Smart Monitor Web Solution Guide

Version 5.0

2022-04-04

Digistat Suite version 7.2
The Digistat suite is composed by the following products:
Digistat® Care version 1.2
Digistat® Docs version 1.2

Digistat® Care and Digistat® Docs are manufactured by Ascom UMS srl (http://www.ascom.com).

Digistat® Care is CE 0476 marked according to 93/42/EEC ("Medical Device Directive") amended by the 2007/47/EC.

Ascom UMS is certified according to EN ISO 13485:2016 with the following scope: "Product and specification development, manufacturing management, marketing, sales, production, installation and servicing of information, communication and workflow software solutions for healthcare including integration with medical devices and patient related information systems".

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Contents

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.

Smart Monitor Web will not be used for patient monitoring that could require immediate actions or direct clinical assistance. Smart Monitor Web will be used for the clinical conditions of patients affected by chronic diseases that require a daily or periodic monitoring of some vital parameters.

The caregivers who are monitoring patient data should always verify and validate the measures (for ex. by requesting to repeat them, etc.) in order to minimize the risk of other family members and relatives using the same wearable device.

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.

In some configurations Smart Monitor Web is directly connected to the medical devices (i.e. Patient Monitor). In those cases, the Gateway App is not present and the Patient-Kit association is not required.

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 componets:

- 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.

The devices supported by Smart Monitor Web are: VivaLnk (VV330 and VV200), Biovotion Everion, iHealth (PO3, BP5, BP5s and BP550BT), Oxitone 1000M, Temp Sitter WT1, Gemini BP, Vitalograph Model 4000, Vivalnk Checkme SpO2 sensor, Cosinuss c-med alpha.

The units of measure supported by Smart Monitor Web are: “bpm” for Hearth Rate; “r/min” for Respiratory Rate; “°C” for Temperature; “%” for SpO2; “mmHg” for Pressure, “Kg” for weight.

3. Login

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

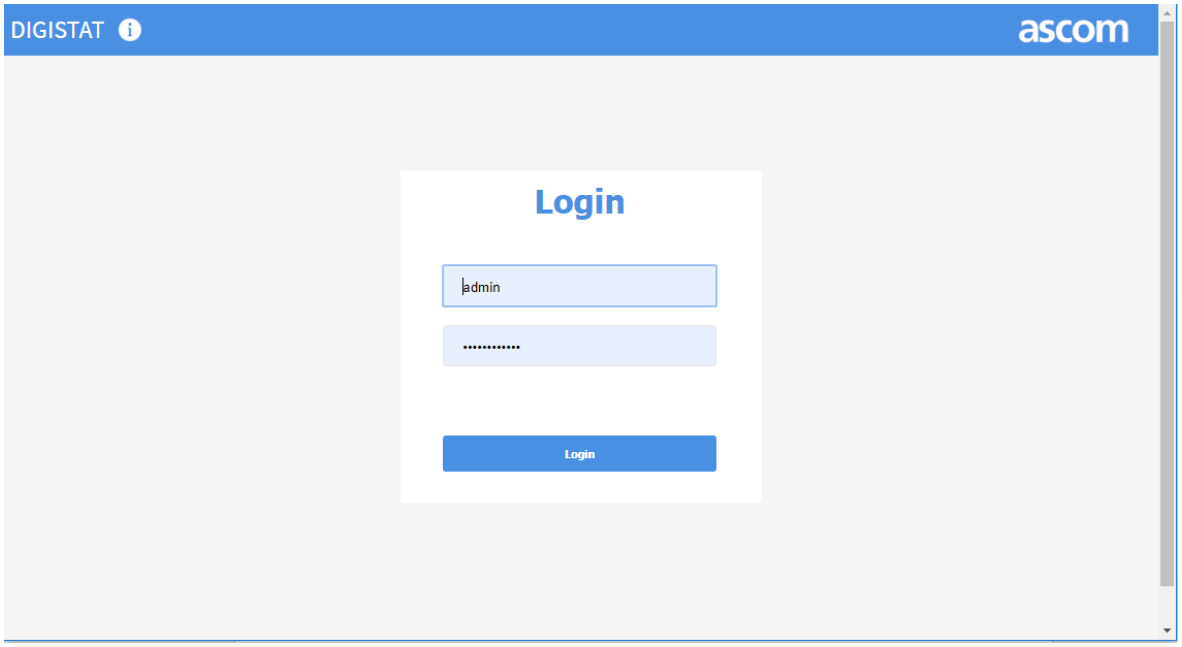

Fig. 1

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:

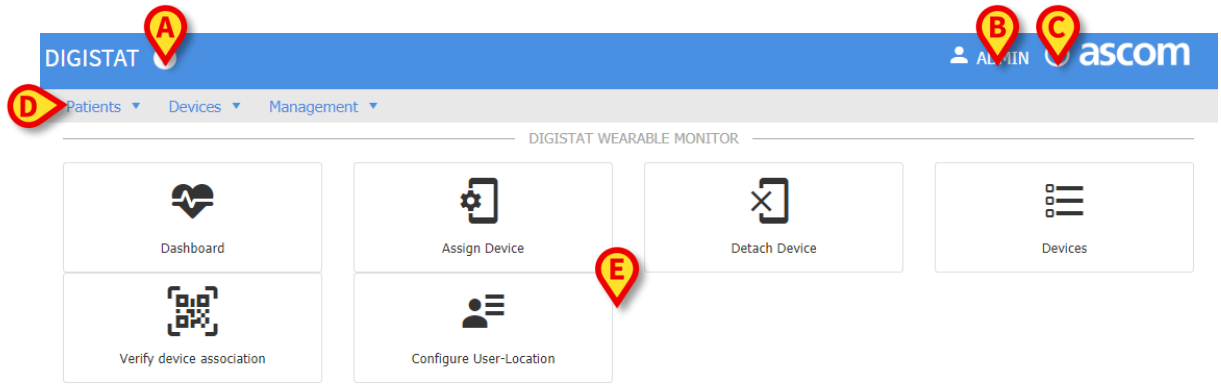

Fig. 2

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).

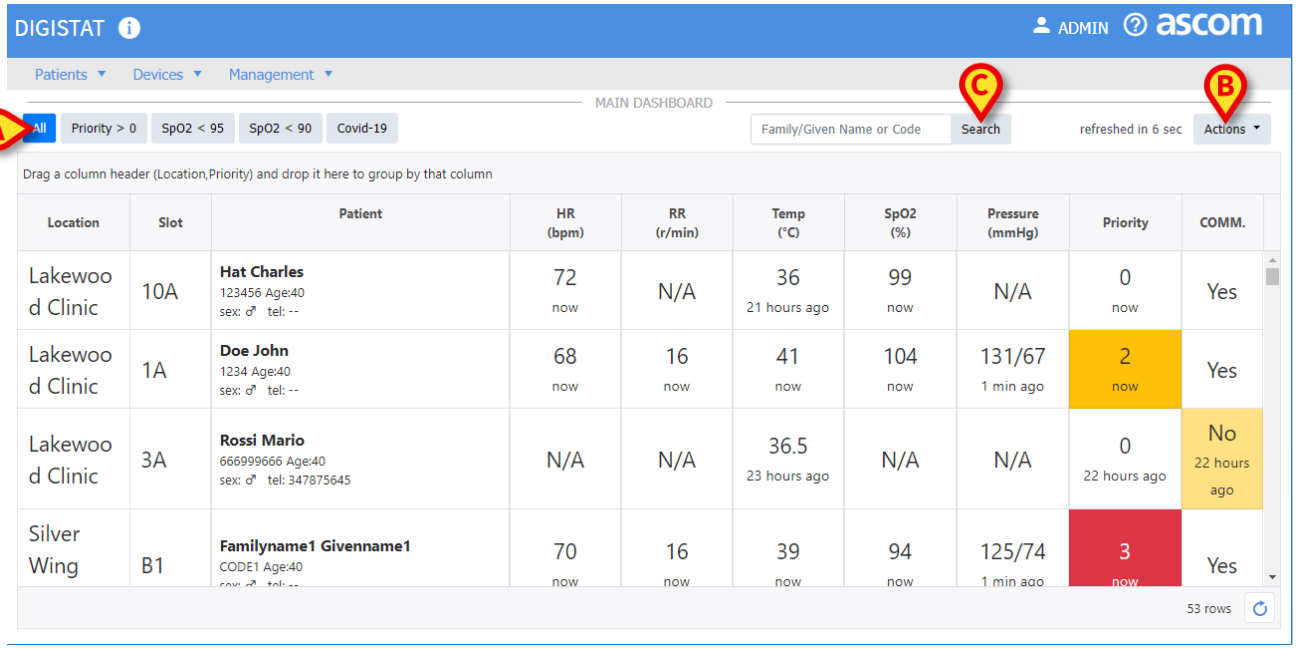

Fig. 3

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).

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 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:

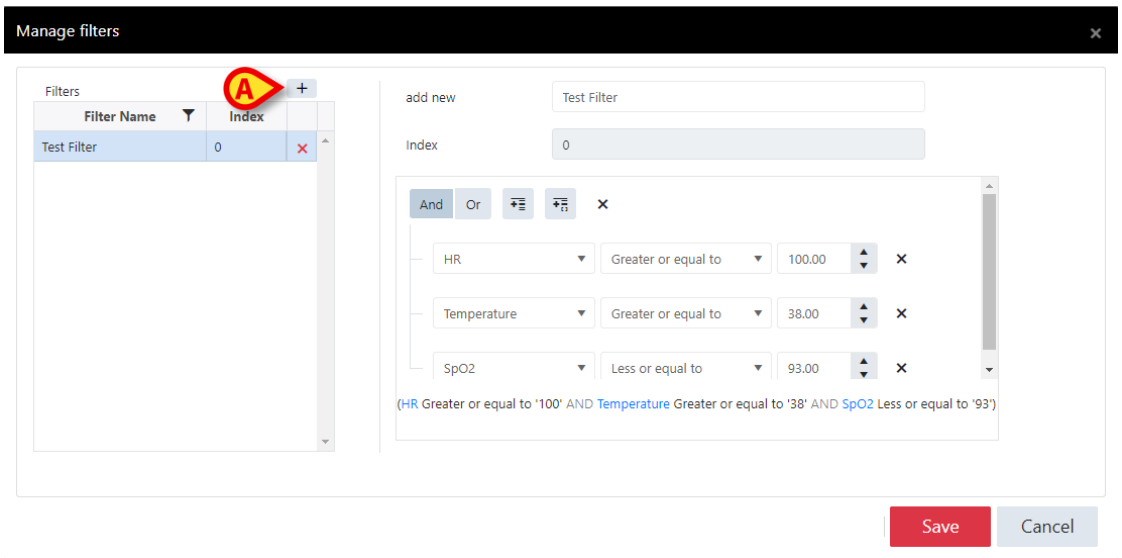

Fig. 4

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:

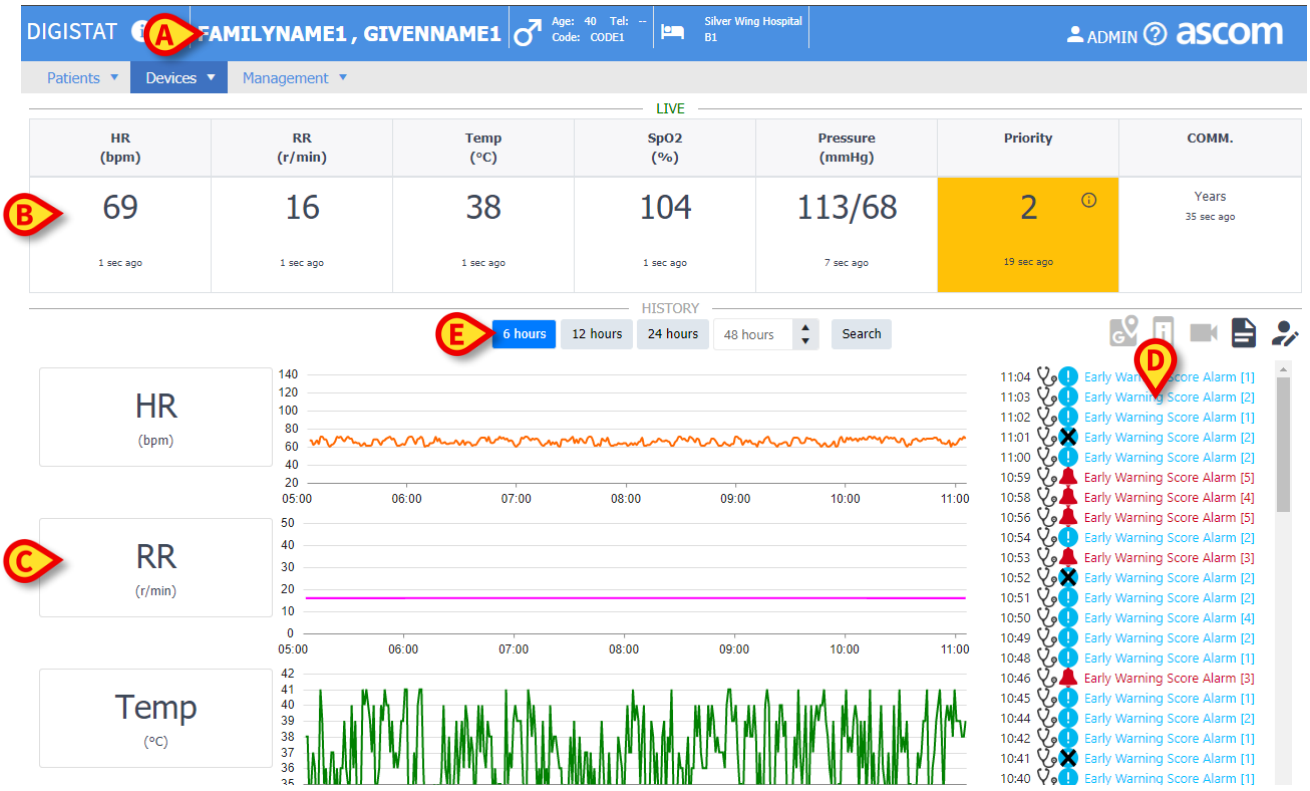

Fig. 5

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.

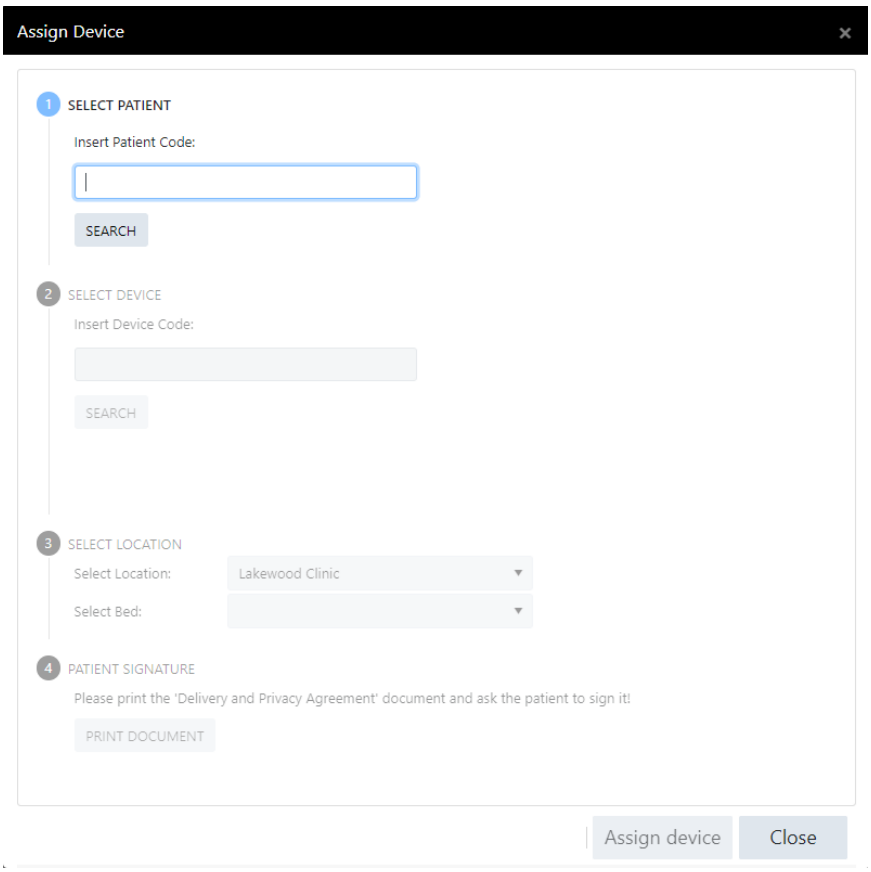

Fig. 6

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:

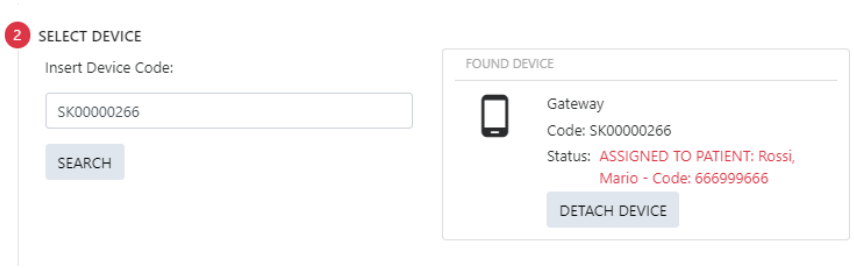

Fig. 7

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:

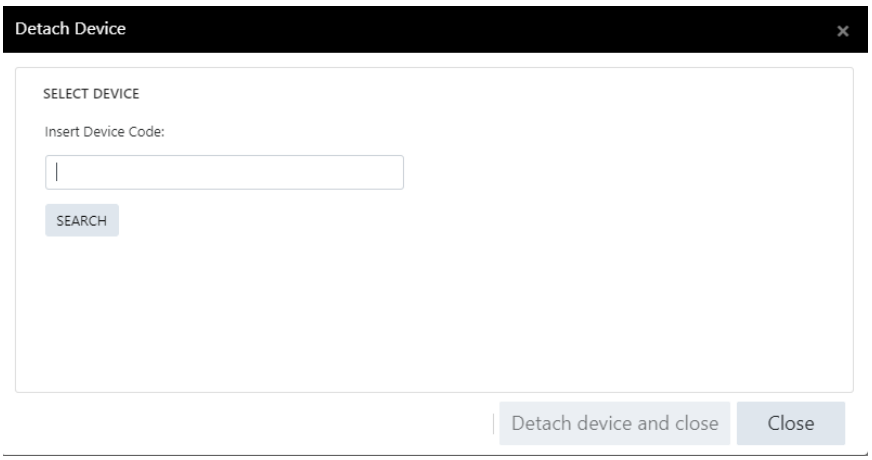

Fig. 8

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:

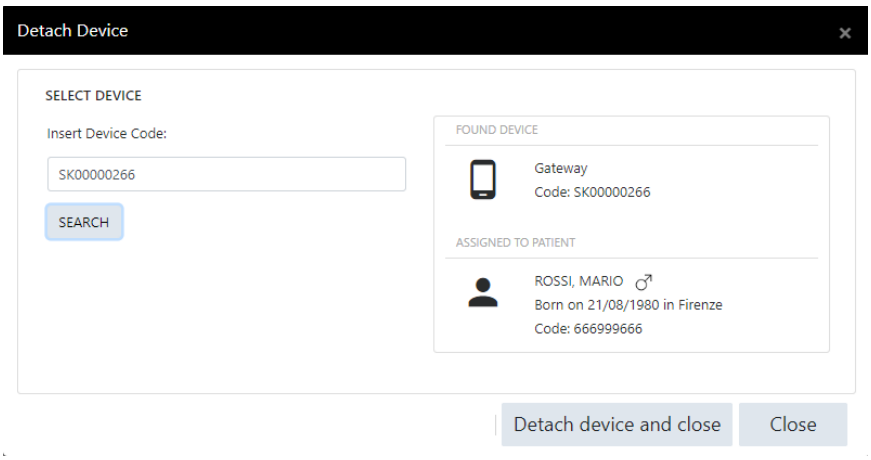

Fig. 9

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.

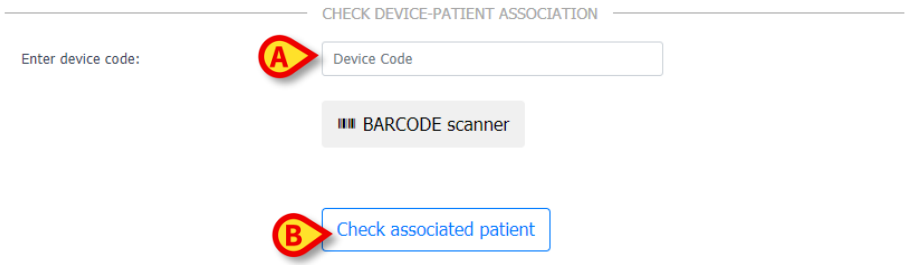

Fig. 10

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**).

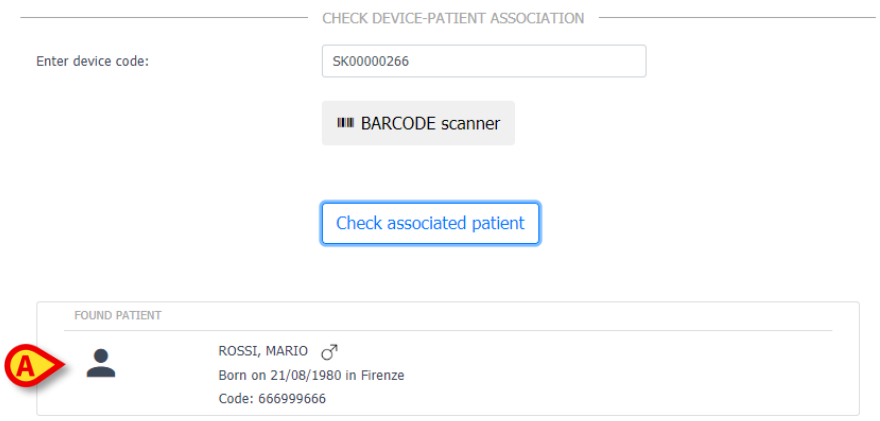

Fig. 11

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:

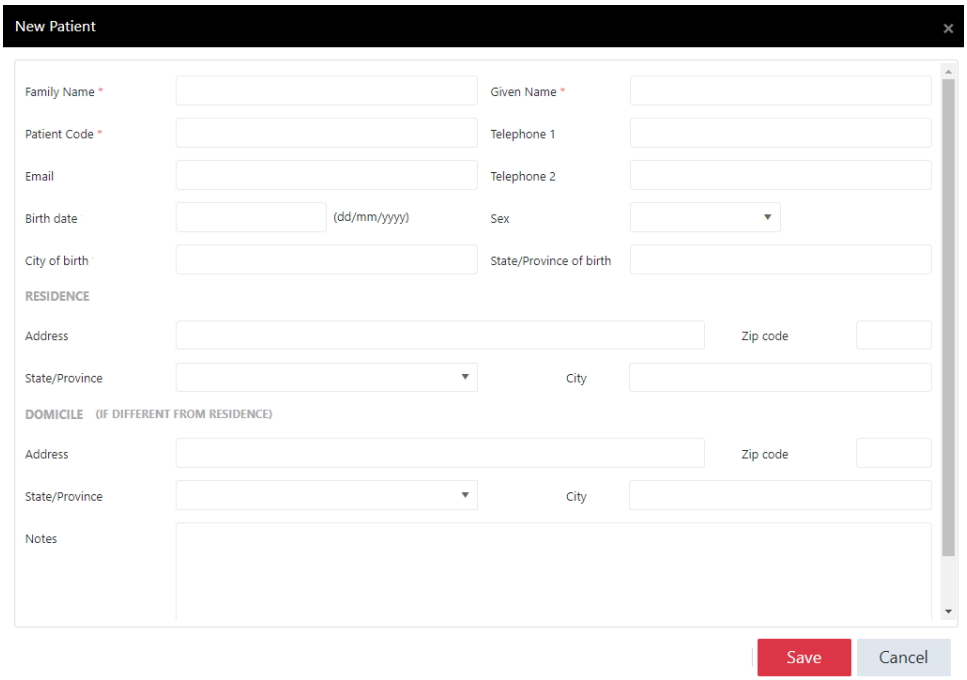

Fig. 12

- 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

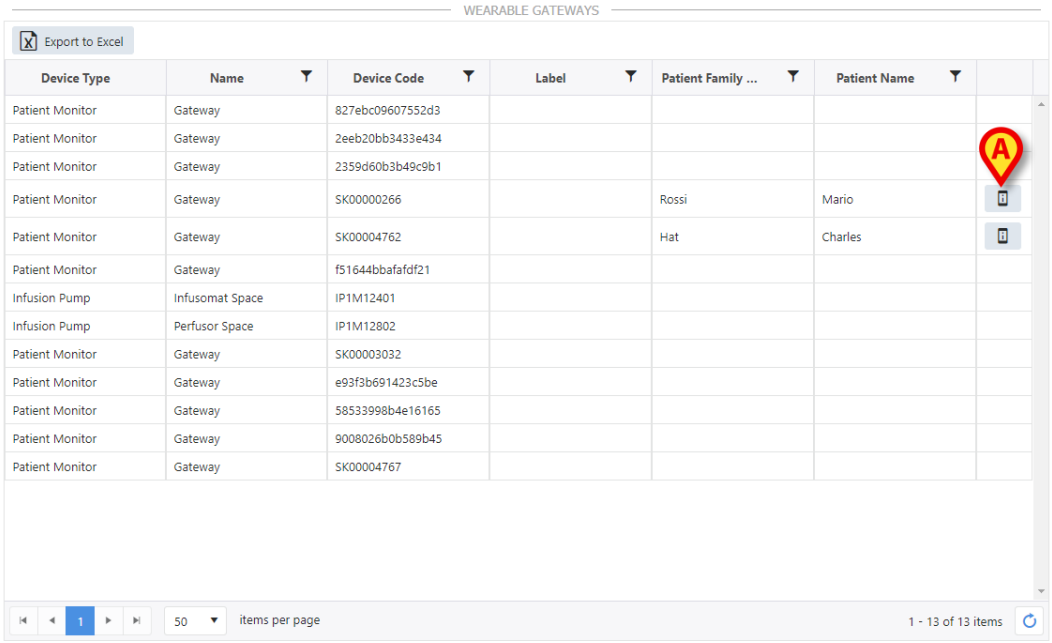

Fig. 13

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:

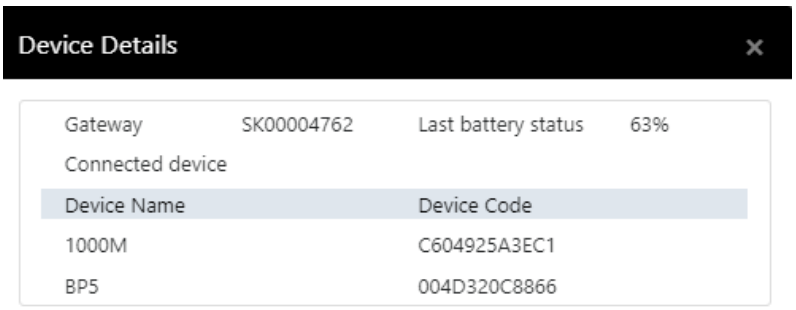

Fig. 14

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.

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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.

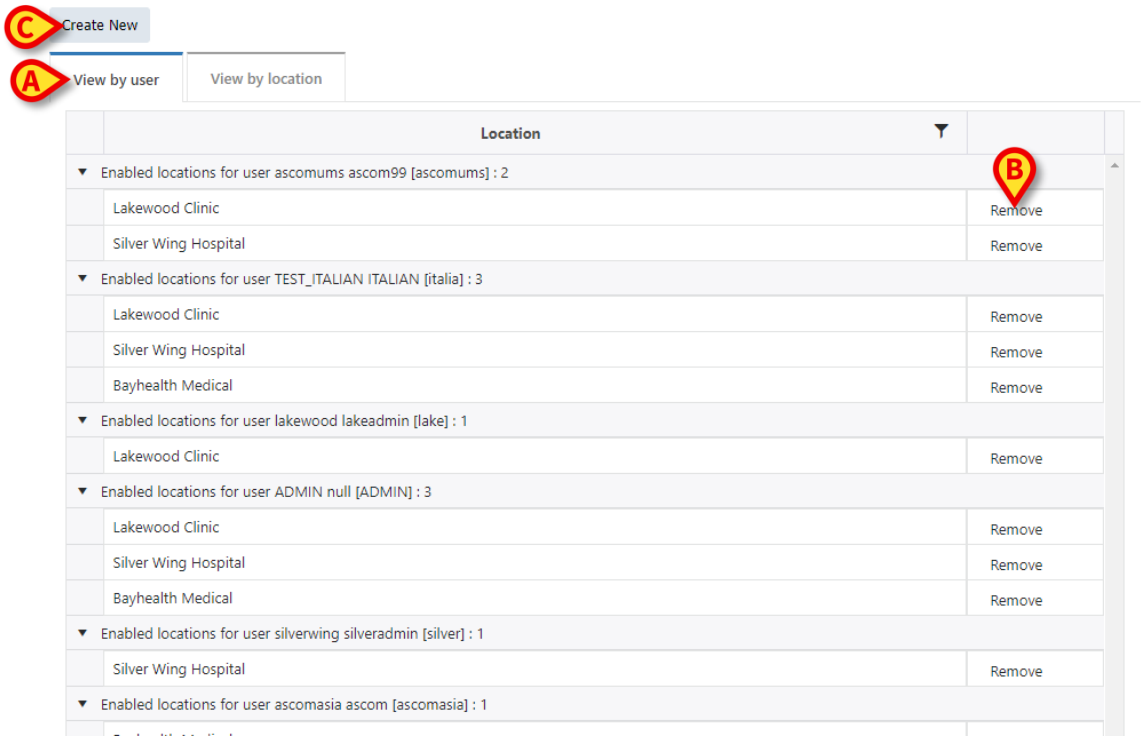

Fig. 15

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.

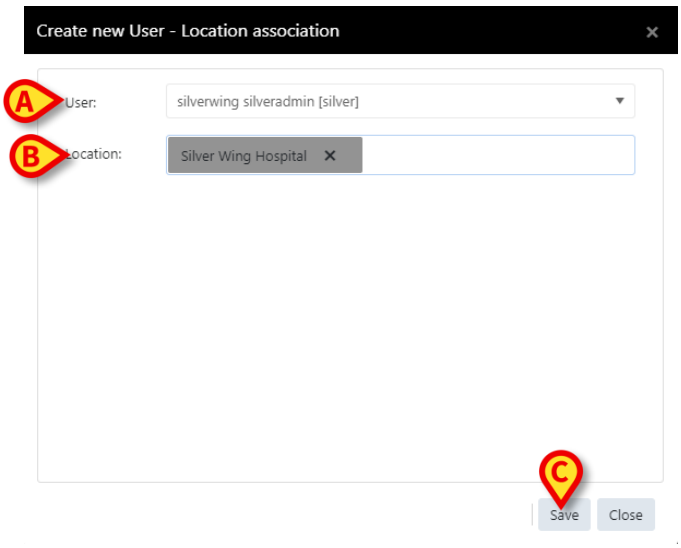

Fig. 16

- 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. Patient admission mode

Smart Monitor Web can be configured to manage patients admission and discharge instead of devices assignment and detachment.
In these cases, the devices assignment and detachment procedures are performed on an external system, depending of the specific choices of the healthcare organization.

The relevant system option for this configuration switch is NoDeviceAssignment. *See the document DSO ENG System Options for more information.*

When Smart Monitor Web is in “Patient admission” mode the Assign/Detach device buttons on the Main Menu and on the toolbar drop down menu are replaced by the Admit/Discharge Patient buttons. See Fig. 17 and Fig. 18.

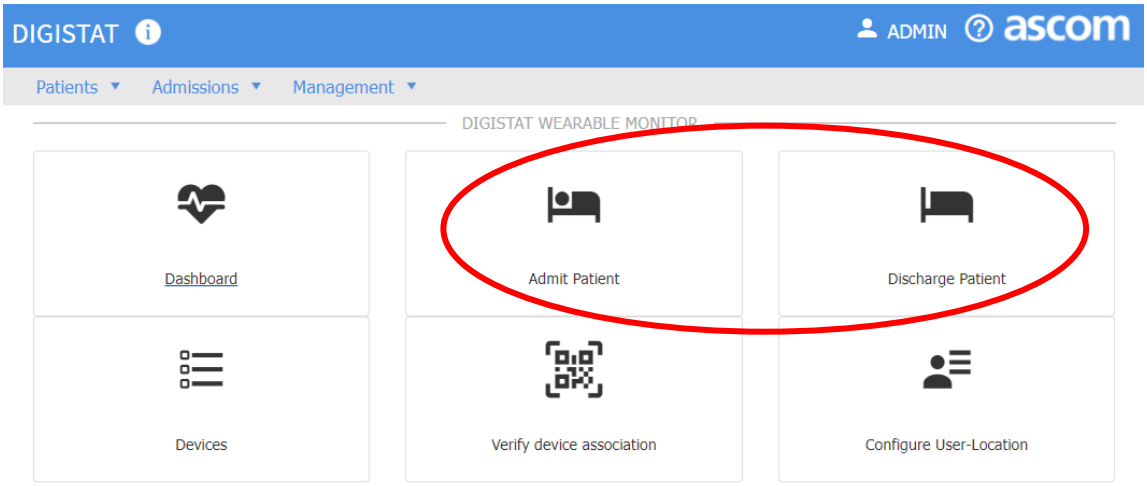

Fig. 17

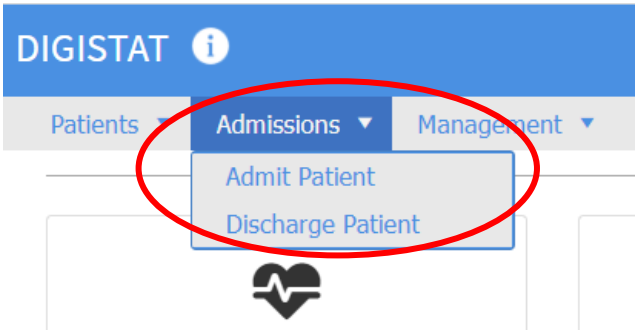

Fig. 18

13.1 Patient admission

To admit a patient

- Click the **Admit Patient** button/menu item.

The following screen opens (Fig. 19)

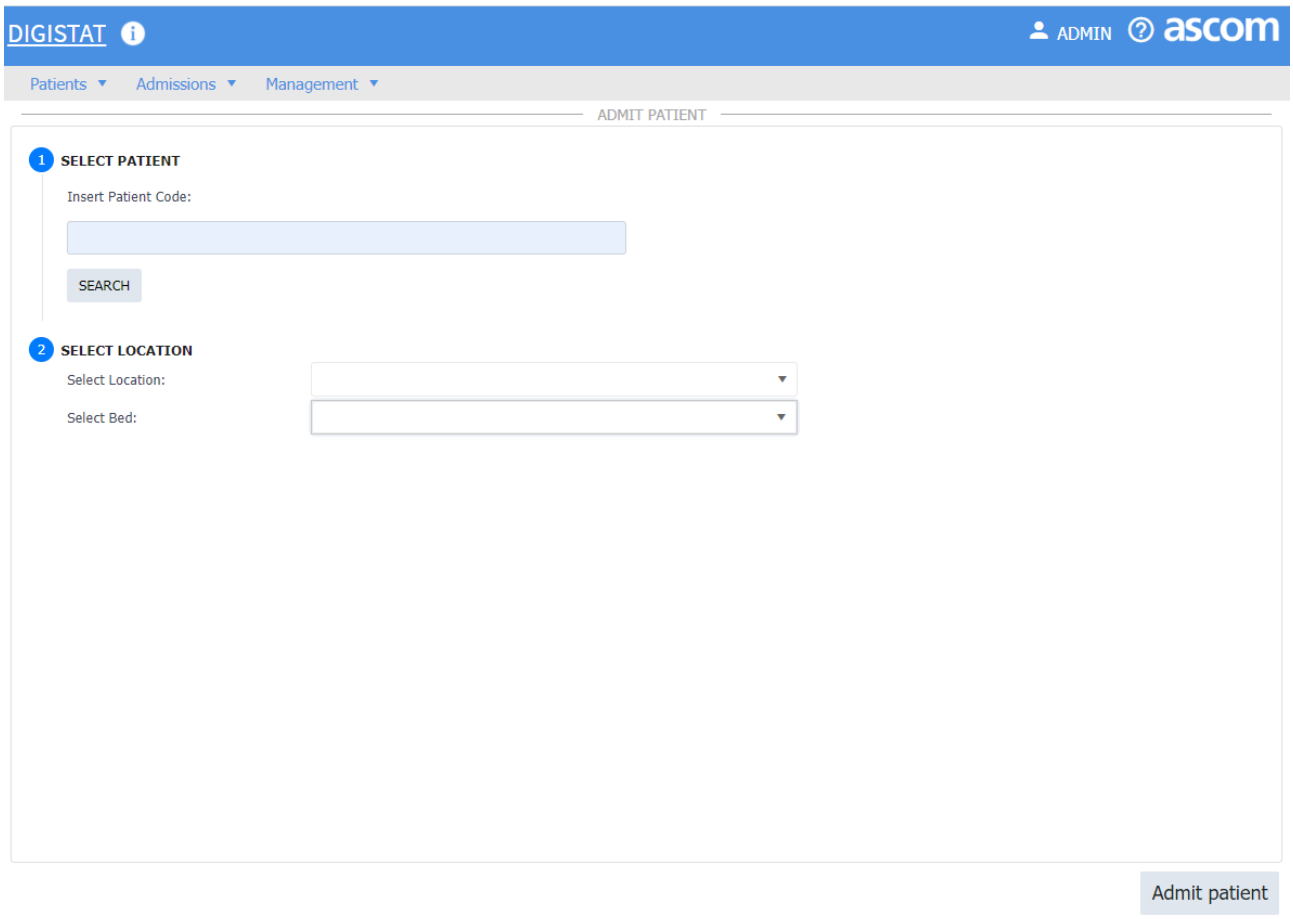

Fig. 19

- Insert the Patient Code in the field indicated in Fig. 20 **A** and click **Search** (Fig. 20 **B**).

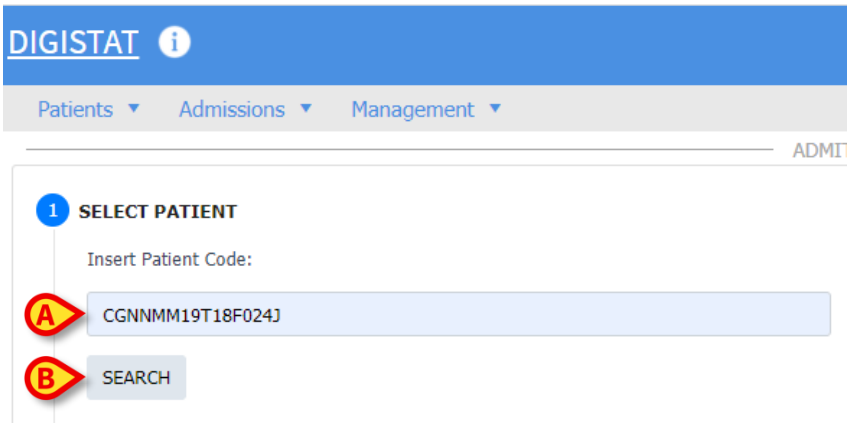

Fig. 20

If the patient is found, and not already admitted, the patient data is displayed on the right (Fig. 21).

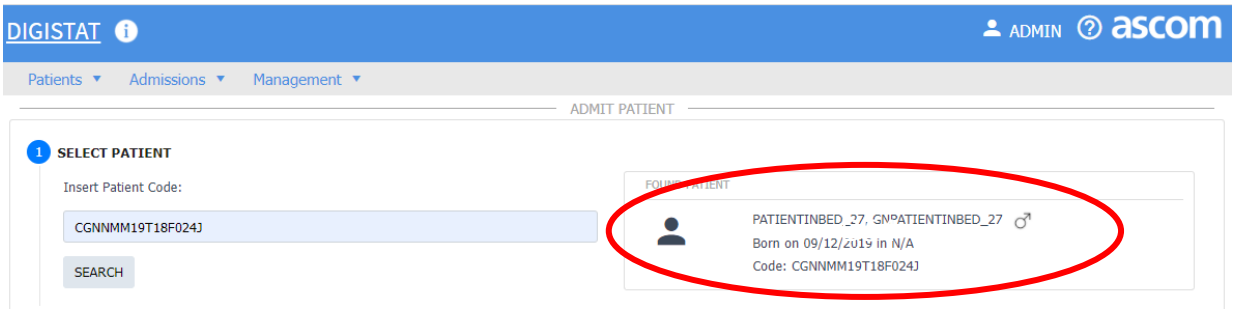

Fig. 21

- Select the destination Location and Bed (Fig. 22 **A**).

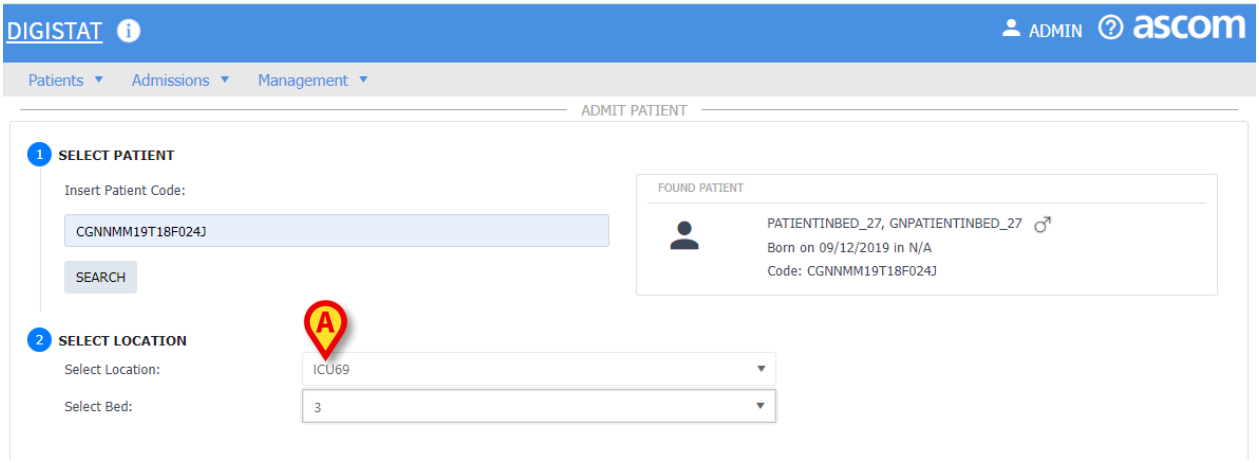

Fig. 22

- Click the **Admit patient** button on the bottom-right corner of the screen (Fig. 23 **A**).

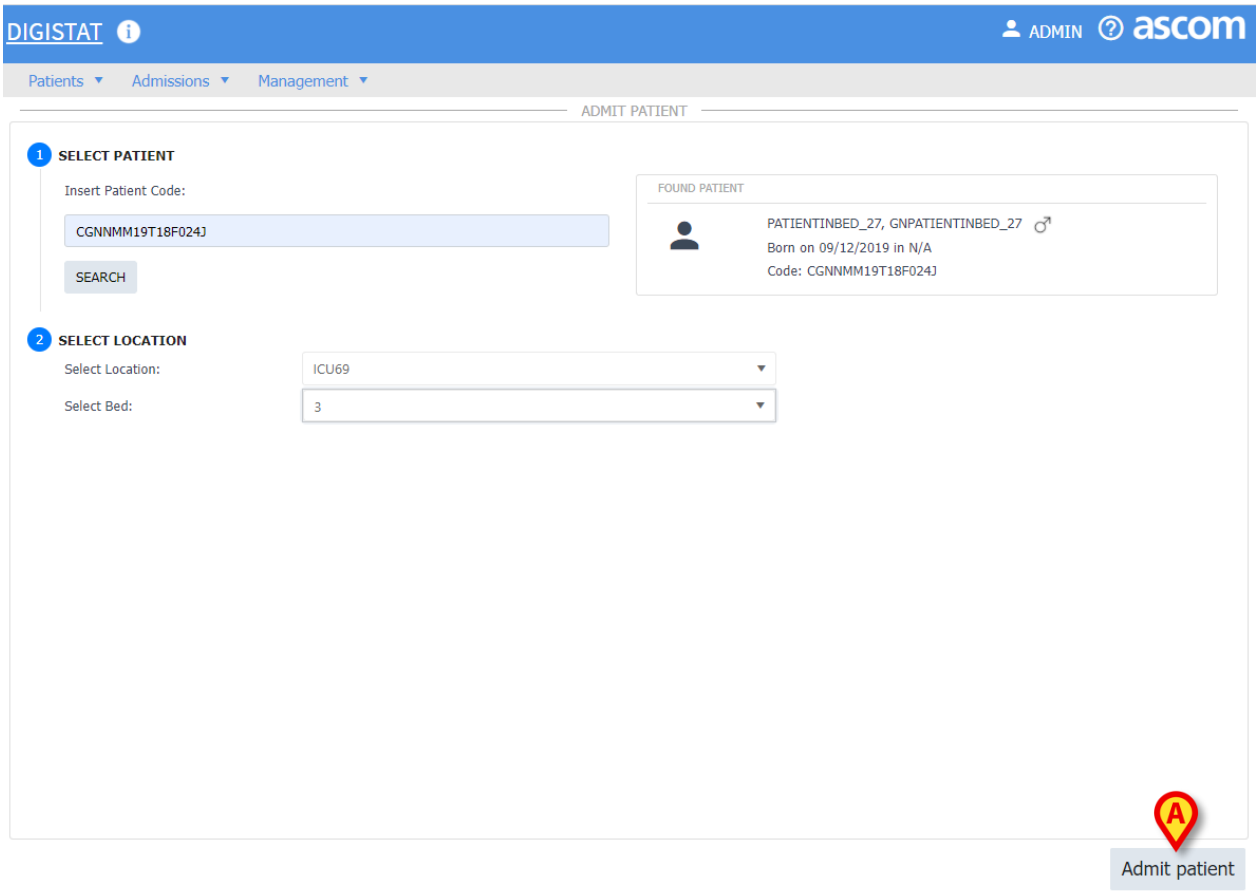
DIGISTAT
ADMIN
ascom
Patients
Admissions
Management
ADMIT PATIENT
1 SELECT PATIENT
Insert Patient Code:
CGNNMM19T18F024J
SEARCH
FOUND PATIENT
PATIENTINBED_27, GNPATIENTINBED_27
Born on 09/12/2019 in N/A
Code: CGNNMM19T18F024J
2 SELECT LOCATION
Select Location:
ICU69
Select Bed:
3
A
Admit patient

Fig. 23

13.2 Patient Discharge

To discharge a patient

- Click the **Discharge Patient** button/menu item.

The following screen opens (Fig. 24)

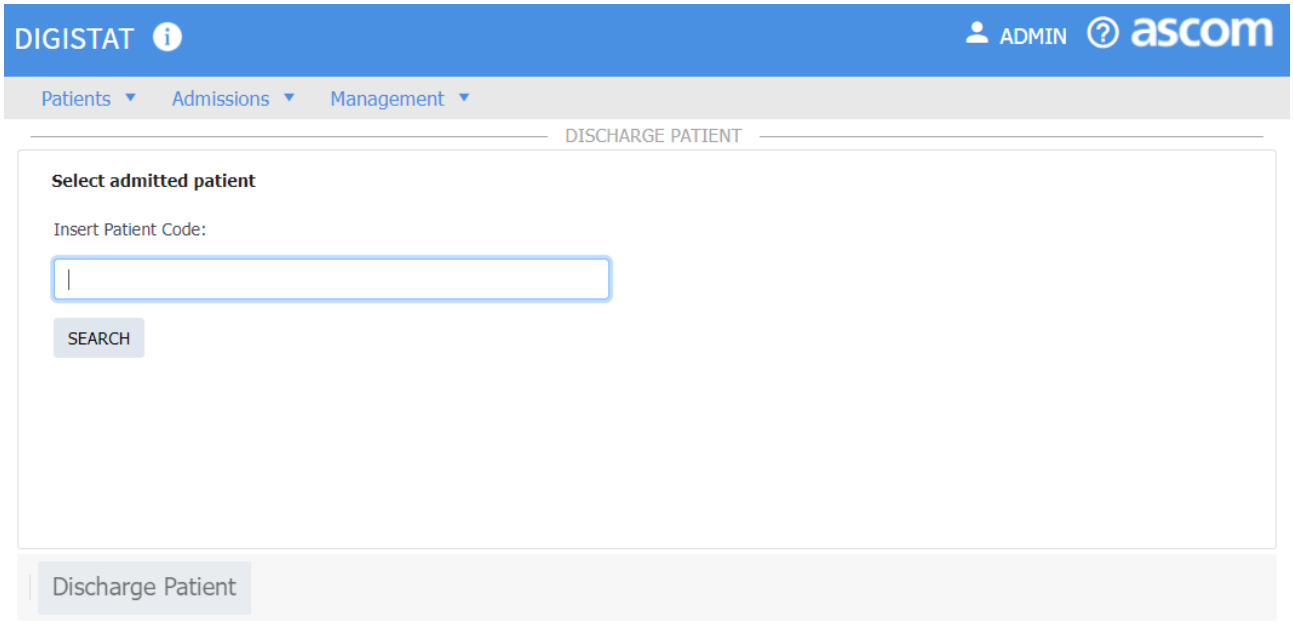

Fig. 24

- Insert the Patient Code in the field indicated in Fig. 25 **A** and click **Search** (Fig. 25 **B**).

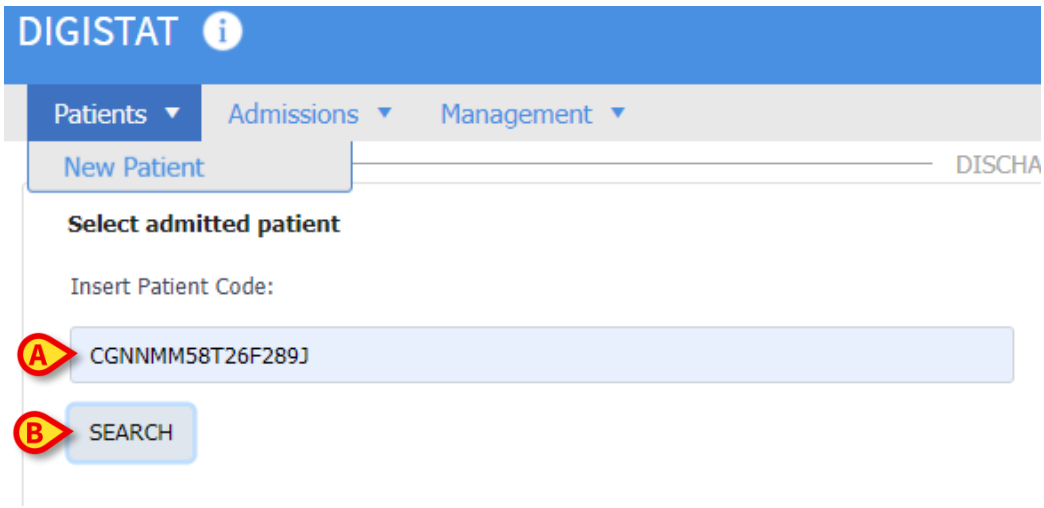

Fig. 25

If the patient is found the patient data is displayed on the right (Fig. 26 **A**).

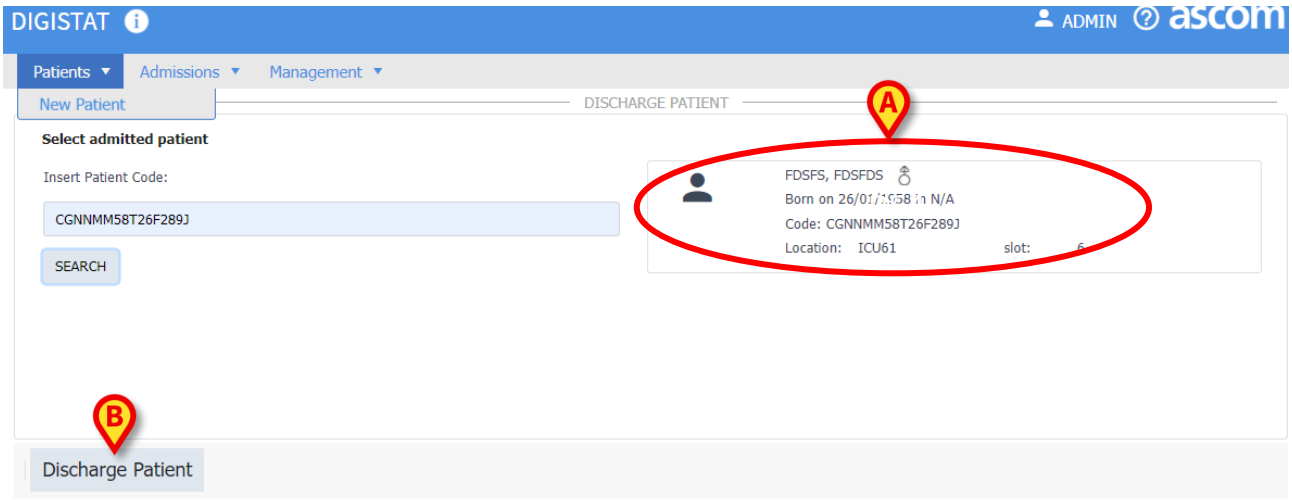

Fig. 26

- Click the **Discharge Patient** button (Fig. 26 **A**).