



# Provider Dashboard User's Manual

**CAUTION: FEDERAL LAW RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A PHYSICIAN.**

**IMPORTANT: READ THE SAEBOVR GETTING STARTED GUIDE (BAI-VOTA-LBL-001) IN ITS ENTIRETY BEFORE USING THE SAEBOVR SOFTWARE SYSTEM.**

The information in this document is verified as of June 10, 2017.

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**Product designation: SaeboVR-1**



## **Table of Contents**

1	Summary .....	3
2	Getting Started with Provider Dashboard .....	3
2.1	Setup, Windows Login, and Launching the Application .....	3
2.2	Home Page Overview.....	3
2.3	Quick Tour .....	4
4	Reports .....	8
4.1	Cumulative Report.....	8
4.2	Session Report .....	8
5	Definition of Performance Metrics .....	9
6	Copyright .....	10
7	Customer Support .....	10

## **1 Summary**

SaeboVR is virtual world-based rehabilitation software that enables functional practice of activities of daily living (ADLs) using a personal computer and a Microsoft Kinect sensor. The patient-facing SaeboVR application used by patients for virtual ADL practice is described in the *SaeboVR Getting Started Guide* and *SaeboVR Patient Application User's Manual*. These should be read in their entirety before using the SaeboVR software. This Provider Dashboard User's Manual provides directions and details on the companion software tool intended to be used by providers for accessing patient performance metrics and participation history.


The Provider Dashboard is intended to allow the medical professional to quickly answer questions regarding patient participation and performance in the virtual ADLs:

- What is the patient's participation history in terms of sessions completed, activities accomplished, duration of exercise, and functional reach repetitions performed?
- Are the patient's movements becoming faster? Are the patient's movements becoming better coordinated?
- What are the trends in movement speed, repetitions, and smoothness of motion?

The following sections include instructions on quickly getting started, as well as a detailed run down of each available view.

## **2 Getting Started with Provider Dashboard**

### **2.1 Setup, Windows Login, and Launching the Application**


1. Both the SaeboVR patient-facing application and the Provider Dashboard are pre-installed on your SaeboVR personal computer. To access these applications, you must first set up, provide power to, and turn on the system. For details, see the *SaeboVR Getting Started Guide*.
2. Locate the SaeboVR Provider Dashboard desktop icon. Double click on the icon to launch the application.
3. Load a patient record by clicking the  icon in the side menu and entering a patient's user name. Alternatively, you may provide the system-generated access code that was provided when the patient's user account was created.

### **2.2 Home Page Overview**

4. Once you've loaded a patient record, you will see the "Home Page" of the Provider Dashboard populated with the selected user's data (see Figure 1). The Home Page provides summary information on performance in the most recent session performed and a cumulative summary of participation history.



Figure 1. Provider Dashboard Home Page

- Clicking on the menu  icon on the left side of the dashboard brings up a list of available views that provide summary information at various levels of detail (Figure 2).

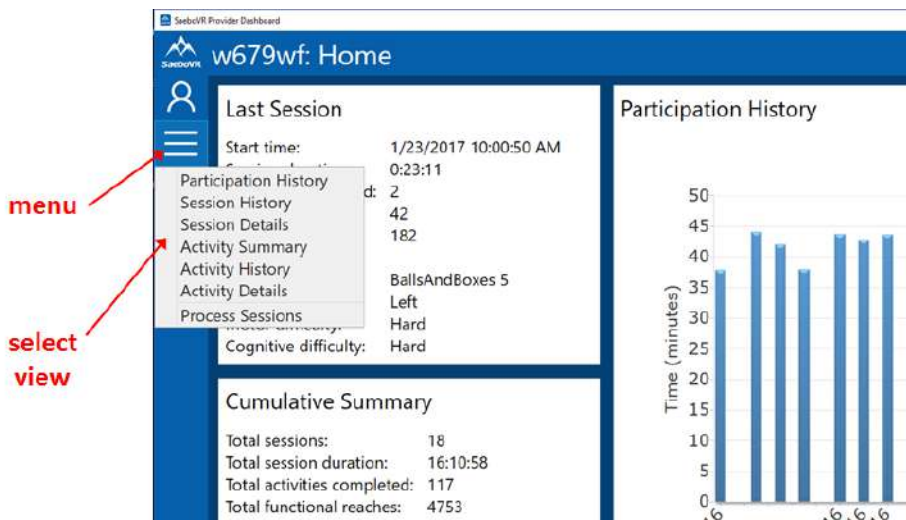




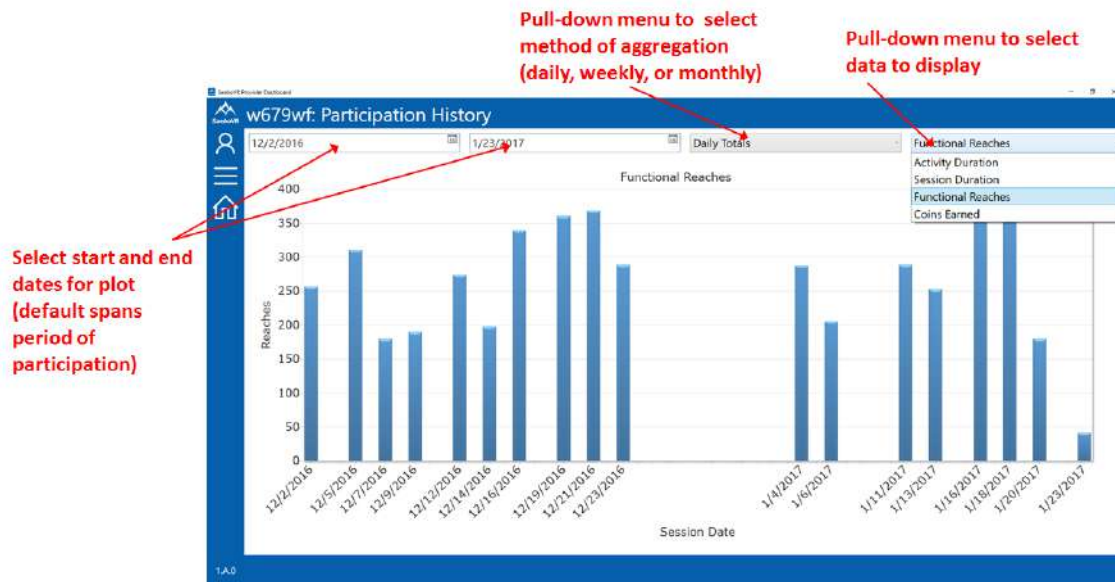
Figure 2. Provider Dashboard Menu

- The home  icon in the side menu can be used at any time to return to the Home Page.


## 2.3 Quick Tour

- Click on the menu  icon in the side menu and select “Participation History” to go to the Participation History view.
- The Participation History View (see Figure 3) provides a focused summary of a user’s participation in SaeboVR exercises. Length of participation can be plotted by either total session duration or by duration of time spent in virtual ADL practice. Total number of functional reaches can be displayed. By default, the view spans the entire period of a patient’s SaeboVR use with data displayed on a per-day basis. Alternatively, data can be

aggregated on a per-week or per-month basis, and the time span to display can be tailored using pull-down calendars to select start and end dates.



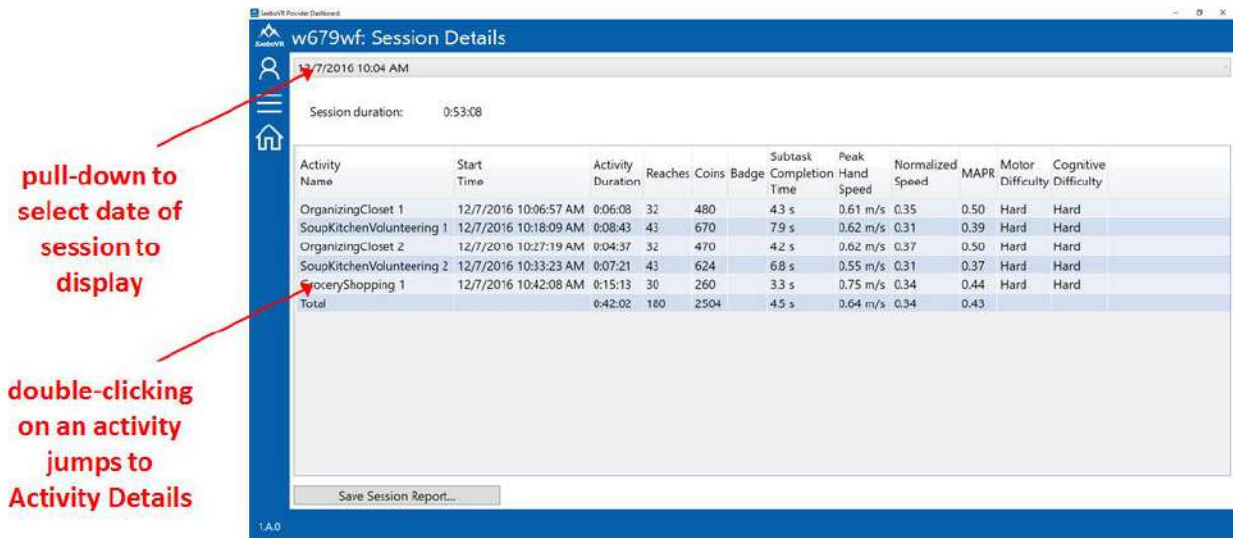
**Figure 3. Participation History View**

9. Click on the menu  icon in the side menu and select “Session History” to go to the Session History view.
10. This view (see Figure 4) contains a scrollable table of all SaeboVR sessions completed by the selected user, along with key statistics including: session start date/time, duration, number of activities performed, number of reaching movements made, the name of the last activity performed, and most recent difficulty settings.


Start Time	Session Duration	Activity Duration	Activities Completed	Reaches	Coins	Subtask Completion Time	Peak Hand Speed	Normalized Speed	MAPR	Last Activity	Motor Difficulty	Cc
12/2/2016 10:07:44 AM	0:55:01	0:37:55	5	257	2439	4.2 s	0.63 m/s	0.39	0.54	GardenPlanting 3	Hard	Hk
12/5/2016 9:57:29 AM	0:53:32	0:44:06	6	311	2748	3.6 s	0.49 m/s	0.43	0.61	BallsAndBoxes 4	Hard	Hk
12/7/2016 10:04:39 AM	0:53:08	0:42:02	5	180	2504	4.5 s	0.64 m/s	0.34	0.43	GroceryShopping 1	Hard	Hk
12/9/2016 10:01:28 AM	0:52:31	0:38:00	6	190	2629	3.8 s	0.51 m/s	0.40	0.53	PetShopping 2	Hard	Hk
12/12/2016 10:05:49 AM	0:51:46	0:43:44	6	274	2987	3.3 s	0.49 m/s	0.41	0.57	GroceryShopping 2	Hard	Hk
12/14/2016 10:00:27 AM	0:50:15	0:42:45	5	198	1770	3.3 s	0.48 m/s	0.42	0.56	GardenPlanting 3	Hard	Hk
12/16/2016 10:02:20 AM	0:56:22	0:43:42	8	340	2983	3.0 s	0.46 m/s	0.42	0.57	PreparingBreakfast 2	Hard	Hk
12/19/2016 9:56:58 AM	0:55:12	0:45:48	9	361	3714	2.8 s	0.51 m/s	0.43	0.56	PuttingAwayGroceries 4	Hard	Hk
12/21/2016 9:58:26 AM	0:51:00	0:44:48	8	369	3874	2.8 s	0.51 m/s	0.41	0.53	SoupKitchenVolunteering 4	Hard	Hk
12/23/2016 9:52:53 AM	0:55:01	0:44:40	8	289	2714	2.9 s	0.47 m/s	0.43	0.57	PreparingDinner 4	Hard	Hk
1/4/2017 10:04:04 AM	0:51:44	0:42:19	7	288	2598	2.6 s	0.48 m/s	0.42	0.55	PuttingAwayGroceries 4	Hard	Hk
1/6/2017 10:09:59 AM	0:54:44	0:38:20	7	206	2817	2.9 s	0.45 m/s	0.43	0.59	BallsAndBoxes 3	Hard	Hk
1/11/2017 10:01:27 AM	0:52:09	0:43:35	7	289	3218	2.9 s	0.46 m/s	0.43	0.56	PetFeeding 2	Hard	Hk
1/13/2017 9:54:42 AM	1:42:50	0:35:58	6	253	2404	2.8 s	0.43 m/s	0.42	0.55	OrganizingCloset 3	Hard	Hk

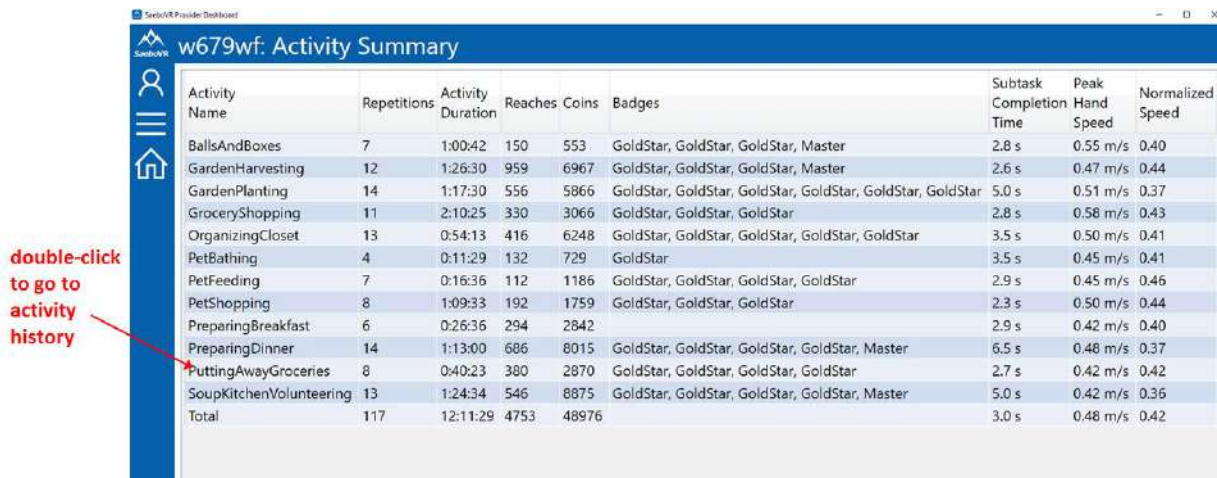
**Figure 4. Session History View**

11. Double-click on a session to go to a Session Details View (see Figure 5) that provides a detailed look at the activities performed on that day.



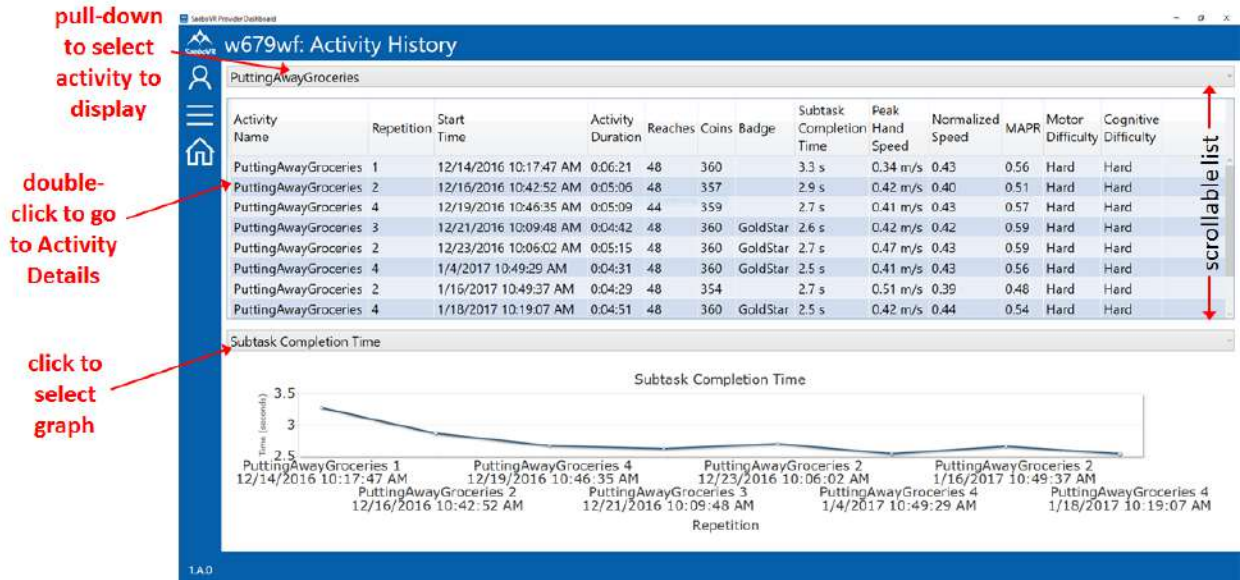
**Figure 5. Session Details View**

- Click on the menu  icon in the side menu and select “Activity Summary.” This view provides an overview of cumulative progress for the user looking across all SaeboVR activities, including: number of times the activity has been performed, the total duration (time) spent in the activity over all sessions, the total number of reaches performed, the date the activity was last performed, and the difficulty level at which the activity was last performed.



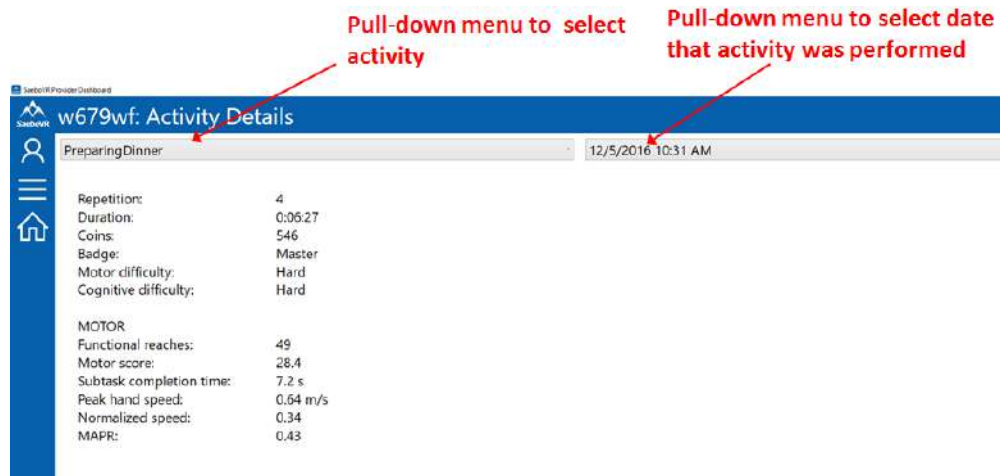
**Figure 6. Activity Summary View**

- Double-click on a row in the table to go to the Activity History View.
- The Activity History View (Figure 7) summarizes user performance for a given virtual ADL across all sessions performed. It includes a tabular list with summary information, as well as graphs displaying the evolution of performance metrics across sessions.



**Figure 7. Activity History View**

- Double-click on an activity to go to an Activity Details View (see Figure 8) that summarizes performance metrics for a single activity performed within a session. From this view, any activity performed in any session can be accessed via the pull-down menus.




**Figure 8. Activity Details View**

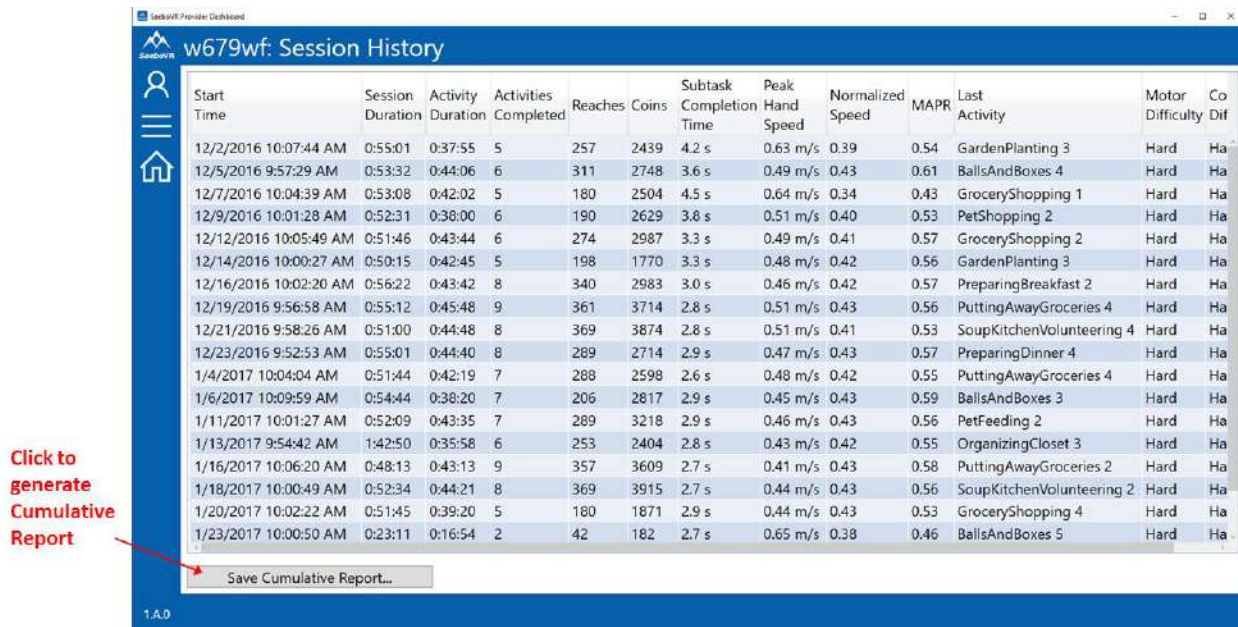
## 4 Reports

The Provider Dashboard can be used to generate two types of reports.

### 4.1 Cumulative Report

The Cumulative Report is a one-page document that provides an overview of all SaeboVR sessions completed by a patient, including total number of activities completed, time spent performing virtual ADLs, number of functional reaches performed, and level of motor and cognitive difficulty.

To generate a Cumulative Report, click on the menu  icon and go to the Session History view. Click on the “Save Cumulative Report” button on the bottom of the screen (see Figure 9).



The screenshot shows the 'w679wf: Session History' window. The table contains the following data:


Start Time	Session Duration	Activity Duration	Activities Completed	Reaches	Coins	Subtask Completion Time	Peak Hand Speed	Normalized Speed	MAPR	Last Activity	Motor Difficulty	Cognitive Difficulty
12/2/2016 10:07:44 AM	0:55:01	0:37:55	5	257	2439	4.2 s	0.63 m/s	0.39	0.54	GardenPlanting 3	Hard	Ha
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12/14/2016 10:00:27 AM	0:50:15	0:42:45	5	198	1770	3.3 s	0.48 m/s	0.42	0.56	GardenPlanting 3	Hard	Ha
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12/19/2016 9:56:58 AM	0:55:12	0:45:48	9	361	3714	2.8 s	0.51 m/s	0.43	0.56	PuttingAwayGroceries 4	Hard	Ha
12/21/2016 9:58:26 AM	0:51:00	0:44:48	8	369	3874	2.8 s	0.51 m/s	0.41	0.53	SoupKitchenVolunteering 4	Hard	Ha
12/23/2016 9:52:53 AM	0:55:01	0:44:40	8	289	2714	2.9 s	0.47 m/s	0.43	0.57	PreparingDinner 4	Hard	Ha
1/4/2017 10:04:04 AM	0:51:44	0:42:19	7	288	2598	2.6 s	0.48 m/s	0.42	0.55	PuttingAwayGroceries 4	Hard	Ha
1/6/2017 10:09:59 AM	0:54:44	0:38:20	7	206	2817	2.9 s	0.45 m/s	0.43	0.59	BallsAndBoxes 3	Hard	Ha
1/11/2017 10:01:27 AM	0:52:09	0:43:35	7	289	3218	2.9 s	0.46 m/s	0.43	0.56	PetFeeding 2	Hard	Ha
1/13/2017 9:54:42 AM	1:42:50	0:35:58	6	253	2404	2.8 s	0.43 m/s	0.42	0.55	OrganizingCloset 3	Hard	Ha
1/16/2017 10:06:20 AM	0:48:13	0:43:13	9	357	3609	2.7 s	0.41 m/s	0.43	0.58	PuttingAwayGroceries 2	Hard	Ha
1/18/2017 10:00:49 AM	0:52:34	0:44:21	8	369	3915	2.7 s	0.44 m/s	0.43	0.56	SoupKitchenVolunteering 2	Hard	Ha
1/20/2017 10:02:22 AM	0:51:45	0:39:20	5	180	1871	2.9 s	0.44 m/s	0.43	0.53	GroceryShopping 4	Hard	Ha
1/23/2017 10:00:50 AM	0:23:11	0:16:54	2	42	182	2.7 s	0.65 m/s	0.38	0.46	BallsAndBoxes 5	Hard	Ha

At the bottom of the table is a button labeled "Save Cumulative Report...". A red arrow points from the text "Click to generate Cumulative Report" to this button.

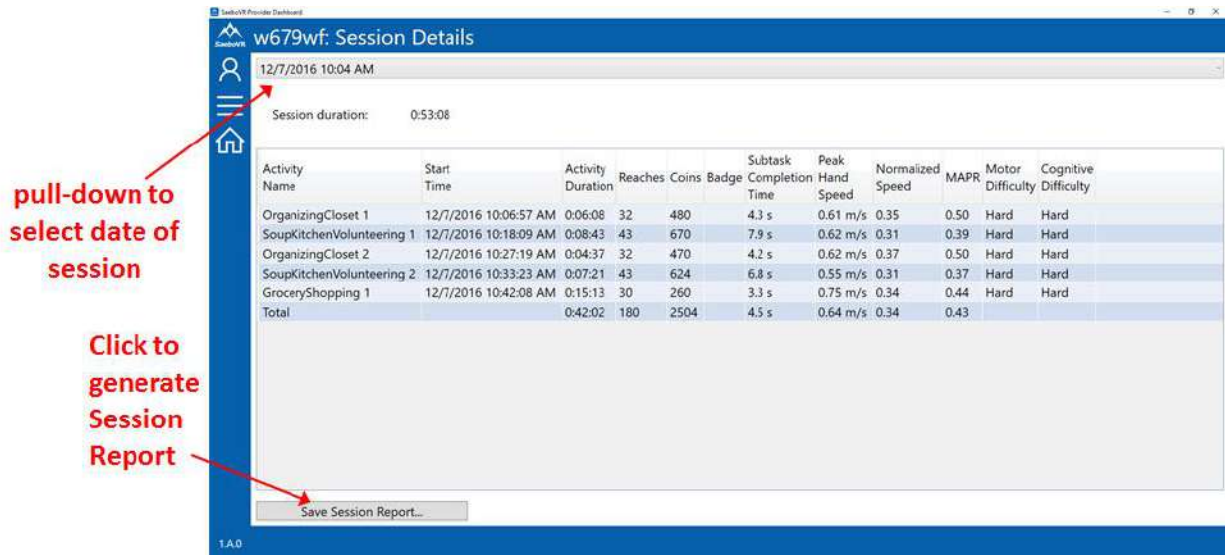
Figure 9. Generating SaeboVR Cumulative Report

### 4.2 Session Report

The Session Report is a one-page document summarizing the activities performed in a selected SaeboVR session, including activities completed, time spent performing virtual ADLs, number of functional reaches accomplished, and level of motor and cognitive difficulty. Also included is a comparison of performance to the patient’s baseline and averages for each activity performed.

To generate a Session Report, click on the menu  icon and go to the Session Details view. Use the pull-down menu to select the session of interest. Click on the “Save Session Report” button on the bottom of the screen (see Figure 10).





**Figure 10. Generating SaeboVR Session Report**

## 5 Definition of Performance Metrics

The following performance metrics are displayed in the tables and graphs of the various Provider Dashboard Views.

Session Duration	Total time patient spent logged into the SaeboVR application in a session
Activity Duration	Total time patient spent performing virtual ADLs within a session
Subtask Completion Time (or Reach Time)	A measure of upper extremity motor performance. Average time to complete the individual reaching movements within the activities
Peak Hand Speed	Peak speed (in meters/second) of the hand during performance of a reaching movement
Normalized Speed (NS)	NS is a measure of smoothness of movement. Mean speed achieved divided by peak hand speed during performance of a reaching movement
Movement Arrest Period Ratio (MAPR)	MAPR is measure of smoothness of movement. Percentage of time that hand speed exceeds a 30% of peak speed during performance of a reaching movement
Motor Score	Motor Score is an aggregate measure of motor performance based on speed of task completion
Functional Reaches (or Reaches)	A reach is defined as an upper extremity movement that results in completion of a task (e.g. picking up or placing an object)

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