Messaging

To launch the messaging function click the envelope icon labeled 'Messaging' from the tablet navigation bar (Figure 148). Icon is showing everywhere, where the navigation bar is visible **(1)**.

Figure 148: Launch the messaging in tablet

To write a new message select 'Write new message' from the left side menu bar (Figure 149) **(2)**. This opens the selection for whom the message is being written to: relatives or nurse (professional).

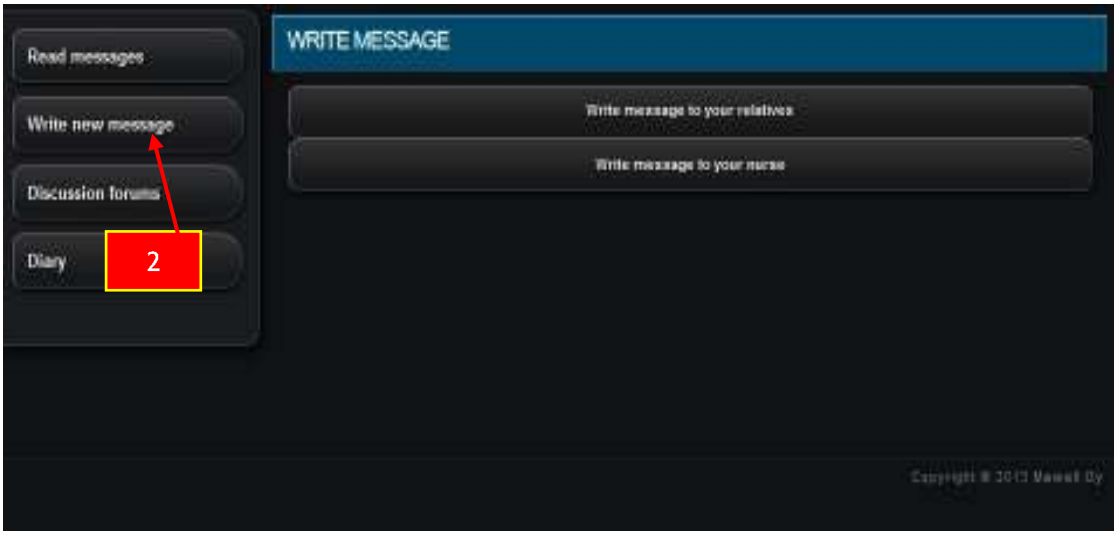


Figure 149: Select message receiver

Selecting the receiver opens the writing screen (Figure 150). A new message has a title and body **(3A)**. After the message is ready it is sent by selecting 'Send message' **(3B)**.

Figure 150: Write and send message

All the sent messages and responses to them can be opened by selecting 'Read messages' **(4A)** from the left side menu bar (Figure 151). This shows the list of messages send and received.

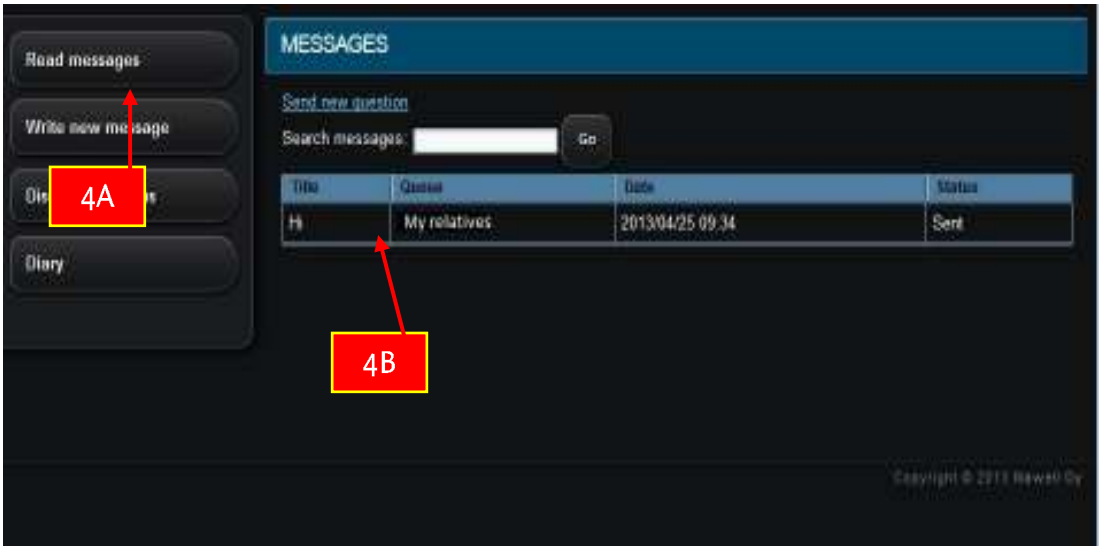


Figure 151: Read message

Messages and their responses form a message thread that both parties (elderly person and relatives or elderly person and nurse) can access to read and write new messages. The thread is viewed by clicking the message row in the table **(4B)**.

Group discussions

Group discussions are opened by selecting 'Group discussions' from the left side menu bar (Figure 152) **(5A)**.

Figure 152: Main view of the group discussions

The group discussions main view shows the list of discussion groups that are divided into different topics. Clicking on a desired topic opens the group discussion thread **(5B)**.

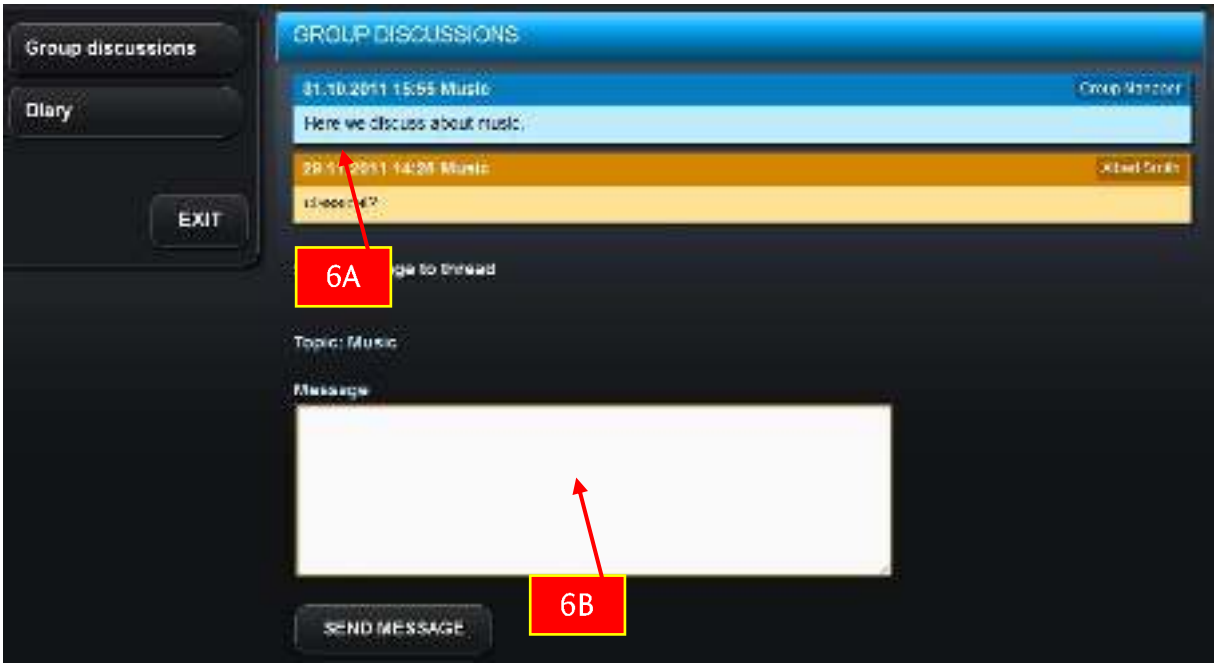


Figure 153: Thread of a group discussion

The group discussions thread view lists messages entered by the user **(6A)** and allows an elderly person to write and add a new message to the discussion (Figure 153) **(6B)**.

Diary

Figure 154: Diary view of the elderly user

The Diary view shows the diary entries of the elderly user as well as the comments of the relatives (Figure 154). 'New note'-button opens the view for writing a new diary entry (Figure 155).

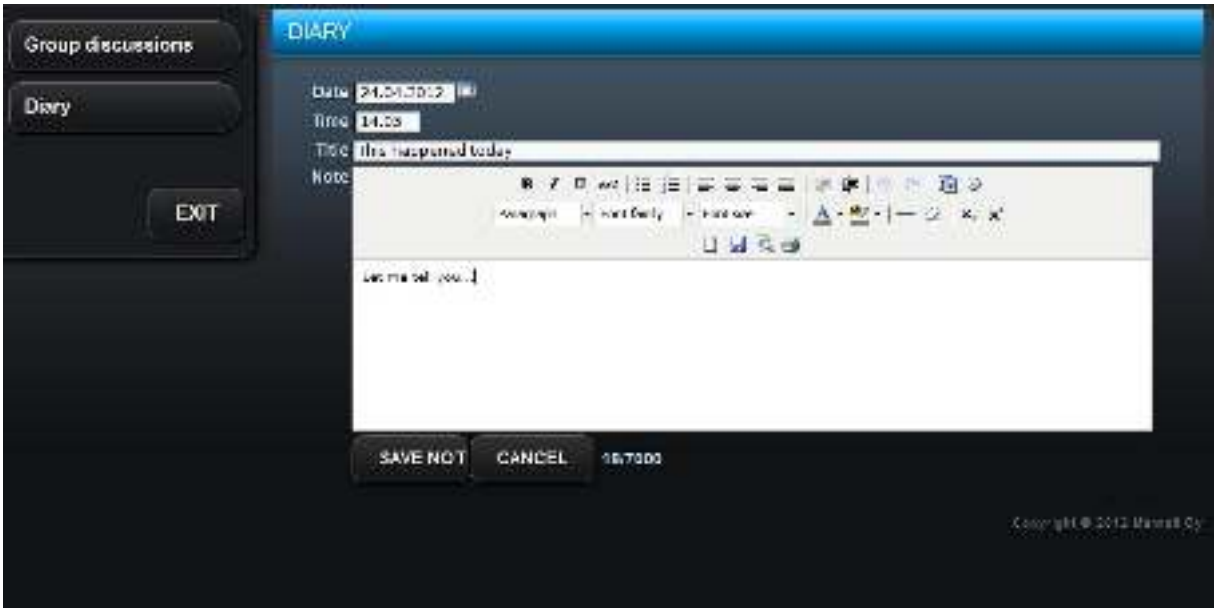


Figure 155: Adding a new diary entry

New diary note is saved by clicking 'save note'-button.

2.3. Web Platform

The main purpose of the web platform (based on the NetNurse - S7 Portal) is to connect all interest groups (human users) with each other, i.e. relatives, elderly persons and professionals.

The web platform is a web based portal engine, using the Mawell S7 platform as a framework that combines multiple web applications into a single view Furthermore, this platform provides the Mawell S7 NetNurse module to be utilized as social networking channel. In addition, the calendar functionality is managed via the web platform V2me Portal, as well as the synchronization towards the tablet.

The next two sections provide an overview of the social network component for relatives and professionals, which is provided by the web platform and can be accessed via a browser on arbitrary devices (e.g., PC, smartphone, etc.).

2.3.1. S7 UI for relatives

This chapter describes the several functions and the view for the relatives of the elderly users in the social network. This component can be accessed via the browser on every device that provides internet access (e.g., PC, tablet, etc.).

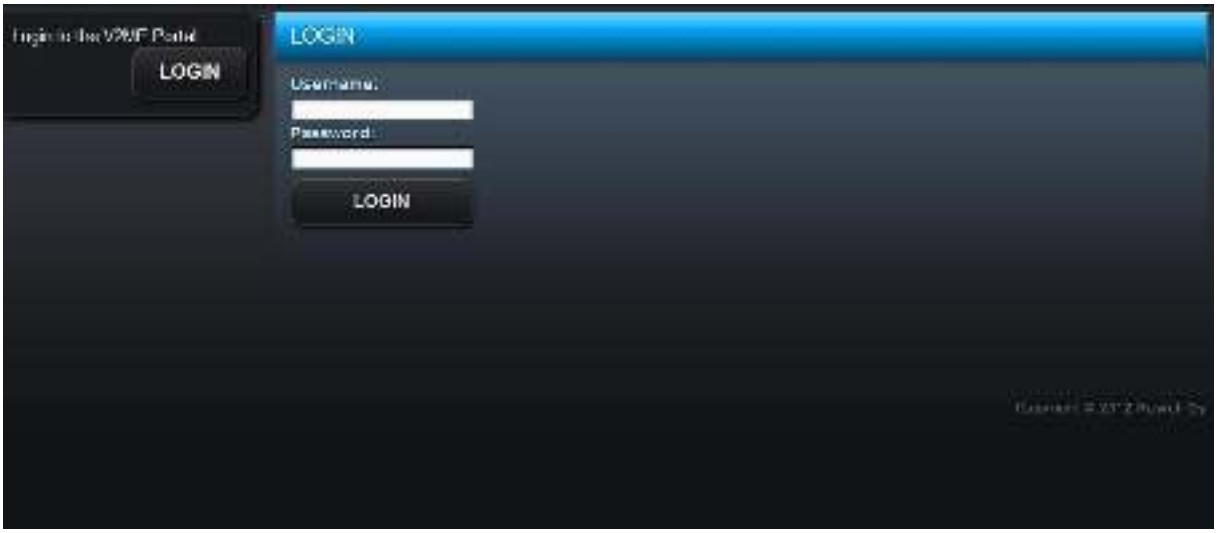


Figure 156: Login screen of the social network for the relatives

Relatives login to S7 portal using the user accounts created for them.

Figure 157: View on the main menu of the social network for relatives

The main menu (on the left side) contains five items (Figure 157):

- Messages from elderly person: For reading messages from elderly person and responding to them **(1A)**.
- Messages from and to professional: For communicating with the elder's caretaking professionals **(1B)**.
- Calendar: For viewing the calendar of the elderly person **(1C)**.
- Diary: For viewing the diary of the elderly person **(1D)**.

Messaging

Figure 158: Message inbox of the relatives

Both, 'Read message' and 'Write message', show the inbox containing all previous message threads **(2A)** that can be open/read (Figure 158). Also a link for sending a new message is on this page **(2B)**.

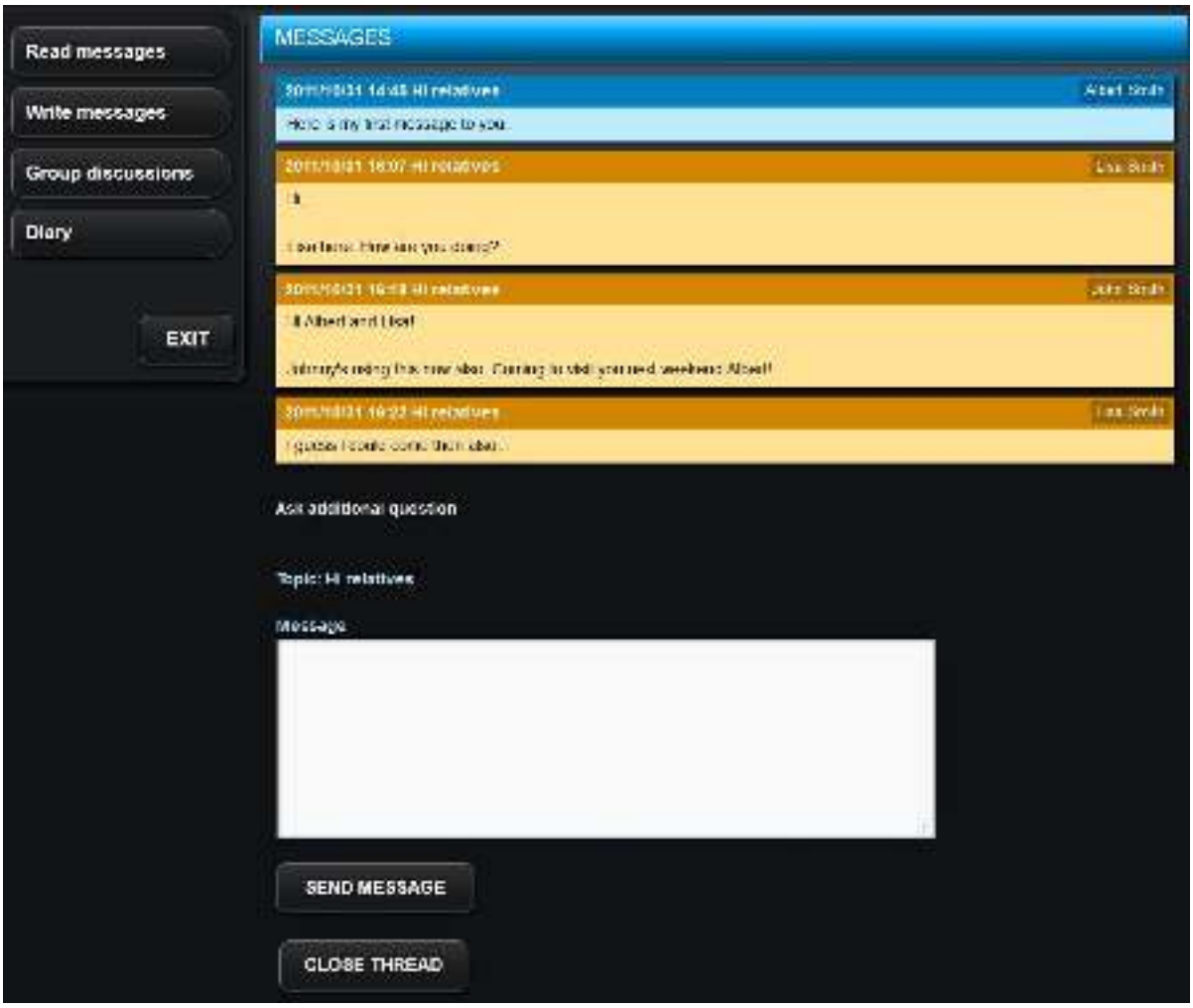


Figure 159: View on the message thread

Clicking on one message thread opens all the messages written in that thread (Figure 159).

Figure 160: Sending a new message to a selected thread

Clicking on 'Send new message' **(3)** allows the relative to send a new message which creates a new message thread (Figure 160).

Calendar

Figure 161: The relatives view on the calendar of the elderly person

The 'Calendar' menu item in the relatives view opens the elderly person's calendar (Figure 161). On this page relatives can browse **(4)** elderly person's calendar events.

2.3.2. S7 UI for professionals

Professionals login to S7 NetNurse using web browser on an arbitrary device (e.g., PC or tablet).

Figure 162: Login screen of a professional to the social network

The professional enters his/her user details to login into system.

Figure 163: Main view containing all unanswered messages

By default the NetNurse main view shows a list of unanswered messages from the elderly users and their relatives (Figure 163). Messages with different status can be viewed by selecting different criteria from 'Show' drop down list **(1)**. Clicking on a message **(2)** opens the thread view and allows the professionals to answer them.

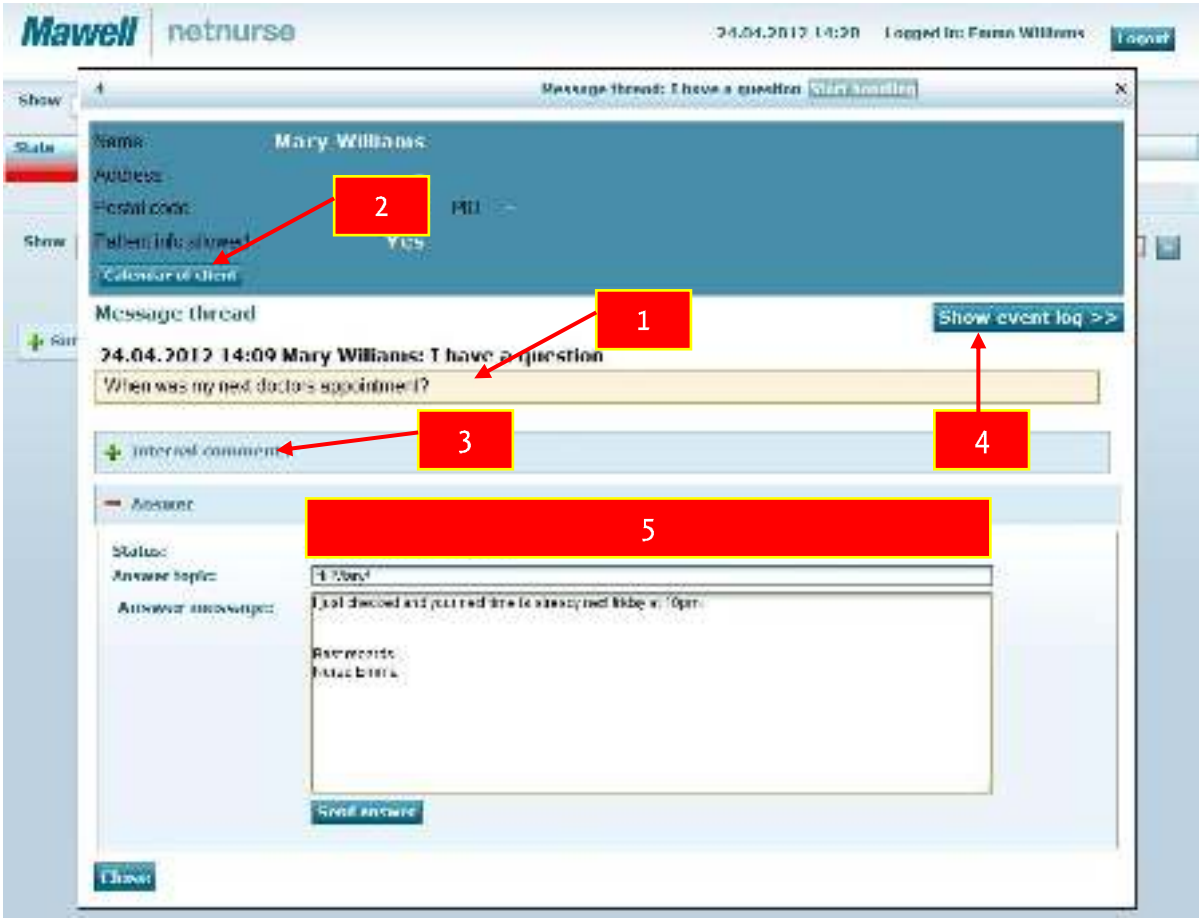


Figure 164: Thread view of the professional

The thread (Figure 164) view enables the professional to:

- Read messages in the thread **(1)**
- Check the calendar of the elderly user **(2)**
- Write internal comments that are only visible to professionals **(3)**
- View event log of the message thread **(4)**
- Write and send an answer **(5)**

2.4. Home Platform

The home platform is the system dedicated to be statically located within the elderly person's premises. It is an internet connected platform, in the first iterations a large screen all-in-one PC. It is communicating with the V2me server systems to allow synchronization with the V2me mobile platform. It provides the functionality requiring the presence of the 3D representation of the Virtual Coach.

The V2me will realize this platform on a Windows PC running a recent version of Qt and providing sufficient processing capabilities to handle the graphically intensive application.

The home platform will be augmented by the mobile platform acting as interaction device to allow the user to interact with the Virtual Coach in a more relaxed way without having to stand in front of the touchscreen for longer periods of time.

The home platform is based on the Qt framework with various other graphics libraries included to create the detailed immersive environment of the Virtual Coach. V2me will build on that foundation and create additional content for the immersive environment. The exact requirements of these additions will be defined upon the requirements based analysis of the components.

The program itself requires no user interaction. All interaction is done with the mobile platform. The mobile platform triggers animations and action of the virtual coach and the scene based on your actions.

Figure 165: Home platform – sample environment for the virtual coach

2.4.1. User Avatars

The system will provide a virtual self-representation for each user. This personal avatar may be shown to all friends in the social network to express moods and feelings of the user, as well as activities the user likes to do or is doing at the moment.

This feature is at the moment realized with the Microsoft Kinect Sensor. The user's actions are recorded and a sequence of 3D-objects is generated (see Figure 166). This sequence acts as a 3D video.

Figure 166: Example for a scanned 3D avatar (obtained from the Kinect Sensor)

The advantage of this representation is that the avatar is picturing the user. Other self-representations may be considered in the future. Options range from simplistic iconic representation to realistic avatars.

Figure 167: Behavior slot UI mockup

Note: At the moment this is a standalone feature and will not be considered in the V2me system and its manual, as it is a kind of demonstration of a possible system extension.

3. Administrator Manual

This section provides an overview of all the applications and hardware modules an administrator will have to use within the V2me system. It will give an understanding about the usage and control of each part of the system based on an administrative view on the frontend.

3.1. Tablet Initialization

In order to connect with the social network the tablet requires to be initialized at first start. This procedure is done with the user registering for the service using a valid Email address. There are additional requirements of the effectiveness assessment leading to slight changes in procedure that will also be described in this section.

3.1.1. General initialization

The user is intially created by the create user profile by entering an Email address that will be registered with the system in the background (Figure 1). The system will then register itself as initialized with tablet and server so the status can be accessed in the future.

Figure 168: Initialize user profile screen at first start

In a second step the user has the option to change his contact details, including age, gender, Skype ID and other relevant information (Figure 2).

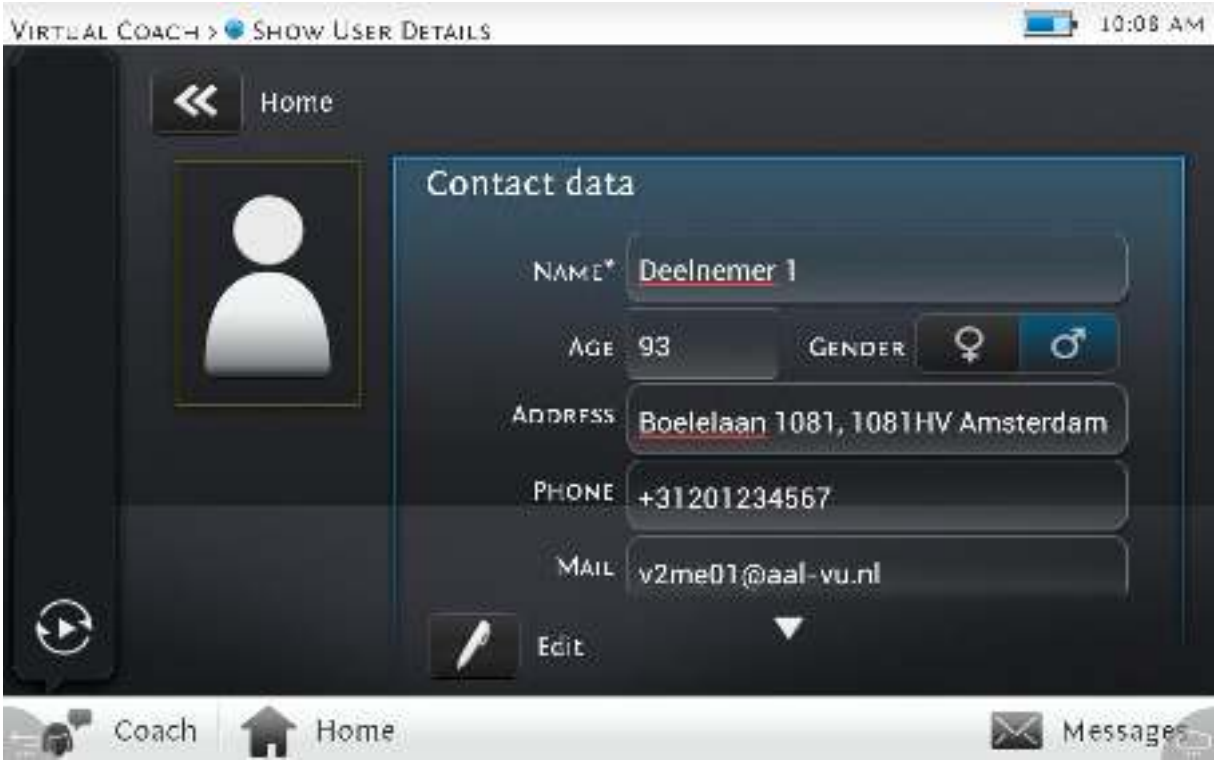


Figure 169: Modify user profile

If the user wants to view or change this profile information the screen can be accessed from the home screen at any later point in time.

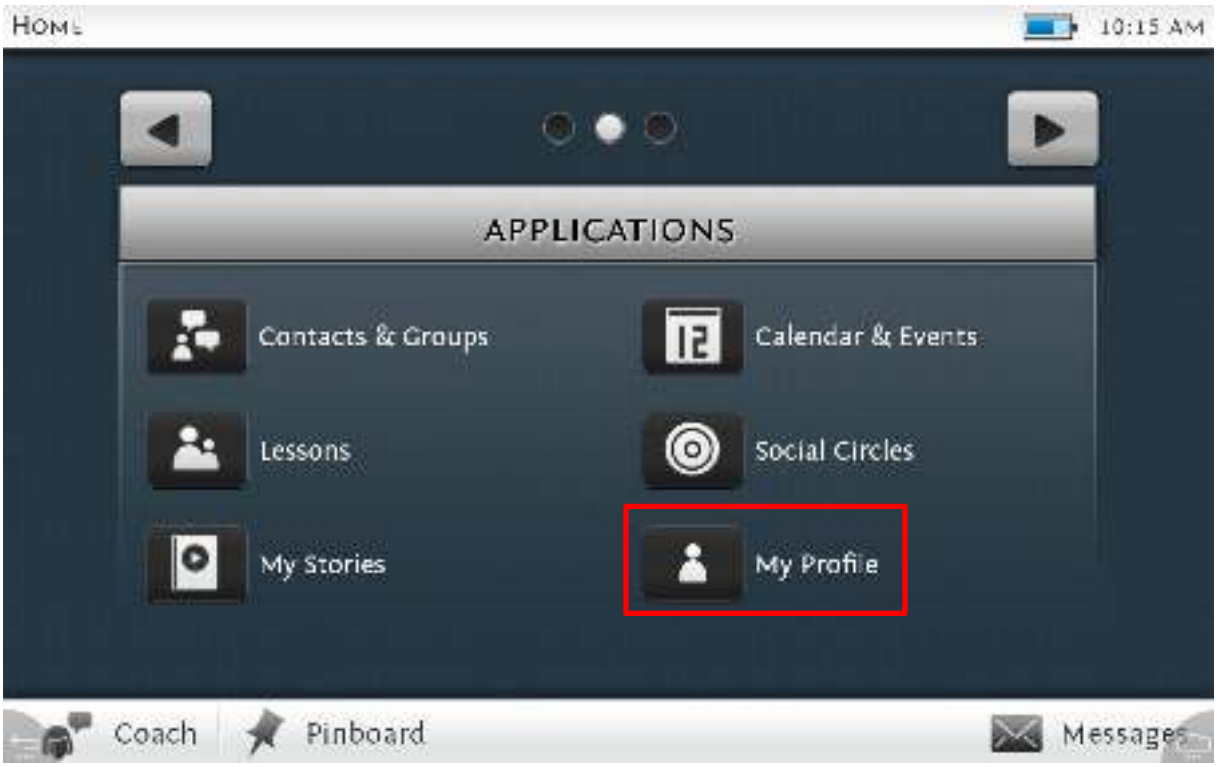


Figure 170: Accessing the profile from Home screen

This procedure is altered for the effectiveness assessment, with more details being described in the next section.

3.1.2. Required additional software on tablet

For communication purposes the tablet does require just one other application to be installed. This is Skype. The user is required to create an account and enter the correct Skype ID in the V2me system. The following steps are necessary:

1. Skype is installed via the Google Play store
   https://play.google.com/store/apps/details?id=com.skype.raider
2. A Skype account is created from within the app by clicking the link shown in Figure 4 and following the steps described

Figure 171: Skype overview screen and account creation

3. Users that are supposed to be accessed by V2me have to be added to the contact list using the link shown in Figure 5 and searching the database

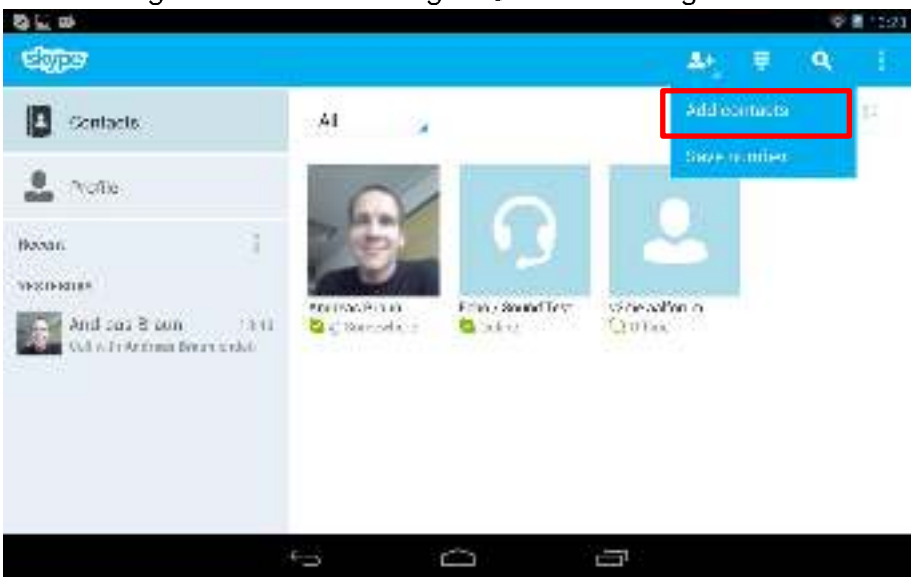


Figure 172: Adding contacts using Skype app

3.1.3. Tablet initialization for effectiveness assessment

The effectiveness assessment has some additional requirements that make it necessary to modify the initialization routine.

- Tablet initialization performed by an administrator
- Shared contacts for all study participants
- Email and Skype ID generated by administrator
- Tablets partially used in debugging
- All contacts are preset on the S7 platform by an administrator

Step 1: Wiping tablet

Any existing V2me app has to be uninstalled using the App manager of the tablet. The V2me folder on the SD card has to be cleared using an internal file manager or via PC connection.

Step 2: Installing Skype from Google Play Store

Follow the guide of the previous section.

Step 3: Installing V2me from APK

The final V2me APK file has to be copied onto the tablet and installed from there.

Step 4: Looking up user Email on the S7 platform

The following link provides access to the currently available contacts:

https://s7-test.v2me.org/prefserver/prefServer/getAllRelationsAsString

Access grants are given to administrators that have to make sure to select the correct Email address from the list of UNINSTALLED users as shown in Figure 6.

Figure 173: List of available contacts from S7

Step 5: Initialize tablet

Follow steps described in the previous section. There is no need to set the initial user profile as the data is automatically gathered from the S7 platform.

3.1.4. Installation of lessons

To install a lesson on V2me, first a lesson must be created using the lesson editor. The lesson must be given a unique id in the editor. When the lesson xml is saved on the computer it must be copied to the tablet. To do this, connect the tablet and copy the xml file into the V2me\lessons-** folder, where the ** stands for the country code. When the lesson is copied into the correct folder on the tablet the lesson will

be accessible from the friendship course screen in the left panel. Lessons are sorted there on their id number.

3.2. Web platform Initialization

The web platform and S7, including its database and application server, will be initialized and maintained by S7 specialists.

3.3. Home platform Initialization

To run the Home Platform a normal consumer PC with current hardware is sufficient. An NVidia graphics card (more recent than or as recent as an 8800 GTX) is recommended. The Home Platform itself provides all necessary libraries. The only package that is required is the Microsoft Visual C++ 2010 Redistributable Package, which is usually installed automatically in Windows 7 or more recent operating systems.

The Home Platform is started with the provided .bat file. Upon loading a file dialog is presented to load a scene file that has been created with the Scene Editor.

3.4. Scene Editor and Viewer

A system was created to build environments in which the Virtual Coach and user will interact with each other. A sample environment (flat with virtual coach) is seen in Figure 174.

Figure 174: Sample environment for the virtual coach

These scenes can be manually created by the administrative staff to provide the elderly persons with changing environments in their everyday schedule, which can be used for two different things. On the one hand they can be used to enrich the friendship lessons and daily schedules by displaying 3D content, as well as the animated virtual coach. On the other hand these environments can be used to send 3D invitations to friends.

The administrative staff is able to choose from a set of geometric assets to place in the scene. These assets are mainly taken from Trimble 3D Warehouse[3] and can be easily extended. The recorded user avatars as well as the assets are all stored on a data server and are downloaded when requested.

The whole scene is represented internally with a scene graph. This fact allows to create dependencies between objects (e.g., the flower always stands on top of the drawer) very easily. So if you move the drawer, the flower will move too. However, you can still move the flower on top of the drawer without moving the drawer.

The staff is furthermore able to define animations of all objects present in the scene. These animations can be triggered by certain actions of the user (e.g., certain actions on the tablet).These animations contain:

- Animation of static objects (e.g., the flower): Arbitrary geometric assets in the scene can be animated over time. For example, the whole furniture in the flat can be reordered as an animation.
- Animations of the camera: Camera flights through the scene are possible and can be triggered by the user once defined by the staff. For example, from a close up view of the virtual coach the camera can fly to the TV to show the current television program.
- Animations of skeleton animated avatars: The virtual coach is animated using a skeleton. These animations are predefined and cannot be extended by the staff. These animations are triggered on occasion. For example, the virtual coach smiles and jumps after the user said: "I am feeling well today".

By placing so called "Drop Targets" in the scene these environments can also be personalized for the user. On these drop targets avatars of the user's friends are displayed during the simulation. A schematic representation of these drop targets is shown in Figure 175. The scene represents a dancing room. The colored shapes in the left picture symbolize the drop targets in which a group of avatars of friends in their recorded dancing animation are inserted.

Figure 175: Schematic representation of drop targets

[3] http://sketchup.google.com/3dwarehouse/

3.4.1. The Editor

After start-up a screen as shown below is visible.

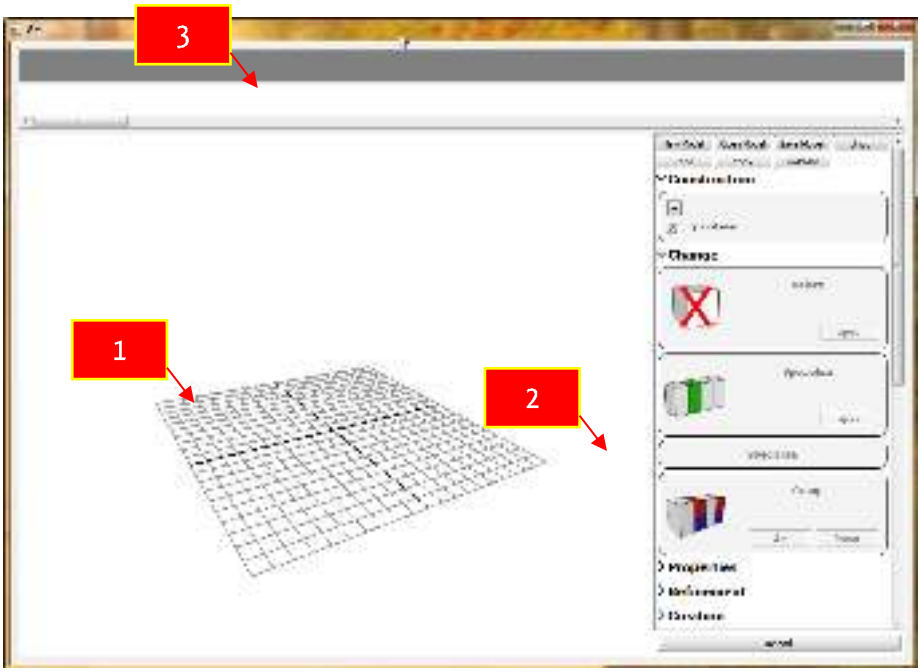


Figure 176: Main window of the Scene Editor

The left side **(1)** shows a 3D view in which navigation with the mouse is possible. (You'll probably need some time to get the idea how it works if you have never used a 3D viewer before). Camera rotation is achieved by dragging the mouse with the left mouse button pressed. To zoom, drag with the right mouse button pressed or use the mouse wheel. To "pan" (moving the camera sideward) drag the mouse with the middle mouse button (wheel) pressed.

The right side **(2)** shows the menu. There are a lot of themed menu groups. Of particular interest are: "Change", "Properties", "Scene Graph", and "Animation". Also of interest are the buttons on the upper right corner "New Model", "Open Model", "Save Model" as well as "Undo".

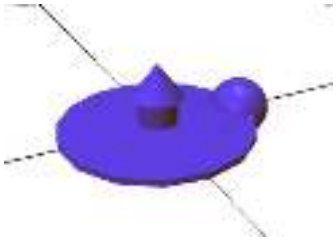
The upper part **(3)** denotes the time line container. Created time lines are stored here. Refer to the *Animation* section for more information.

How to build a scene:

This Content Editor creates scene graphs and defines animation on it. In our system a scene graph is strictly speaking a mathematical tree. So the scene is hierarchically subdivided. Each scene graph node can have multiple children that are dependent on their parent. So if the parent moves the whole sub-tree associated with that parent moves too.

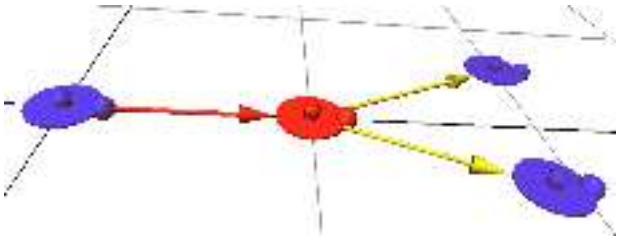
The first step is to add a scene graph. The according button is in the "Scene Graph" group in the menu.

It generates a blue widget in the center of the scene. This first widget is our scene graph root.

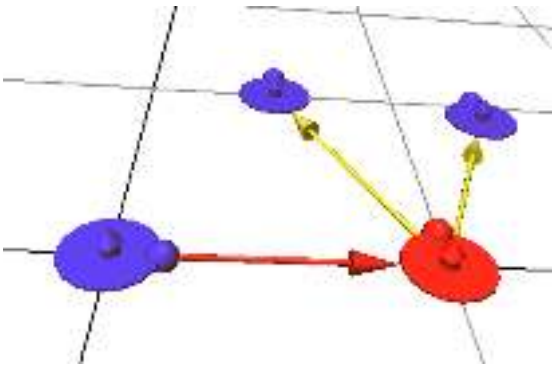


These widgets have three functions. They can be moved in the ground plane by dragging the cylinder with the left mouse. They can be translated upwards with the arrow and it can be rotated by dragging the ball. By simply clicking on the widget it becomes selected (red color). These widgets resemble Transformation Nodes (short: nodes) in the scene graph.

The operation "Add Transformation Node" (in the "Scene Graph" group) adds a child node to the selected widget.



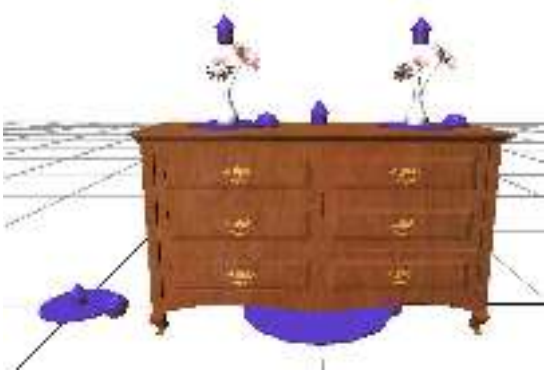
For a selected node the parent is indicated by a red arrow (from parent to child) and the children are indicated by yellow arrows (from parent to child). If the middle node is rotated by rotating the widget the two children will also be affected.



Object Placement:

Nodes are just to mark positions of objects that are placed in the scene. If you place an object in the scene several things happen:

- The widget transforms. The base cylinder adapts to the size of the object as well as the arrow is placed on top of the widget. The functionality stays the same.
- Movement of children is adapted. Direct successors snap to the upper most plane present in the parent object. In the example the flower vases snap to the height of the surface of the drawer when you move them with the arrow.
- No further object placement is possible for the specific node. Only one object can be associated with one node.



There are several objects that can be placed:

- An avatar ("Add Avatar" button in the "Scene Graph" group)
- A camera ("Add Camera" button in the "Scene Graph" group) (for more information see the *Animation* section below)
- Several repository objects available in the "Repository" drop down menu in the "Scene Graph" group.
- Drop target ("Add Drop Target" button in the "Scene Graph" group – specifies a spot for a Kinect-Avatar)

Object Deletion:

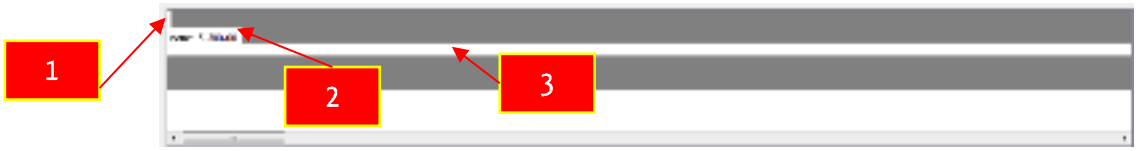
Objects placed on nodes as well as the node itself can be removed too. Two ways of doing this are supported:

- **Remove**: This option is found in the "Scene Graph" group in the menu. This removes the object placed on the node. If the selected node is empty nothing happens.
- **Delete**: This option is found in the "Change" group in the menu. This operation deletes all children of the selected node, but does not delete the node itself. However, if the node does not have any children the node itself is deleted.

Animation:
This section is subdivided in four parts: *General Information*, *Object Animations*, *Avatar animations* and *Camera animations*.

- **General Information:**

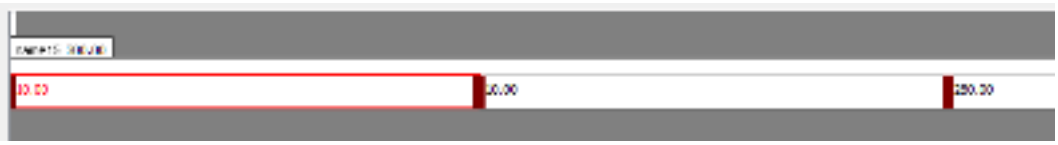
  Animations are defined in so called time lines that are present in the time line container. In the "Animation" drop down menu there is a button called "Add Time Line" to generate a time line.



A time line consists of three parts. First is the "timer block" **(1)** which indicates the current time in the timeline. It can be dragged with the left mouse button. Second is the time line label **(2)**. It contains the name (which can be changed) and the length of the time line in seconds (by default 300 seconds). Last is the "time scope" **(3)**. This object can be further subdivided into more time scopes for which actions in the scene can be defined. A time scope is selected by clicking on it (red border).
A selected time scope can be subdivided with the "Time-Split" operator in the "Animation" group. The amount of parts can be defined with the slider there. A split in three parts will create such a status.

The duration of the new created time scope is seen. However, there are three time scopes with 100 seconds of length now; to resize them conveniently we open the "Properties" menu with one time scope selected.

There we see the interval of the split in three parts we just conducted. The three numbers indicate the three parts of the split. A negative number means that the length is relative, so "[-1 -1 -1]" means splitting in three equal parts. "[-1 -2 -1]" means splitting in three parts where the mid part is twice as large as the other two. Positive numbers give us an absolute length so "[10 10 -1]" gives us two parts of length ten seconds and the remainder.



The red blocks in between the time scopes can be used to adapt the length manually (left click and drag).

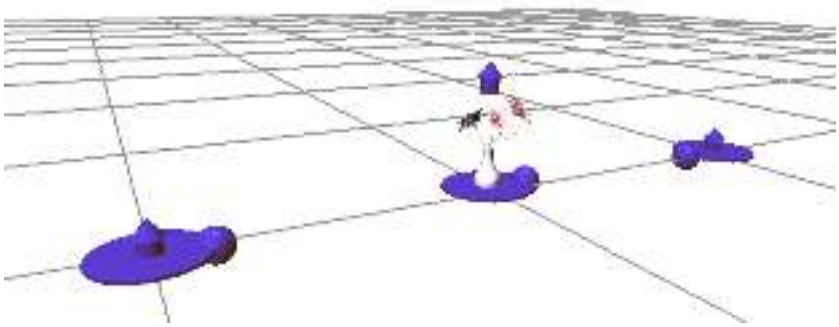
There is also an option to subdivide a time scope in more parts that are all treated equally. So you can achieve a "repeat X times" effect. Each animation defined in one time scope will be repeated in all the others.

The selected time scope is red and all other effected time scopes are yellow bordered and are equivalent to the red one. This option is available in the "Animation" menu under "Time-Subdivide". With one time scope selected the minimal length of the scopes can be edited via the "Properties" Menu.
The same effect can also be achieved for several manually chosen time scopes. Select more than one time scope (holding the "Shift" key and left click) and press the "Link" button in the "Change" menu group (with the "Group" heading)
There can be as many time lines as you like and the time scopes can be split multiple times.

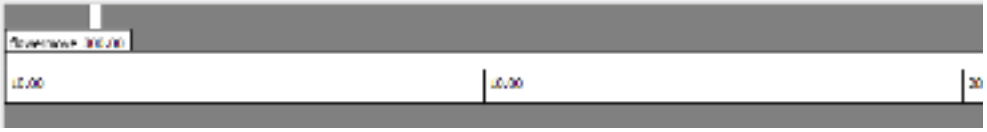
The need may arise that you want to stop one time line when another one is triggered. To achieve this, select the time line itself (click on the label) and look at the "Properties" menu. There is an entry "Timelines to Stop" where you can add the names of the timelines you want to stop when the selected time line is triggered.

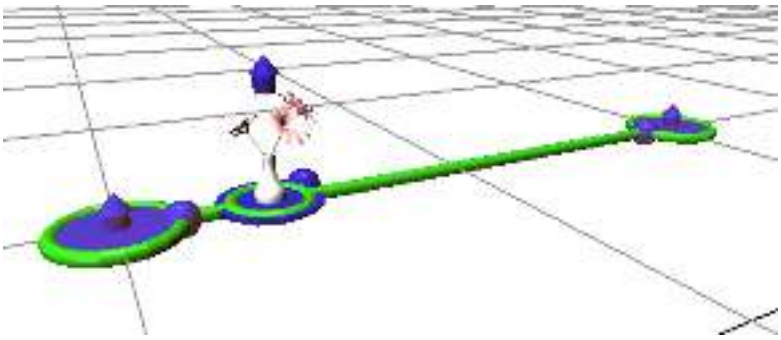
- **Object Animation:**

Nodes can be animated over time (a time scope). We want (for example) to move the flower in the first ten seconds of our time line named "flowermove" from one node to another.



Therefore we select in following order (while holding the "Shift" key and left click): time scope, node to move, start node, and end node. We then press the "Interpolate Waypoints" button in the "Animation" menu group. When you now move the time block of the time line the flower moves from the start node to the end node. Note that there is a green widget indicating the flower's path and that the flower is rotating to interpolate between the transformations of end and start point.





These kinds of Animations can be done with all placeable objects (Avatar, Camera, etc.)

There is also a "Rotate on the Spot" operation which requires a time scope and a node selected. The node rotates in the time scope around the given angle. The angle is at the moment fixed to 360°.

- **Avatar Animation:**
  Avatar Animations are easy to achieve. Select a time scope and a node (on which an avatar (NOT KINECT AVATAR) is placed) and click on a button in the "Avatar Animations" drop down menu in the "Animation" menu group. The selected animation is active until another animation is triggered by another time scope. So it may be active over the boundaries of the time scope.

  Avatar animations can also be triggered from the mobile platform. These animations are queued and played after one another. After playing all these animations the avatar returns to the animation that is currently defined by the active time scope.

- **Camera Animation:**
  There are two ways to define camera animations, but first to how to operate with a camera object. A camera object looks like this:

It can be moved around using the underlying widget. The arrows indicate the "look at" and the "up" direction of the camera. You can set the look at direction of the camera by clicking on the camera lens (the cylinder). Now you see what the camera sees. So adapt the view and press "ESC" to leave the camera view and save the "look at" direction.

There are two basic camera animations. First, a "Set Active Camera" animation, which sets the view of a camera active for the duration of a time

scope, is available. The time scope and node with a camera object must be selected in that order. Second, an "Interpolate Cameras" animation, which interpolates between the views of two camera objects during a time scope. For this one time scope and two camera objects need to be selected. Both options are available in the "Animation" menu group.

3.4.2. The Player/Viewer

Scenes saved with the editor can be shown in the player. On start-up a file dialog is displayed to choose the desired scene. In the player neither widgets nor camera objects are visible. The time lines can be triggered with the buttons to the right side and with actions on the Mobile Platform.

3.5. Kinect Recorder

We provide a separate program to record user avatars with a Kinect sensor that is mounted on top of the Home Platform. The program will run on a Windows PC but may be controlled by the tablet. This screen may look like shown in Figure 177.

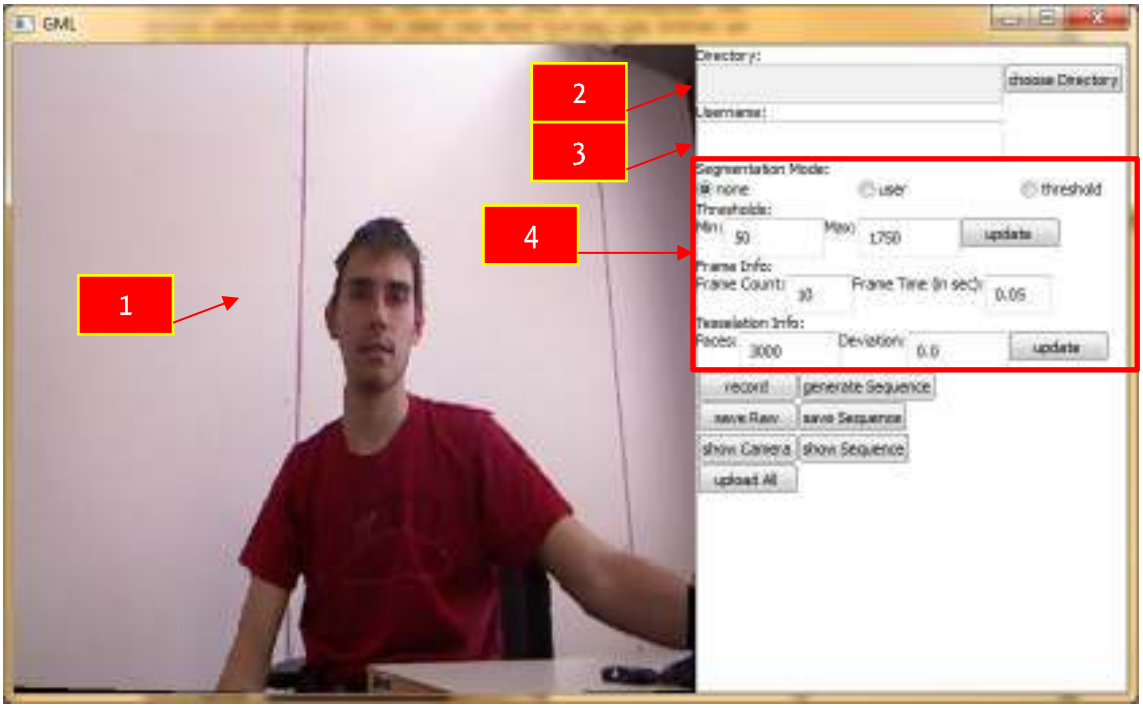


Figure 177: Sample camera feed of the Kinect Sensor in the recording software.

The GUI consists of the camera feed **(1)**, as well as a menu on the right. In the menu you can define the save path **(2)**, the username **(3)** and several options **(4)**. The following options for recording are available:

Segmentation Mode:

- **None**: all is processed and no segmentation will be made. The whole visible scene is present in the output.
- **User**: A person is tracked with the Kinect sensor. Parts that are left out are shaded in gray. This option has some issues when only parts of a body are visible.
- **Threshold**: All objects within a given threshold are segmented. Parts that are left out are shaded in gray.

Thresholds: define the thresholds for the "Threshold" option in the segmentation mode. The range is in millimeters and goes from 50mm to 8000mm. The threshold is updated by a press on the "update" button.

Frame Info:

- **Frame Count**: Defines how many frames are recorded.
- **Frame Time**: Defines the duration of these frames.

Tessellation Info:

The tessellation info is updates by a click on the “update” button and consists out of:

- **Faces**: Defines the quality of the result. The quality is measured in the amount of faces each mesh of the sequence roughly has. (50 - 10.000)
- **Deviation**: Defines the accuracy of the result. This value denotes how much the mesh can deviate from the real depth values. (0.0 - 1.0)

To record sequences of users you first have to choose a directory in which these sequences are saved to. Additionally (to ensure a unique name of the generated file) you have to define a username. After defining all options explained above you can press record. After a five second countdown recording is started. When recording has finished you hear a "beep" sound.

After recording you have to press the "generate Sequence" button to calculate a Kinect-Avatar. With the buttons "show Camera" and "show Sequence" you can swap between the camera feed and the calculated Kinect-Avatar. When no avatar is generated ("generate Sequence" button was not pressed) the Kinect-Avatar view shows a white image.

Each saving option generates an own folder in the specified directory. The directory name is generated from the username and a timestamp to be unique. The "save Raw" button saves lossless information for the recorded sequence (in respect to segmentation) as .png and .pgm images. The "save Sequence" button saves the generated sequence as a Kinect-Avatar (.obj, .mtl and .png files). During saving a message box is displayed. When saving is finished you hear a "beep" sound.

The "upload all" button uploads all saved files (raw and sequences) in the specified directory to the Object Repository. You have to make sure that the "meta1.rdf" file is present in the specified directory (or it will not work). This may take some time.

3.6. V2me Lesson Editor

The V2me lesson editor is an instrument to enable the creation of new lessons within V2me. It allows the assignment of predefined parts from the lesson library to create new lessons or modify existing lessons that can be shared with the users of V2me. These lessons can be built up of several components, like:

- Different types of lesson events, such as image question, emotion feedback, images, connection to stories and other workflows
- Emotional expression – combination of gestures and facial expression and movements of the 3D avatar and or Virtual Coach
- Speech – the text which should be heard by the user during this event

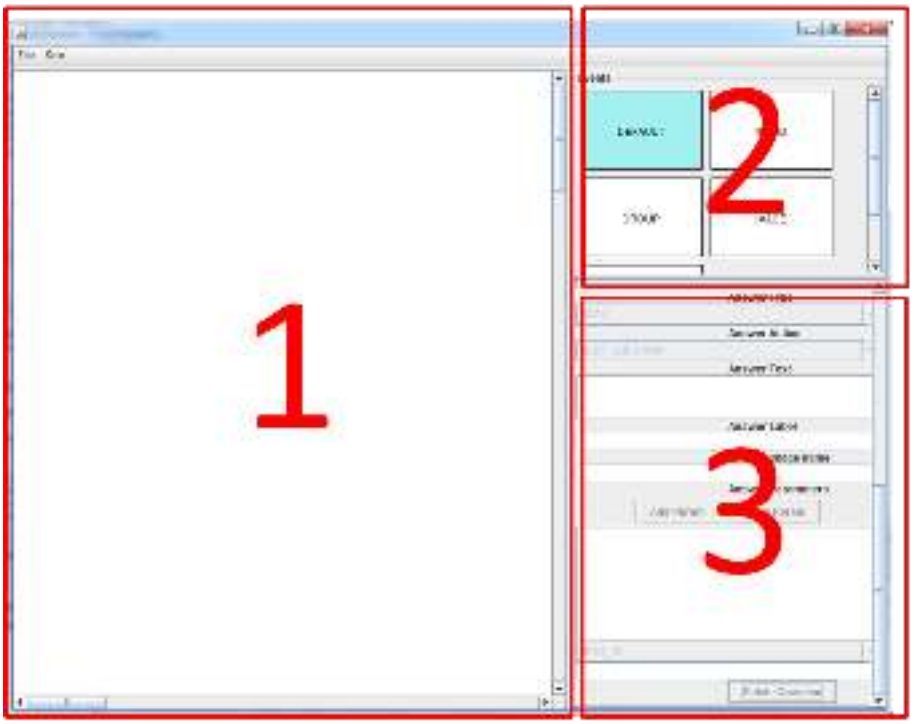


Figure 178: Overview of V2me Lesson Editor

The overview of the V2me Lesson Editor is given in Figure 178. Section 1 is the main interaction area that gives an overview of all the added events. Section 2 gives a graphical overview of all supported events. They can be added to the interaction area using drag and drop. Section 3 gives the details of any selected event and allows their modification.

The lesson editor has following main functions supported by the *File* menu:

- *New Process*
  Allows the creation of a new process or lesson
- *Import from XML*
  Enables loading, watching and modifying existing lessons
- *Export to XML*
  Stores a created process or lesson to an XML file

Additional items that are available from the *Sort* menu are able to visually sort the events in the interaction area. These are:

- *Tree Sort*
  Sorts the existing events as a tree to give the best overview of the hierarchical lesson structure
- *Compact Sort*
  Is sorting the existing events in order to use less space within the interaction area. This is helpful for lessons that are a longer chain of events but do not have many different options as answers.
- *Shorten Lines*
  This reduces the length of lines connecting events. This connection process will be described in detail in the following sections.

3.6.1. Lesson structure

V2me lessons are a collection of events or questions that are stored in an XML format that can be created by the lesson editor and played back by the tablet device. The format is shown in the following code listing.

```
<question id="1" type="DEFAULT" nextId="-1" timeout="0" backEnabled="true">
    <title></title>
    <text>This is an example question.</text>
    <answers>
      <answer index="0" type="SKIP" action="NEXT_QUESTION">
        <label>Answer 1</label>
        <text></text>
        <parameters>
          <answerParameter key="NEXT_ID" value="2"/>
        </parameters>
      </answer>
    <answer index="0" type="SKIP" action="SUBWORKFLOW_START ">
        <label>Answer 2</label>
        <text></text>
        <parameters>
        <answerParameter key="SUBWORKFLOW_NAME" value="SOCIALCIRCLE_ADD" />
        </parameters>
      </answer>
    </answers>
  </question>
```

This example question has an associated text, is a regular question with two answers. The first answer will open another question with id 2, the second answer will start a certain subworkflow that allows adding contacts to the social circle. A complete overview of the different parameters for each item is given in the following table:

Table 2. Overview of different lesson items

Item	Parameters	Parameter description
QuestionType Denotes the different types of questions support within a lesson	DEFAULT MOOD MOOD_INVERTED GROUP IMAGE INFOPICKER	Regular question Question that can be answered with a mood slider Same as above with inverted slider *Group overview (deprecated)* Answer that includes an image *Answer that request some information to be picked*

		(deprecated)
AnswerType Denotes the different types of answers supported within a lesson	BACK MOOD OPTION SKIP TIMEOUT	Returns to the previous screen Used for mood sliders *Displaying options (deprecated)* Skips to next question *Is triggered after a certain timeout (deprecated)*
AnswerAction Different **AnswerTypes** may trigger different actions that are described here	NEXT_QUESTION PREVIOUS_QUESTION SUBWORKFLOW_START SUBWORKFLOW_RESUME SUBWORKFLOW_END PAUSE_COACH EXIT_COACH START_EXTERNAL_APP START_WORKFLOW ACTIVITY_CALLBACK	Starts next question Goes back to previous question Start subworkflow Resume subworkflow Stop subworkflow Pause the coach Stop the coach Start an external app Start a workflow *Start an activity callback (deprecated)*
AnswerParameter The **AnswerActions** and **Subworkflows** may have additional parameters that are described here	NEXT_ID SUBWORKFLOW_NAME SUBWORKFLOW_PARAMETER EXTERNAL_APP_NAME WORKFLOW_ID STORY_ID CALLBACK_PARAMETER ACTIVITY_NAME	ID of the next answer Name of the subworkflow Additional parameters of subworkflows Name of external application ID of workflow ID of story Parameter of activity callback
BehaviorType Any answer may trigger a certain behavior that will be triggered visually on the home platform	IDLE ENCOURAGEMENT_INTENSE ENCOURAGEMENT_MEDIUM ENCOURAGEMENT_LIGHT FEEL_SORRY FROWN_INTENSE FROWN_MEDIUM FROWN_SLIGHT LISTENING NEUTRAL_TALKING POINT_LOOK_LEFT POINT_LOOK_RIGHT SMILE_LAUGH SMILE_MEDIUM SMILE_SLIGHT WINK WALK	
ExternalAppType External applications on the tablet are called using this parameter	LINPHONE SKYPE	*Starting LinPhone (deprecated)* Starting Skype
Subworkflow Triggering a subworkflow may lead to leaving the current lesson and starting the denoted activity	GROUP CALENDAR RECORDAUDIO FRIENDSHIPLESSONS	*Group overview subworkflow (deprecated)* Calendar activity *Activity to record audio (deprecated)* *Activity to show a friendship lesson (deprecated)*

	TELL_A_STORY	*Tell a story activity (deprecated)*
	STORYTELLINGOVERVIEW	Overview of storytelling
	MUSIK	*Start some music (deprecated)*
	SOCIALCIRCLE	Social circle overview
	SOCIALCIRCLE_ADD	Add contacts to social circle
	RECORD_A_STORY	Record a story about someone
	STORYTELLING_OVERVIEW	Story telling overview
	STORYTELLING_LISTEN	Listening to a story
	STORY_SHARE	Share a story
	START_ACTIVITY	Start any activity

Given that this number of potential parameters is high it is a main task of the lesson editor to simplify creating the lessons and only showing relevant options. The above parameters can be selected using simple drop-down menus, such as shown in Figure 179.

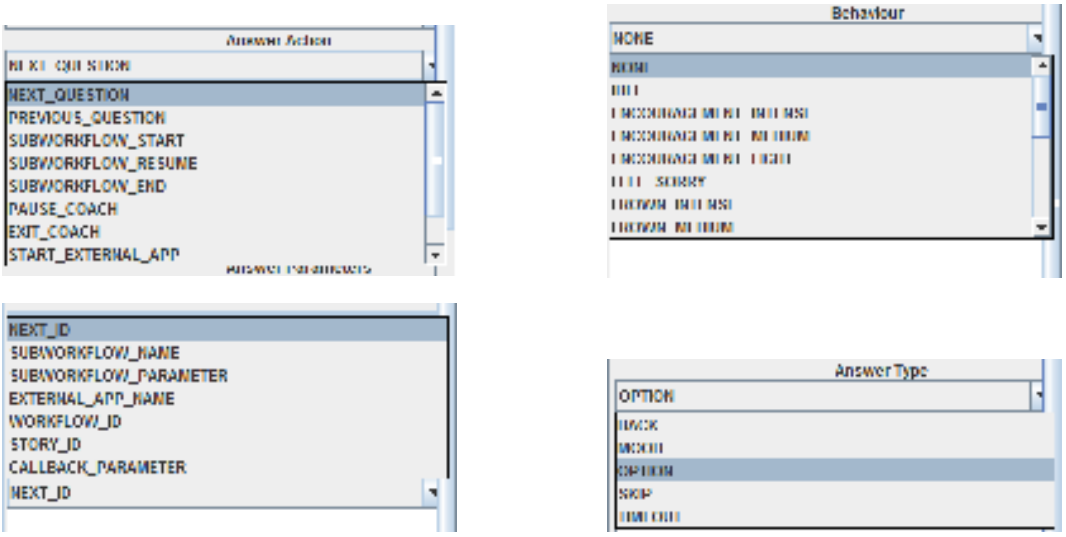


Figure 179: Drop down menus for lesson parameters

3.6.2. Creating a lesson

Creating a lesson within the editor is achieved by repeating three basic steps until the lesson structure is finished.

1. Adding a new event by dragging the desired question type from the list of different events

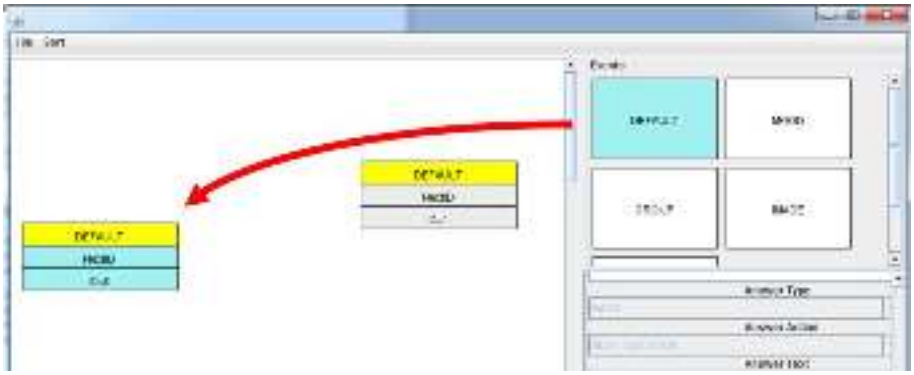


Figure 180: Drag and drop of event types

2. Modifying event details to appropriate settings. The Event Details menu is separated in three parts that are grouped into question details, answer details and answer parameters.

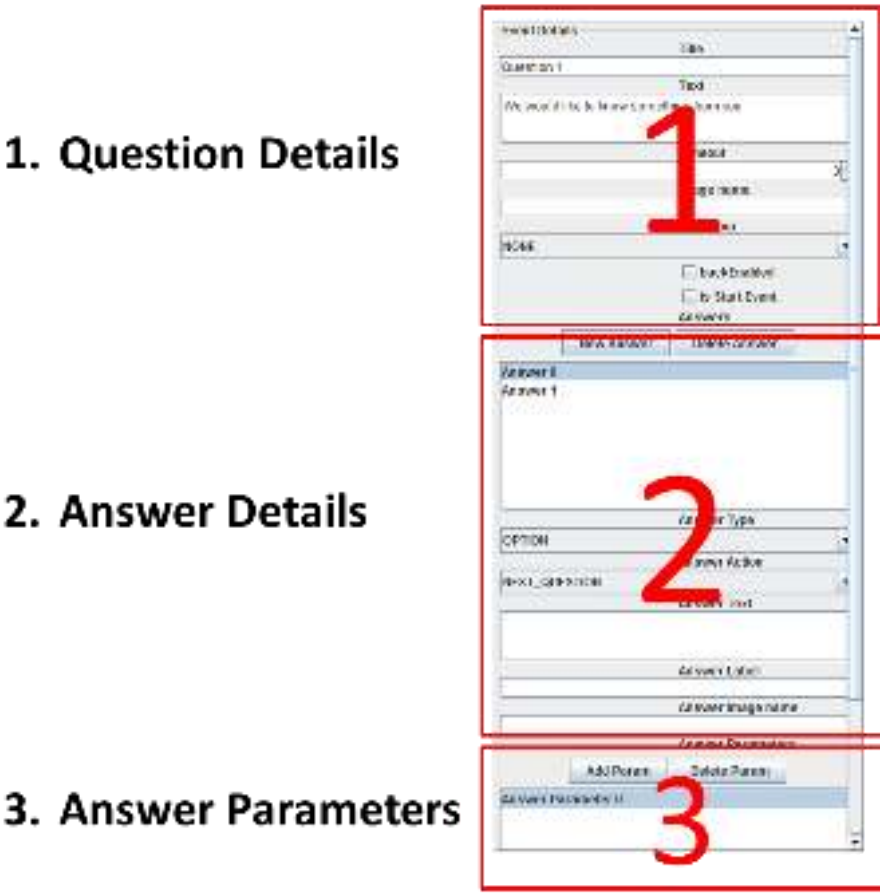


Figure 181: Event details sections

3. Connecting the events to each other by drawing a line between Questions or from Answers to Questions. The first option will change the nextID of the question itself while the latter will modify the nextID of the answer.

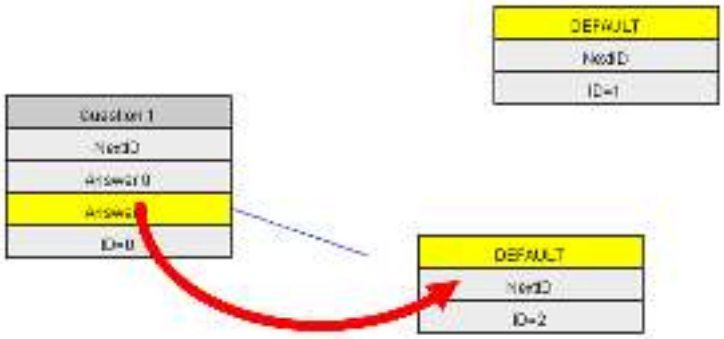


Figure 182: Connecting questions or answers and questions

These three steps have to be repeated until all desired questions are added, configured and connected.

3.6.3. Error handling

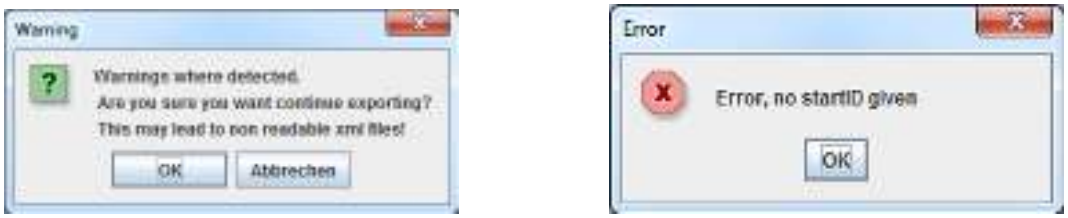


Figure 183: Warning and error messages given by the lesson idea

Additionally the lesson editor is able to perform a conformance check on the created lessons. Appropriate error and warning messages will be given in case the software has detected problems. Some examples are shown in Figure 183.

Warnings refer to issues that may hinder the correct execution of the lessons but it is not certain how they will affect the system. Thus it is possible to store those in any way. Errors will prevent the lesson from being executed and storing lessons while having errors is permitted. In most cases the program is able to give an indicator where the problem is.

3.6.4. Additional notes

This section will describe a few additional features and notes about the lesson editor that have not been covered in the previous section.

- *Deleting Questions, Answers, AnswerParameters*
  Deleting any of those will remove all their connections to other items. Therefore it has to be considered carefully and the lessons will probably have to be reconfigured afterwards
- *backEnabled and isStartEvent*
  These are special Question parameters. The isStartEvent has to be set at least for one question indicating the first Question to be started. backEnabled indicates that it is possible to return to the previous question from this one
- *Image name*
  These are dependant of the resources available on the tablet. Therefore the administrator has to consider carefully which name to enter there as unavailable images may render the question unusable
- *Lesson templates*
  There are various templates provided together with the software. It is useful to study those to get an idea how a typical lesson looks like

3.7. S7 Server

The S7 server from Mawell is one of the core components of the V2me system on the hardware side; even more for the administrators. In general, the data repository for all data that needs to be accessible from multiple components, which is provided by the central control services. With the S7 database the data is automatically synchronized when it is stored only in one location and is managed through the servlet interface which offers methods for retrieving, adding and removing data.

Data that is stored in S7 database contains:

- User data
- Social networking data (calendar, events…)
- Messaging data
- User and system preferences

A more detailed description of the interface can be found in deliverable *D5.2 ICT platform and extension manual V.2*. The latest interface description can always be found in *v2me_db_interface.txt* document in Subversion.

The S7 Admin Tool is a web based configuration tool for users with manager role and enables the configuration of the following:

- User profiles (elders, relatives and professionals, managers)
- Communication configurations (messaging queues, diaries, etc.)
- Discussion groups
- S7 portal UI customizations
- Manually add files to be available in public

The admin tool can be accessed in:
https://s7-test.v2me.org/s7admin/com.mawell.s7.admin.Admin/V2meAdmin.html
using username 'v2meadmin' and password 'v2meadmin12'.

Browser requirements for S7 portal and admin user interface are: Internet Explorer 7 (or later),

3.7.1. Creating users

The User management in v2me system starts in S7 Admin. Following steps instruct how to create users for each of the S7 related users groups: Elderly (i.e. tablet user), relative and professional.

Creating an elderly (tablet) user:

1. Open 'users'-tab on the Admin page **(1)**.
2. Click 'New user'–button **(2)**.
3. Fill (unique) username, password, name and e-mail fields **(3)**.
4. In Identities field type: 'FINNISH-PID: ‹username›'. Replace ‹username› by exactly same string as in username field **(4)**.
5. In Roles field type: 'PATIENT, ELDERLY, rel-group_manager, ‹username›'. Replace ‹username› by exactly same string as in username field **(5)**.
6. Click save-button **(6)**.

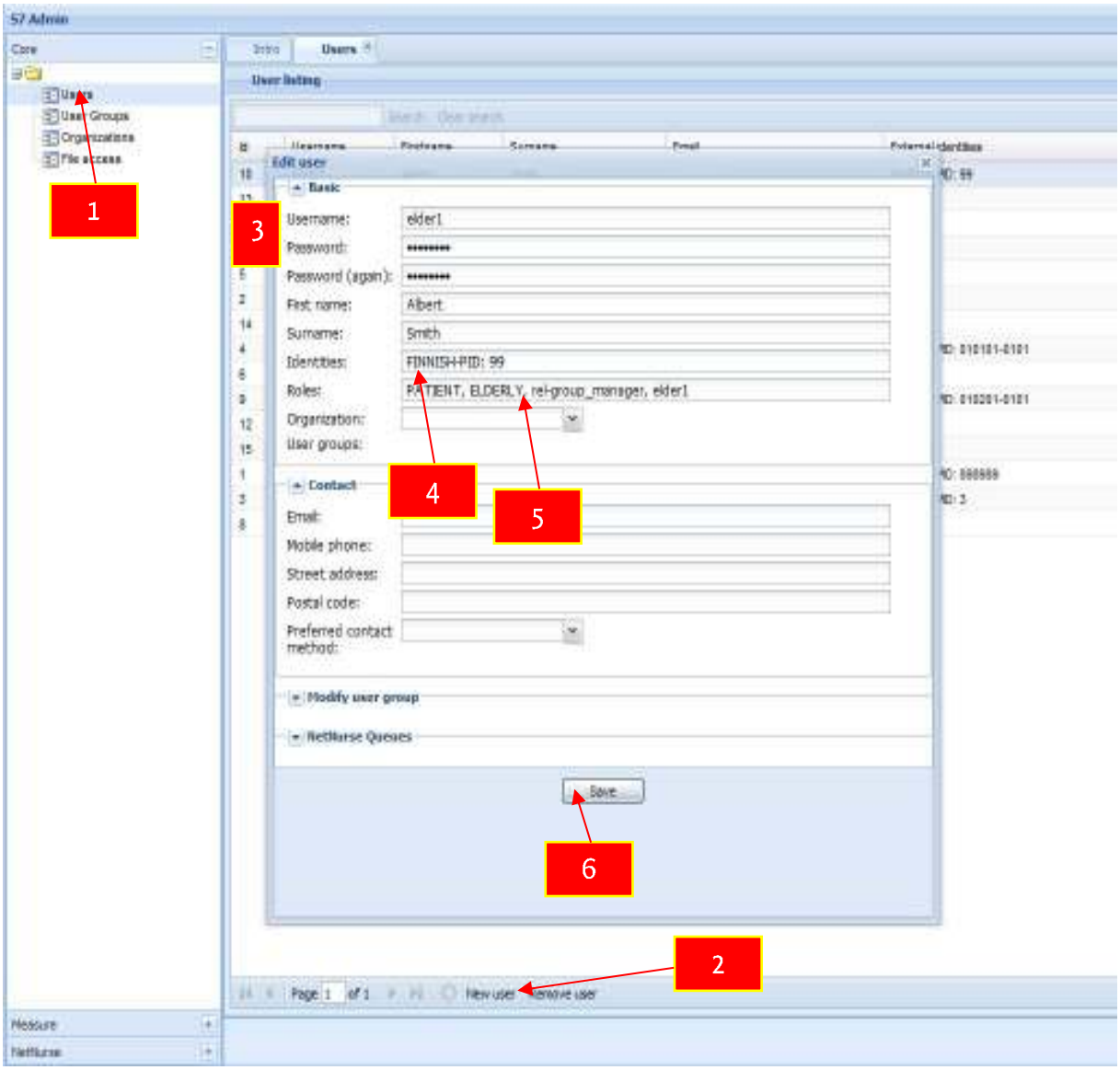


Figure 184: Creating elderly user

Creating elder user's relative user:

1. Open users-tab on the Admin page **(1)**.
2. Click 'New user'-button **(2)**.
3. Fill (unique) username, password and name fields **(3)**.
4. In Identities field type: 'FINNISH-PID: ‹username›'. Username must be exactly the same as in username field **(4)**.
5. In Roles field type: 'COMMENTER, PATIENT, NN-ANSWER, RELATIVE, NURSE, rel-‹elder's username›, ‹elder's username›'. Replace both ‹elder's username› by elder user's actual username **(5)**.
6. Click save-button **(6)**.

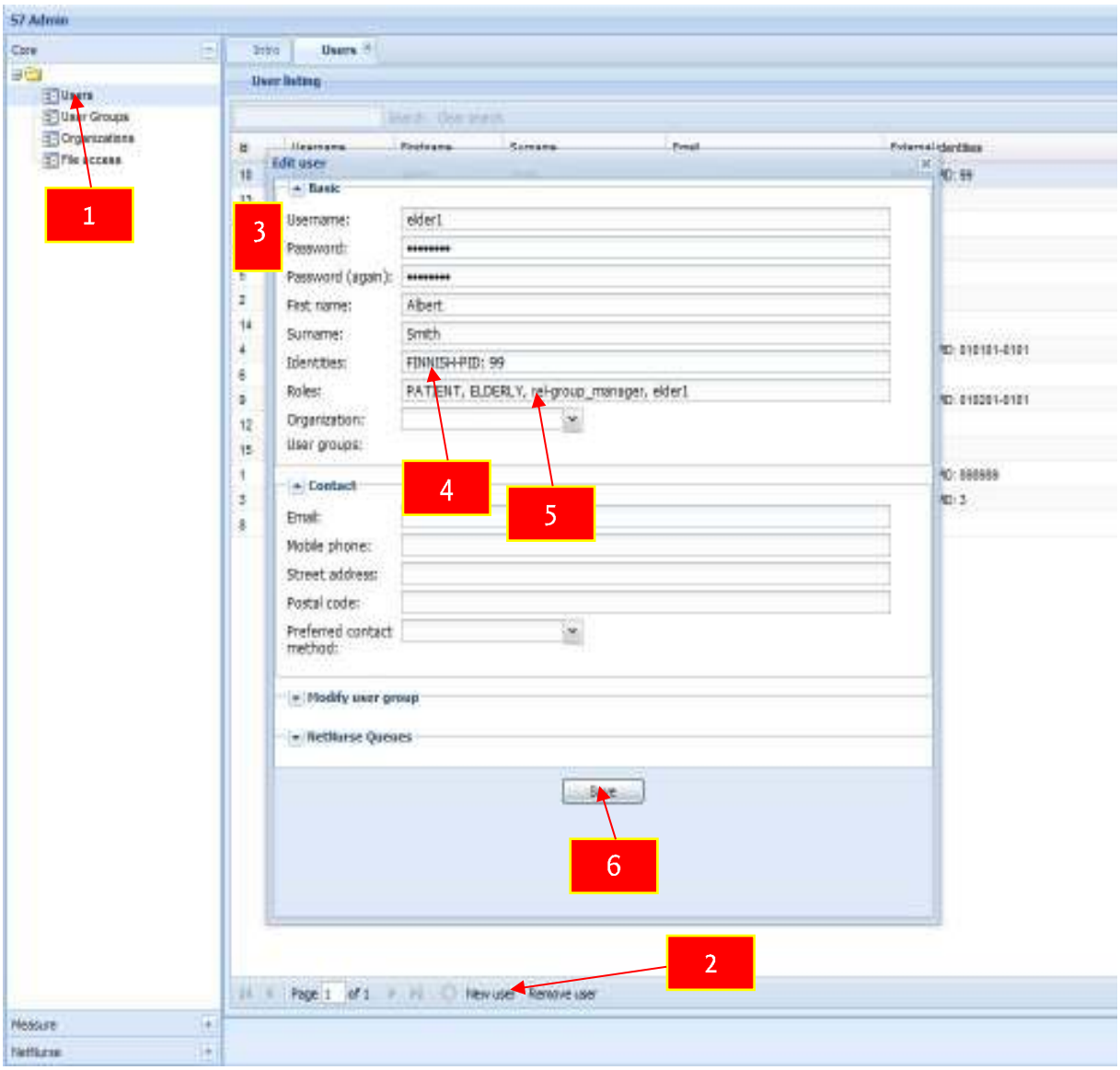


Figure 185: Creating relative user

7. Open 'User groups' –tab **(7)**.
8. Click 'New group'-button **(8)**.
9. In 'Group name' field type: ‹elder's username›_relatives. Replace the ‹elder's username› by elder user's actual username **(9)**.
10. In roles field type: COMMENTER **(10)**.
11. Click save-button **(11)**.

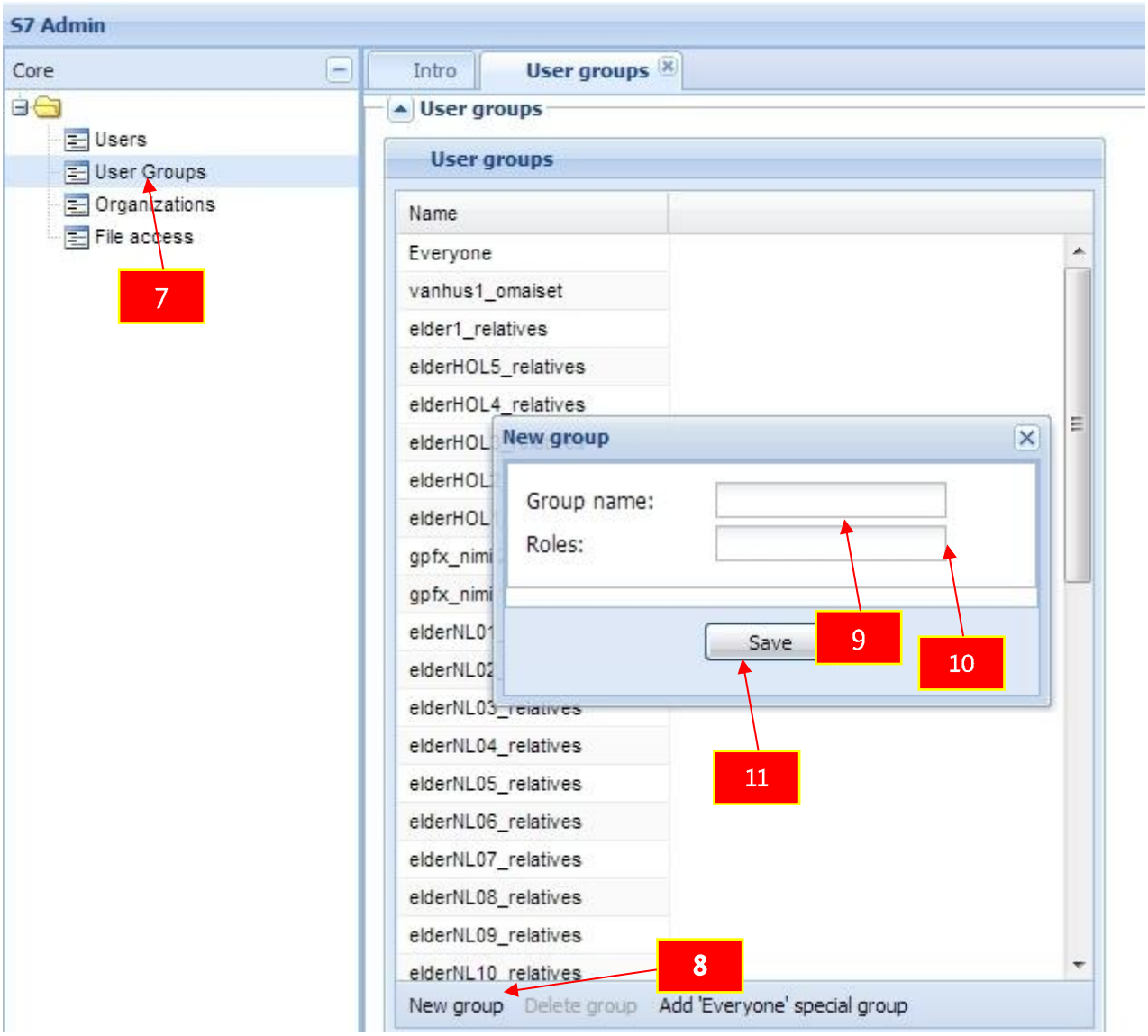


Figure 186: Creating relative user's group

Creating professional user:

1. Open 'users'-tab on the Admin page.
2. Click 'New user'–button.
3. Fill (unique) username, password and name fields.
4. In Identities field type: 'FINNISH-PID: <username>'. Replace <username> by exactly same string as in username field.
5. In Roles field type: COMMENTER, PATIENT, NN-ANSWER, NURSE, rel-group_manager, REALNURSE, <elder's username>, <elder's username>'. Replace <elder's username> by elders username. Add 'rel-elder's username' role for each elder user that professional is communicating with.
6. Expand 'Modify user group' fieldset and check every eleder_relative group that professional is communicating with.
7. Click save-button.

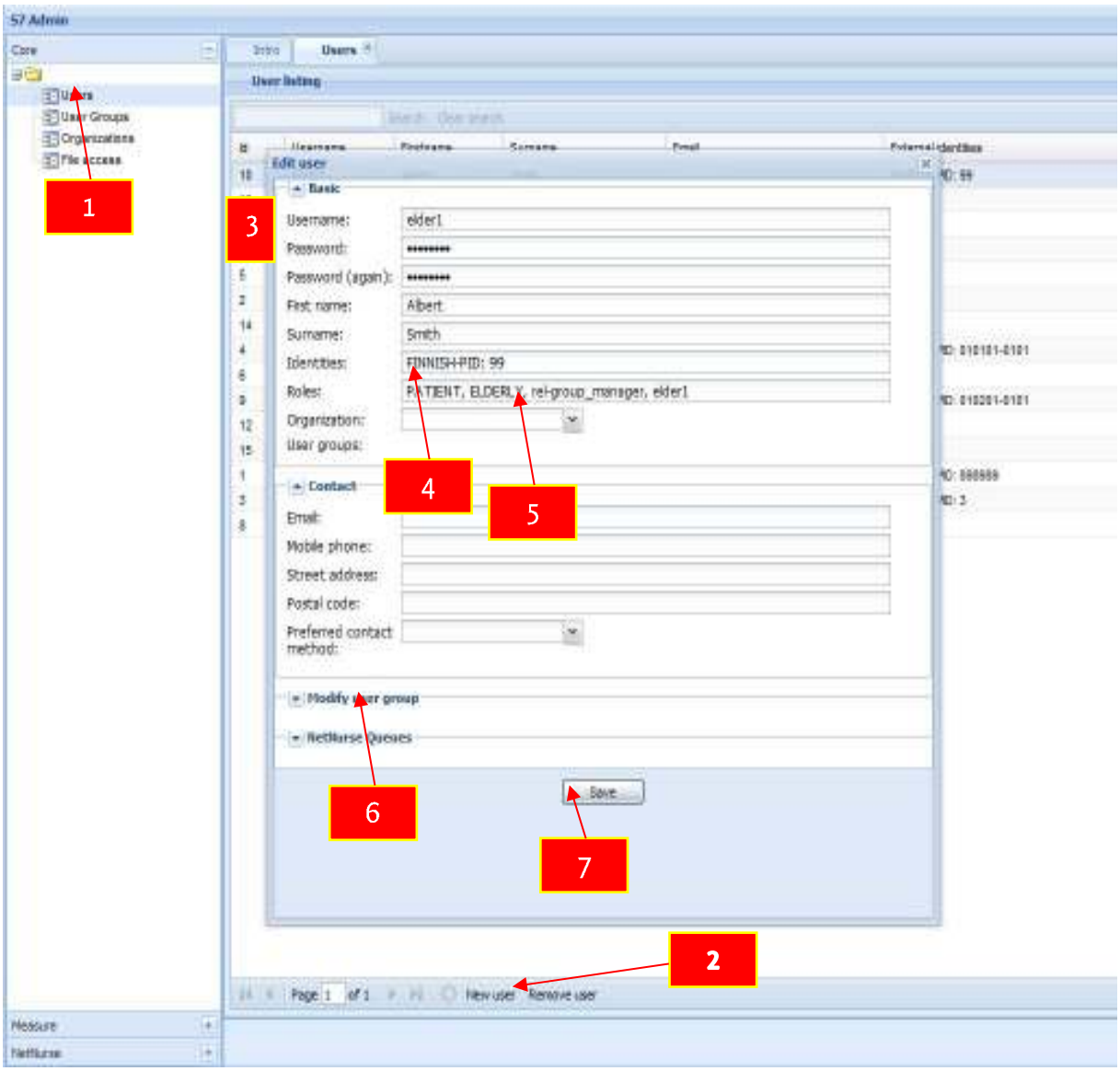


Figure 187: Creating elderly user

3.7.2. Creating discussion forum topics

New discussion forums are created by using special user group manager user account through S7 portal.

1. Login to portal (https://s7-test.v2me.org/) with username 'group_manager'. Password is same as the username.
2. Click 'Write new message'.
3. Click 'Create discussion group'.
4. Fill the title field. It will be the name of the new discussion group.
5. Optionally fill the body field. It will be the text of the first message in the new discussion group.
6. Click send button. Discussion group is now visible to elderly users.

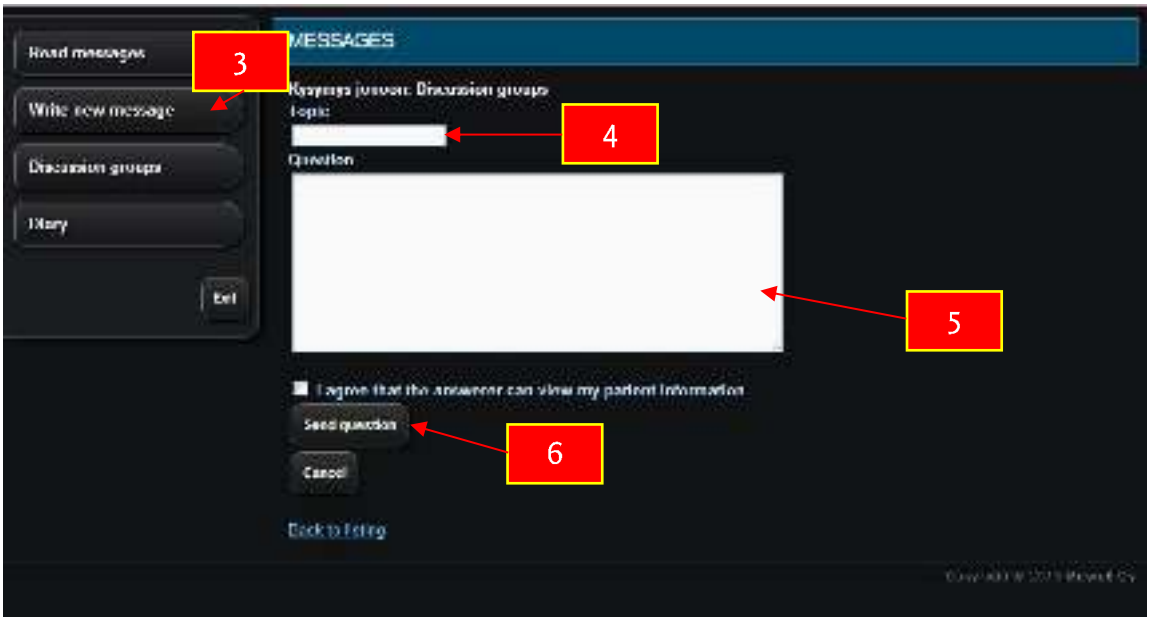


Figure 188: Creating new discussion forum

The default page of the admin tool provides help and useful hints for the configuration of S7 (Figure 189).

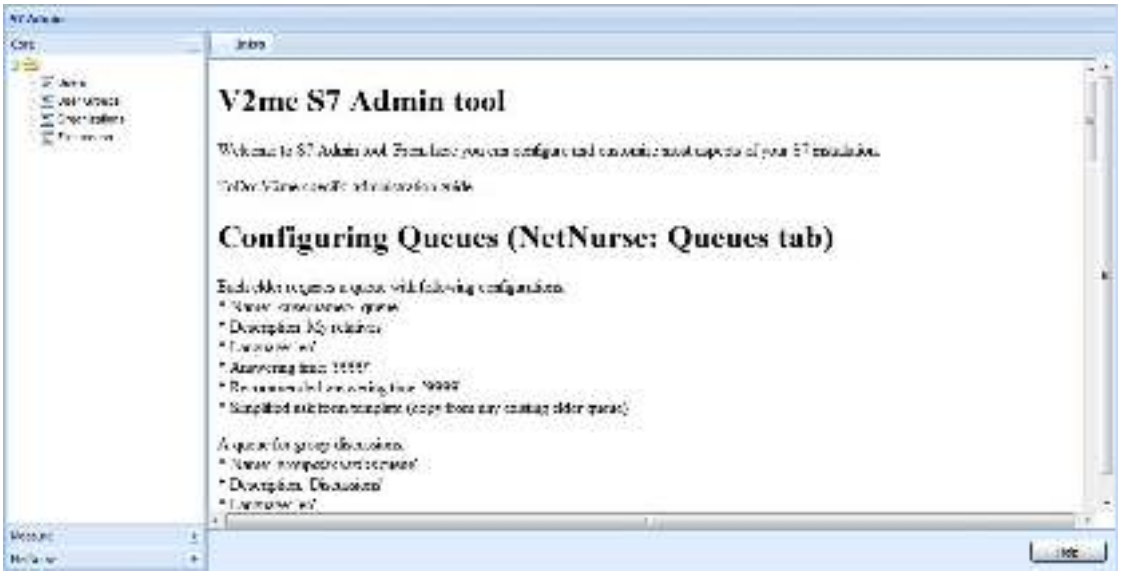


Figure 189: Default page of the admin tool

4. Glossary and Abbreviations

3G: A generation of standards for mobile phones and mobile telecommunication services

Android: Operating system for mobile devices, produced by Google

A²E²: Adaptive ambient empowerment of the elderly person, Project from the AAL Joint Programme

C2DM: Android Cloud to Device Messaging Framework

DB: database

Framework: Set of APIs giving programmer high-level access to specific functionality

Google Play: formerly known as the Android Market, is a digital application distribution platform for Android developed and maintained by Google

GUI: Graphical user interface

ICT: Information and communication technologies

Microsoft Kinect: A motion sensing input device by Microsoft for the Xbox 360 video game console and Windows PCs

PC: Personal Computer

Qt: A cross platform graphical widget toolkit for the development of GUI computer programs

Skype: Proprietary voice-over-Internet Protocol (VOIP) service and software application

S7: Device- and browser-independent Web-based platform for self-care and counseling services from Mawell Ltd.

Trimble 3D Warehouse: formerly Google 3D Warehouse, is an accompanying website where modelers can upload, download and share three dimensional models

UI: User interface

URL: Uniform resource locator

V2me: Virtual coach reaches out “To Me”

VC: Virtual Coach

WiFi: Mechanism for wirelessly connecting electronic devices to the internet

XML: Extensible Markup Language

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