

# **seca EMR Module for HL7**

## **Technical Documentation**

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# 1 GLOSSARY

## **EMR**

Electronic medical record

## **HL7**

A protocol that may be used to exchange data with an **EMR**

## **PDMS**

Patient data management system

## **seca emr flash 101**

An application designed for the reception of results from weight and height measurements and their storage in a patient data management system

## **seca EMR integration module (SEM)**

A plugin for **seca emr flash 101** that exchanges data between **seca emr flash 101** and an **EMR**

## **seca EMR Module for HL7**

The **SEM** that exchanges data between **seca emr flash 101** and **HL7**

## 2 SECA EMR FLASH 101 INTEGRATION WITH HL7 ARCHITECTURE

### 2.1 Architecture overview

The **seca EMR Module for HL7** was designed to function as a native plug-in for **seca emr flash 101**. In doing so, the module does not require any additional installed components or frameworks.

The following diagram (Figure 1) displays a high level overview of the integration points between **seca emr flash 101** and **HL7**.

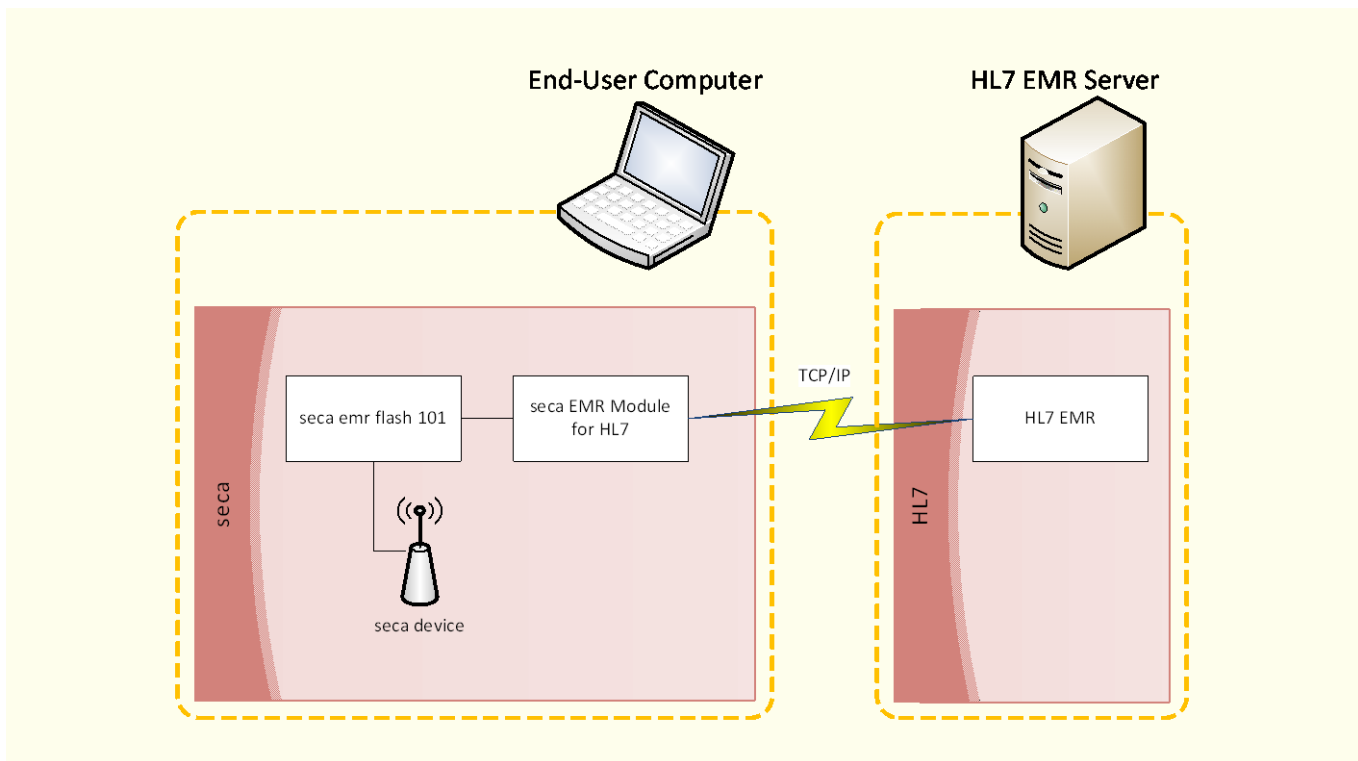


Figure 1 - High-level architecture

### 2.2 Integration from HL7 EMR to seca emr flash 101

#### NOTE:

- This integration (transferring patient data to **seca emr flash 101**) is optional. As an alternative, you might enter the **Patient ID** directly in **seca emr flash 101**, either by keyboard or using a device like a bar code scanner or an RFID scanner.
- In order to use this integration, your HL7 EMR must have a client component on your computer, that can select a patient and that can trigger the patient data transfer.

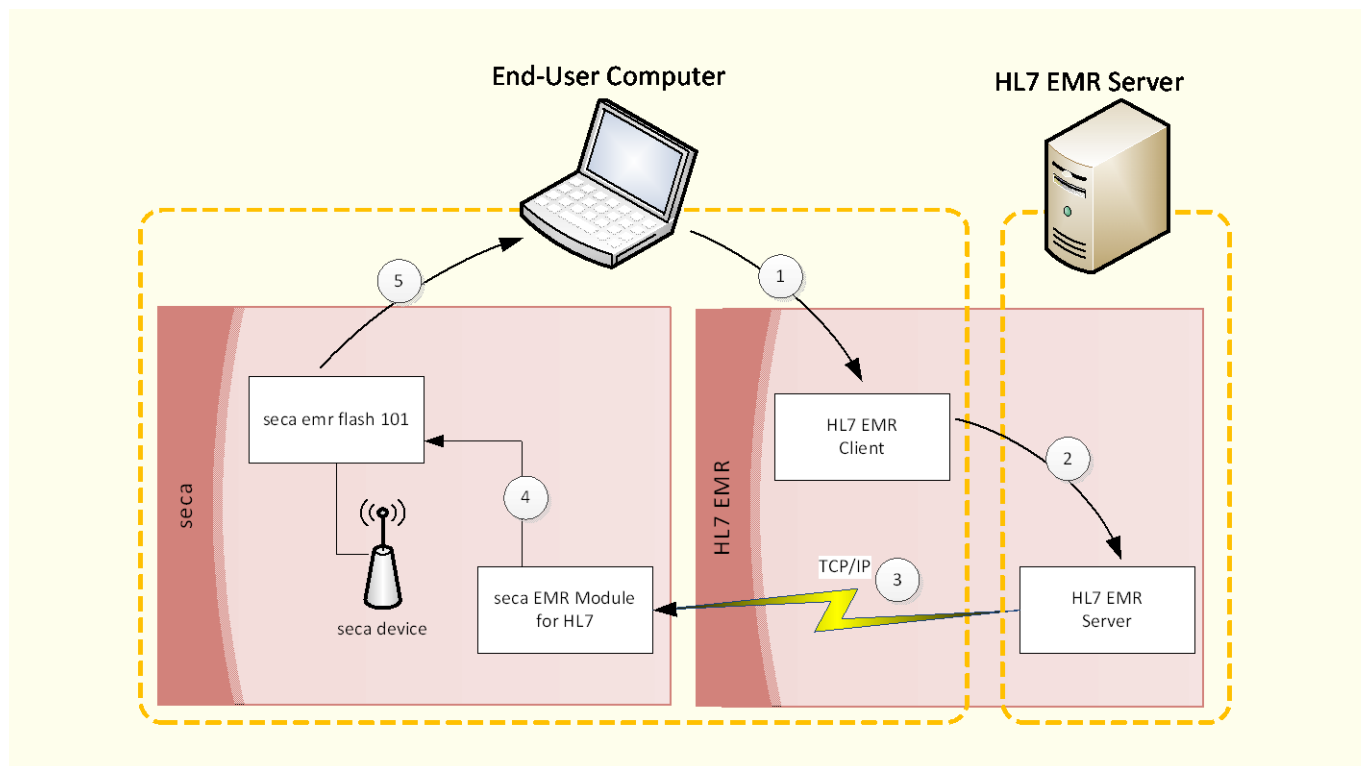


Figure 2 - Integration from EMR to *seca emr flash 101*

1. The end-user will authenticate in the **HL7 EMR**
2. In the EMR, the user will select a patient. After the user is selected, they will select an option in the EMR to start flash
3. The **HL7 EMR** will send one or more of the following user parameters to the **seca EMR Module for HL7**
  - a. Patient ID
  - b. Patient First Name
  - c. Patient Last Name
  - d. Patient Date of Birth
  - e. Patient Gender
4. The **seca EMR Module for HL7** will pass the patient information to the **seca emr flash 101** user-interface
5. The **seca emr flash 101** user interface will display the new patient information

## 2.3 Integration from *seca emr flash 101* to *HL7 EMR*

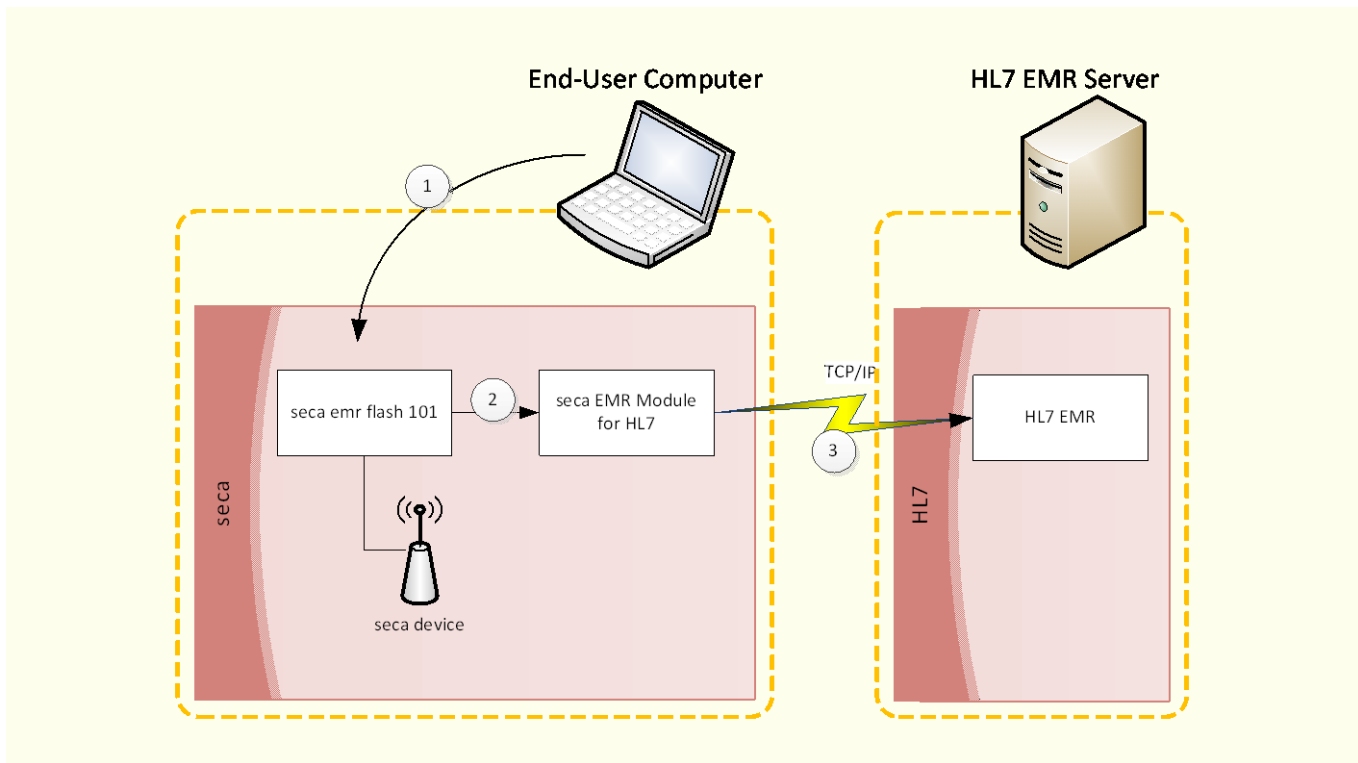


Figure 3 - Integration from *seca emr flash 101* to *EMR*

1. Once a patient reading has been taken, the end-user will trigger **seca emr flash 101** to send the measurement to the **seca EMR Module for HL7**
2. The **seca EMR Module for HL7** will parse out the data presented by **seca emr flash 101** and prepare it for submission to the **HL7 EMR**
3. The **seca EMR Module for HL7** will transmit the measurements to the **HL7 EMR**
4. (optional) The updated patient information will be available within the **HL7 EMR** user-interface

### 3 INTEGRATION WORKFLOWS

The following section details the steps taken during the integration process of **seca emr flash 101** and **seca** devices with an **HL7 EMR**.

There are several workflow alternatives supported by **seca emr flash 101**.

#### 3.1 Normal workflow

In the normal workflow, measurement data is sent along with patient data to the **EMR**. Thus, the normal workflow uses two steps:

1. Collect patient and measurement data in **seca emr flash 101**
2. Send patient and measurement data to the **EMR**

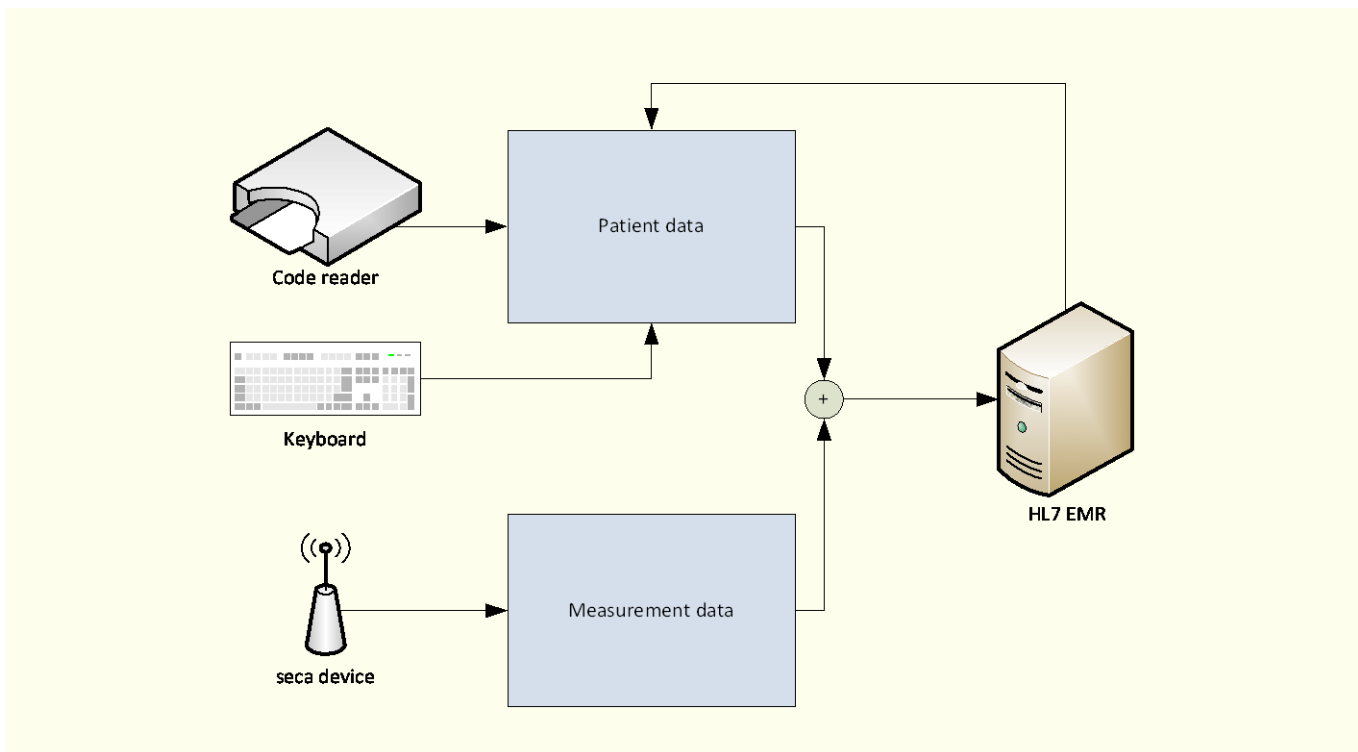


Figure 4 - Normal workflow

##### 3.1.1 Providing **seca emr flash 101** with patient data

There are different methods to provide **seca emr flash 101** with patient data:

1. Patient data is being sent from the **EMR**
2. Patient ID is being sent from a scanner

3. Patient ID is entered manually

Note that the methods available depend on your **EMR**.

#### 3.1.1.1 Sending patient data to *seca emr flash 101* from *HL7 EMR*

An end-user will start the **HL7 EMR** client application. Once the user has authenticated within the application, they will find the patient within **HL7 EMR** and bring them into context. If the patient in context requires height or weight measurements from the **seca** device, the end-user will launch the **seca emr flash 101** by clicking the "seca" button (Figure 5).

The screenshot displays the OpenERP application window. The title bar reads "OpenERP". The menu bar includes "File", "User", "Form", "Options", "Plugins", "Shortcuts", and "Help". The toolbar contains icons for "New", "Save", "Delete", "Back", "Forward", "List", "Form", "Calendar", "Graph", "Print", "Action", "Attachments", "Menu", "Reload", "Close", and a "seca" button which is circled in red. A red arrow points from the "seca" button to the patient's profile picture. The main interface is divided into several sections: "Main Info" with fields for Patient ID (1234567890), Sex (Female), Date of Birth (09/02/1981), Patient Age (28 0 0), Ethnic group (White), Marital Status (Single), Blood Type (O), and Rh (-); "Lifestyle" with tabs for Physical Exercise, Socioeconomics, Diseases, Vaccinations, Genetic Risks, Medications, Surgeries, Sexty. and STDs, Gyneco / Obs, Evaluations, and Notes; "Smoking" with fields for Smokes (checked), Cigarettes a day (10), Age started to smoke (20), and Ex-smoker (unchecked); "Other Drugs" with a "Drug Habits" section; "Food" with fields for Meals per day (4), Coffee (checked), Soft drinks (sugar) (checked), Alcohol (checked), Beer / day (0), Wine / day (1), and Liquor / day (0); and "Extra Info" with a large text area.

Figure 5 - Sending patient data from *HL7 EMR*

**HL7** will then launch the **seca emr flash 101** and bring it into context. The **seca EMR Module for HL7** will import the patient demographic and identifying information into the **seca emr flash 101** user interface (Figure 6).



seca emr flash 101

seca emr flash 101

Weight:

Height:

Patient ID:

First name:

Surname:

Date of birth:

Sex: ☒ Male ☐ Female

Devices <<

Available scales	Available stadiometers
seca 285 ROOM 1	seca 285 ROOM 1
seca 378 ROOM 2	

help send to EMR cancel settings

Figure 6 - Patient data received in *seca emr flash 101*

### 3.1.1.2 Sending Patient ID from a code reader

If you have a suitable bar code or RFID scanner connected to your computer, you may use this device to enter a Patient ID directly from a patient's badge or from a bar code printed on a routing slip.

### 3.1.1.3 Entering Patient ID from the keyboard

Of course you may enter the Patient ID with your keyboard.

### 3.1.2 Sending measurements from *seca emr flash 101* to *HL7*

With the patient in context, the end-user will have the patient stand on the scale. When the measurement is valid the results will be transferred to **seca emr flash 101**. The end-user will then select **send to EMR** and the results will be transferred to the **HL7 EMR** (Figure 7).

The screenshot shows the 'seca emr flash 101' application window. The interface includes a header with the product name, a central area for patient data and measurements, and a bottom section for device selection. A yellow box highlights the 'Weight: 76 kg' and 'Height: 1.76 m' fields. Below these are fields for 'Patient ID', 'First name: Max', 'Surname: Smith', 'Date of birth: 15.06.1955', and 'Sex: Male' (selected). At the bottom, a red-bordered box contains two lists: 'Available scales' with 'seca 285 ROOM 1' (highlighted) and 'seca 378 ROOM 2'; and 'Available stadiometers' with 'seca 285 ROOM 1' (highlighted). A large green arrow points from the 'seca 285 ROOM 1' entry in the scales list to the 'send to EMR' button. Other buttons include 'help', 'cancel', and 'settings'.

Figure 7 - Receiving measurements and sending to *EMR*

If there is a supporting client of the **HL7 EMR**, the end-user can use it to review the results taken from the **seca** device and make any additional changes, as necessary (Figure 8).

The screenshot shows the OpenERP application window with the 'New Patient' form. The 'Main Info' section includes fields for Patient ID (1234567890), Sex (Female), Date of Birth (09/02/1981), Patient Age (28 0 0), Ethnic group (White), Marital Status (Single), Blood Type (O), and Rh (-). The 'Lifestyle' section is expanded, showing 'Physical Exercise' (30 minutes/day), 'Smoking' (Smokes: 10 cigarettes/day, Age started to smoke: 20), and 'Food' (Meals per day: 4, Coffee: checked, Soft drinks (sugar): checked, Alcohol: checked, Wine/day: 1, Beer/day: 0, Liquor/day: 0). The 'Extra Info' section, circled in red, displays 'Weight: 76.0 kg' and 'Height: 1.76 m'. A red arrow points to this section from the 'Smoking' area.

Figure 8 - Measurements received in EMR

## 3.2 Autosend workflow

In the autosend workflow, measurement data is sent without patient data to the **EMR** automatically. Whenever a measurement arrives (e.g. the scale's "send" button has been pressed), this measurement is being sent to the **EMR** immediately. In this case, the measurement has to be associated with the patient by the **EMR**.

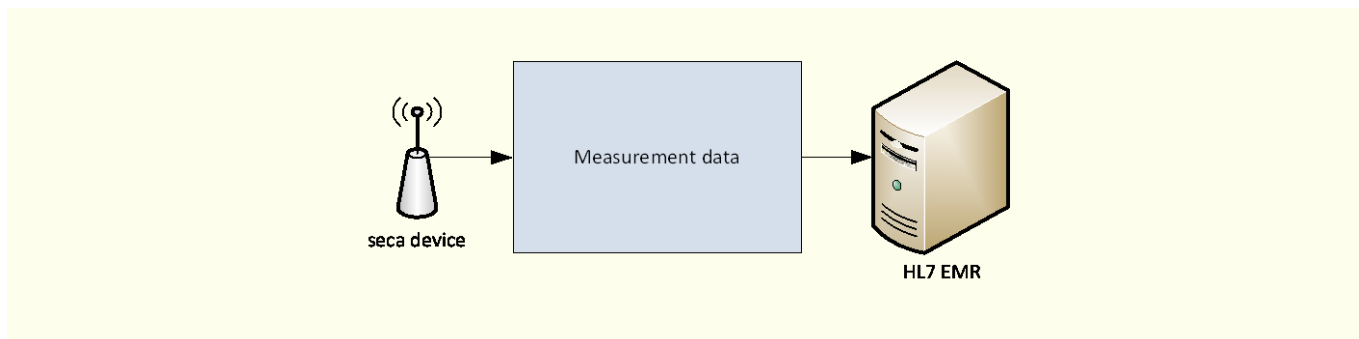


Figure 9 - Autosend workflow

## 4 DEPLOYMENT INSTRUCTIONS

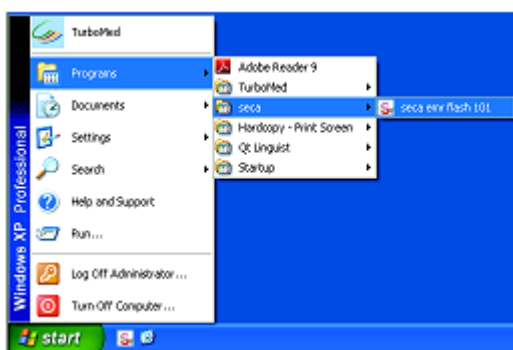
### 4.1 Installing and configuring *seca EMR Module for HL7*

Perform this step on the  
End-User Computer



#### 4.1.1 Installation steps

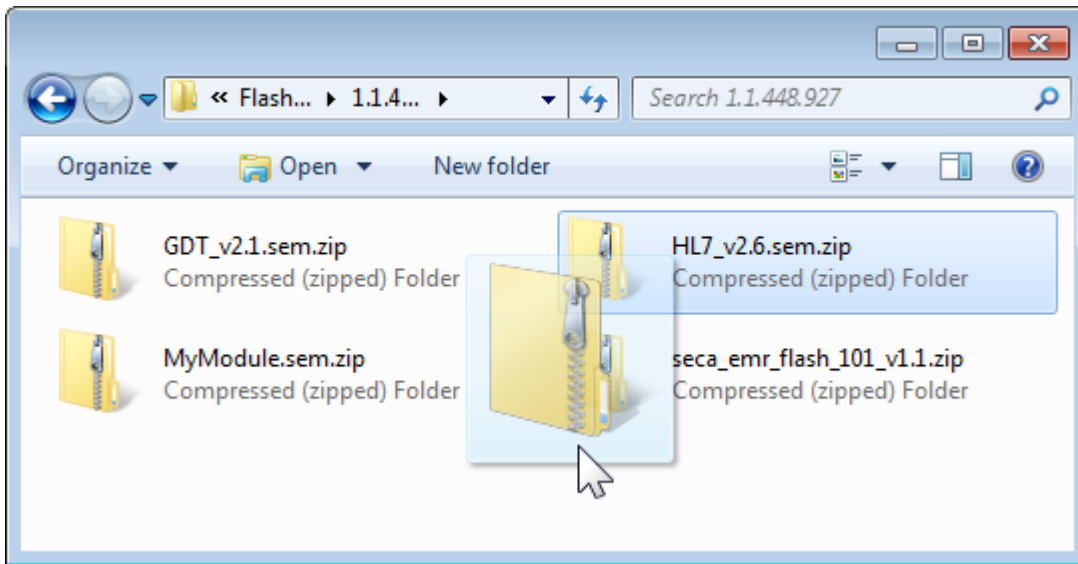
1. Open **seca emr flash 101** (Seca.Flash.exe)



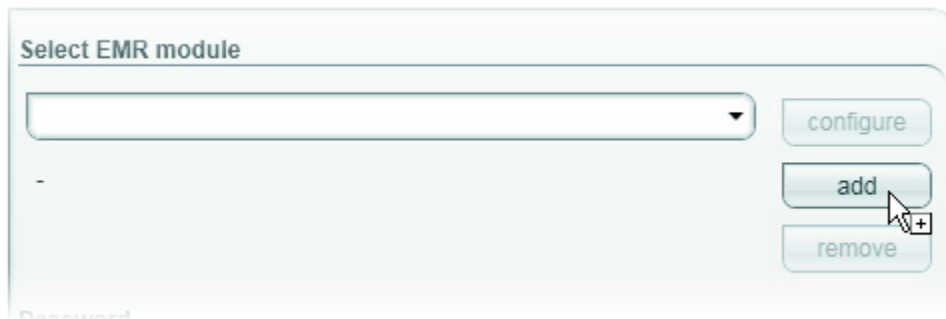
2. Click on the **settings** button



3. In Windows Explorer locate and select the **HL7\_v2.6.sem.zip** package



4. Drag this file and drop it to the **add** button of the configuration screen.



Alternatively, you may press the add button and select the file from an Open dialog.

5. The **seca EMR Module for HL7** will now be ready for configuration



## 4.1.2 Configuration

1. Click **configure**



2. The configuration screen is shown



3. If the configuration is not filled out, the following information will need to be entered:
  - **IP address**  
TCP/IP address of the **HL7 EMR**  
Default: 127.0.0.1

- **Out port**  
Port used by the **HL7 EMR**  
Default: 5000
- **In port**  
Port used by **seca emr flash 101**  
Default: 5001
- **Header**  
Header used for HL7 messages  
Default: 0b
- **Footer**  
Footer used for HL7 messages  
Default: 1c 0d
- **Encoding**  
Encoding used for HL7 messages  
Default: UNICODE UTF-8

4. Check whether you can accept the default settings for the PDMS interface (recommended).
5. If necessary change the default settings listed above according to your system.
6. Configure an interface in your PDMS according to the settings in this section.

**NOTE:**

- For more information on configuring your **seca EMR integration module**, click on **help**.
- You can find configuration instructions for some PDMS at [www.seca.com](http://www.seca.com).
- Take note of the user documentation for the PDMS used.

## 4.2 Configuring *HL7*

Perform this step on the  
HL7 EMR Server



This step depends on the particular **HL7 EMR** you are using.

## 5 PROTOCOL DETAILS

The **seca EMR Module for HL7** is using HL7 Version 2.6 TCP/IP transfer as protocol.

### 5.1 Receiving patient data from *HL7 EMR* by *seca emr flash 101*

Sending patient data from the **HL7 EMR** to **seca emr flash 101** can be done through an "ADT^A01" message. See Figure 10 for an example.

```
MSH|^~\&|EMR|EMR_VENDOR.COM|seca_watchdog|www.seca.com|20100311170159||ADT^A01|MSG00003|P|2.6||  
|||UNICODE UTF-8  
  
EVN||20110511170219  
  
PID|||PatientID||Æglundt-Straßburger^Øve-André||19940409000000|M  
  
PV1||U
```

Figure 10 - ADT^A01 sample

When **seca emr flash 101** receives such a message, it pops up showing the patient data in its main page.

### 5.2 Sending measurement data from *seca emr flash 101* to *HL7 EMR*

Sending measurement data is done through an "ORU^R01" message. See Figure 11 for an example.

```
MSH|^~\&|SECA_FLASH^flash.names.seca.com^DNS|||20110427164039||ORU^R01|0b14ad9a-8889-45c2-  
9a56-39418a680b44|P|2.6|||UNICODE UTF-8  
  
PID|||PatientID||Meier^Bernadine||19940409000000|F  
  
OBR||e1111fc2-ca23-44aa-806c-570aa527b30b^SECA_FLASH^flash.names.seca.com^DNS|e1111fc2-ca23-  
44aa-806c-  
570aa527b30b^SECA_FLASH^flash.names.seca.com^DNS|69647^MDC_DEV_SPEC_PROFILE_SCALE^MDC||2011042  
7164039|F  
  
OBX|1|NM|188736^MDC_MASS_BODY_ACTUAL^MDC||123.45|263875^MDC_DIM_KILO_G^MDC|||F|||||{DEVICE  
INFO_1}  
  
OBX|2|NM|188740^MDC_LEN_BODY_ACTUAL^MDC||123.4|263441^MDC_DIM_CENTI_M^MDC|||F|||||{DEVICE  
INFO_2}
```

Figure 11 - ORU^R01 sample

When the "send to EMR" button is pressed in **seca emr flash 101**, the measurements are sent along with the patient data to the **HL7 EMR**.

When "Autosend" is activated, no patient data is available and a measurement is received in **seca emr flash 101**, the measurement is sent to the **HL7 EMR**.

{DEVICE INFO\_1} and {DEVICE INFO\_2} will be replaced with one of the following:

- Manual entry: if value was sent manually
- COM device^{device description}: if sending device is a RS232 device. {device description} represents the device description within seca emr flash 101.



- {serial number}^{device description}: if sending device is a seca 360° device. {serial number} will be replaced with the device's serial number. {device description} represents the device description within seca emr flash 101.