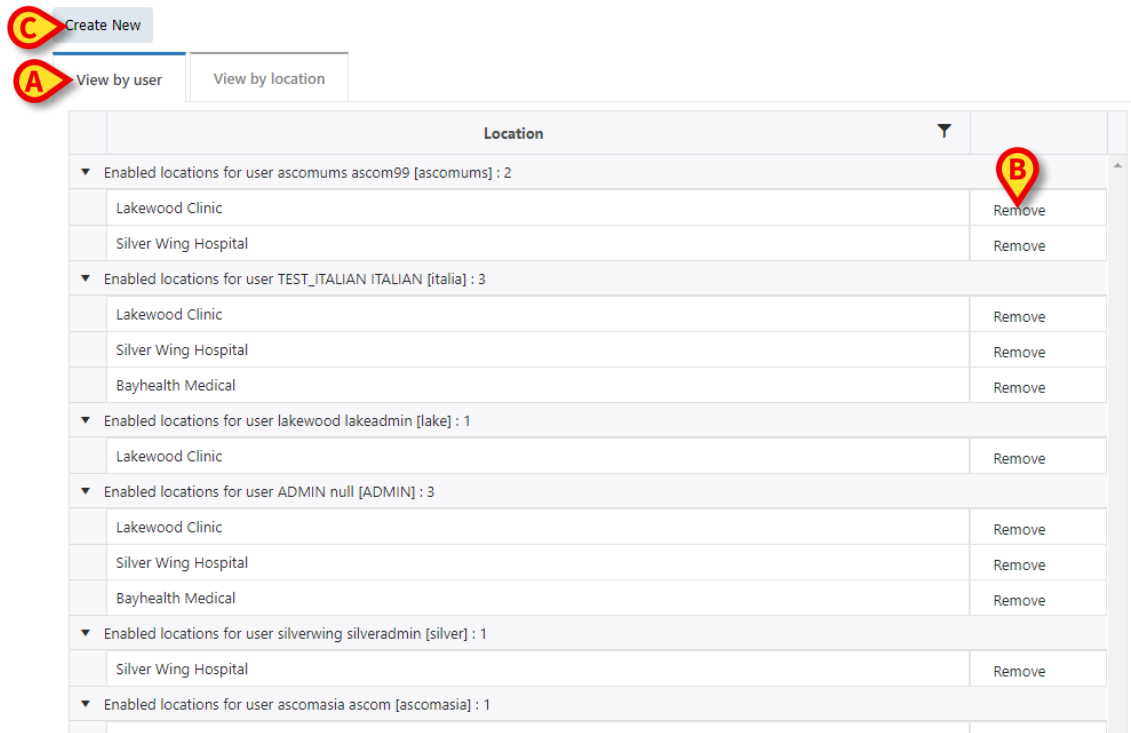


Fig. 15

The current associations can be grouped either by user or by location. “By user” means that, for every user, the list of associated locations is displayed. “By location” means that, for every location, the list of associated users is displayed. Use the tabs indicated in Fig. 15 **A** to switch.

- Click the **Remove** button on the right to remove an existing association Fig. 15 **B**.
- Click **CREATE NEW** to create a new association or edit an existing one.

The following window is displayed.

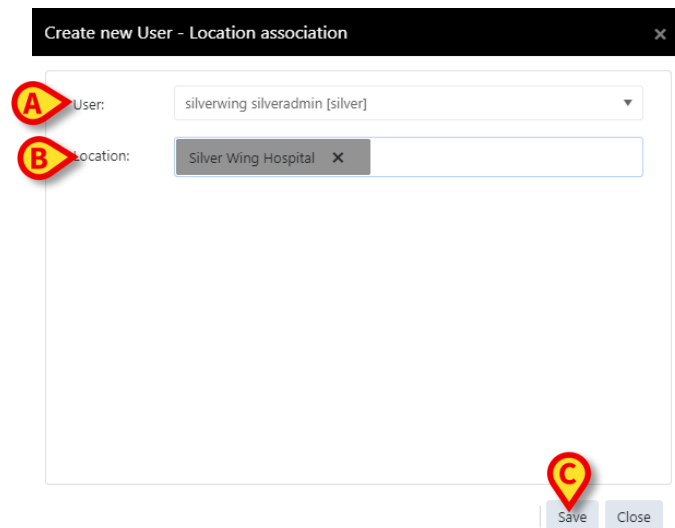


Fig. 16

- Select a user on the “User” drop-down menu (Fig. 16 **A**).
- Select the list of location(s) to be associated to the selected user on the “Location” drop-down menu (Fig. 16 **B**).
- Click **SAVE** to confirm (Fig. 16 **C**).

13. Smart Monitor Web on smartphone

Smart Monitor Web application is designed to be “responsive”, this means that the user interface is responsive to the size of the browser on which it is executed. If the application is executed on a smartphone, then the user interface resizes to fit the smartphone resolution and size. It is therefore possible to use the functionalities described in this document on a smartphone device.

The following screen shows an example of the way the main menu, after user login, is displayed on a smartphone:

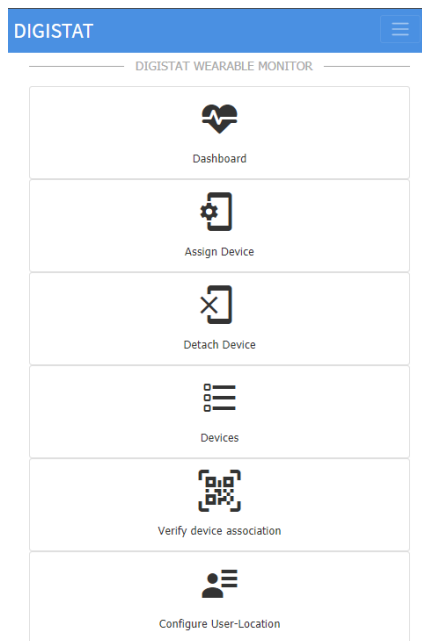


Fig. 17

On Android devices, using Chrome, or in IOS, using Safari, it is possible to navigate to the home page of the application and select the “Add to the home screen” option. This action creates a shortcut on the home screen. Select this shortcut to open a Smart Monitor Web with hidden browser for an easier app navigation.