

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.

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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 \aleph 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

5. 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

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

2.3 Quick Tour

- 7. Click on the menu icon in the side menu and select "Participation History" to go to the Participation History view.
- 8. 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.



- 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.

	Sovr 1							Subtask	Peak					
		Start Time	Session Duration	Activity Duration	Activities Completed	Reaches	Coins		Hand Speed	Normalized Speed	MAPR	Last Activity	Motor Difficulty	C V D
		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	Н
list of all 🛛 🚺		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	Н
ompleted		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	Н
sessions		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	Н
SESSIONS		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	Н
		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	Н
double-click		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	Н
		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	Н
on a session to		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	Н
ump to		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	Н
session details		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	Н
		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	н
		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	н
		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	н

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.

5

	A 12/7/2016 10:04 AM												
	A	53:08											
pull-down to	Activity Name	Start Time	Activity Duration	Reaches	Coins	Badge	Subtask Completion Time	Peak Hand Speed	Normalized Speed	MAPR	Motor Difficulty	Cognitive Difficulty	
select date of	OrganizingCloset 1	12/7/2016 10:06:57 AM	0:06:08	32	480		4.3 s	0.61 m/s	0.35	0.50	Hard	Hard	
	SoupKitchenVolunteering 1	12/7/2016 10:18:09 AM	0:08:43	43	670		7.9 s	0.62 m/s	0.31	0.39	Hard	Hard	
session to	OrganizingCloset 2	12/7/2016 10:27:19 AM	0:04:37	32	470		4.2 s	0.62 m/s	0.37	0.50	Hard	Hard	
	SoupKitchenVolunteering 2	12/7/2016 10:33:23 AM	0:07:21	43	624		6.8 s	0.55 m/s	0.31	0.37	Hard	Hard	
display	SpoceryShopping 1	12/7/2016 10:42:08 AM	0:15:13	30	260		3.3 s	0.75 m/s	0.34	0.44	Hard	Hard	
	Total		0:42:02	180	2504		4.5 s	0.64 m/s	0.34	0.43			
ouble-clicking													
on an activity													
jumps to													
Activity Details	Save Session Report.												



12. 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.

8	Activity Name	Repetitions	Activity Duration	Reaches	Coins	Badges	Subtask Completion Time	Peak Hand Speed	Normalize Speed
~	BallsAndBoxes	7	1:00:42	150	553	GoldStar, GoldStar, GoldStar, Master	2.8 s	0.55 m/s	0.40
ش	GardenHarvesting	12	1:26:30	959	6967	GoldStar, GoldStar, GoldStar, Master	2.6 s	0.47 m/s	0.44
	GardenPlanting	14	1:17:30	556	5866	GoldStar, GoldStar, GoldStar, GoldStar, GoldStar	5.0 s	0.51 m/s	0.37
	GroceryShopping	11	2:10:25	330	3066	GoldStar, GoldStar, GoldStar	2.8 s	0.58 m/s	0.43
	OrganizingCloset	13	0:54:13	416	6248	GoldStar, GoldStar, GoldStar, GoldStar	3.5 s	0.50 m/s	0.41
ible-click	PetBathing	4	0:11:29	132	729	GoldStar	3.5 s	0.45 m/s	0.41
o to	PetFeeding	7	0:16:36	112	1186	GoldStar, GoldStar, GoldStar, GoldStar	2.9 s	0.45 m/s	0.46
vity	PetShopping	8	1:09:33	192	1759	GoldStar, GoldStar, GoldStar	2.3 s	0.50 m/s	0.44
ory	PreparingBreakfast	6	0:26:36	294	2842		2.9 s	0.42 m/s	0.40
	PreparingDinner	14	1:13:00	686	8015	GoldStar, GoldStar, GoldStar, Master	6.5 s	0.48 m/s	0.37
	PuttingAwayGroceries	8	0:40:23	380	2870	GoldStar, GoldStar, GoldStar, GoldStar	2.7 s	0.42 m/s	0.42
	SoupKitchenVolunteering	13	1:24:34	546	8875	GoldStar, GoldStar, GoldStar, Master	5.0 s	0.42 m/s	0.36
	Total	117	12:11:29	4753	48976		3.0 s	0.48 m/s	0.42

Figure 6. Activity Summary View

- 13. Double-click on a row in the table to go to the Activity History View.
- 14. 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.

anlau –	PuttingAwayGroceries													
splay	Activity Name	Repetition	Start Time	Activity Duration	Reaches	Coins	Badge	Subtask Completion Time	Peak Hand Speed	Normalized Speed	MAPR	Motor Difficulty	Cognitive Difficulty	
	PuttingAwayGroceries	1	12/14/2016 10:17:47 AM	0:06:21	48	360		3.3 s	0.34 m/s	0.43	0.56	Hard	Hard	
-	PuttingAwayGroceries	2	12/16/2016 10:42:52 AM	0:05:06	48	357		2.9 s	0.42 m/s	0.40	0.51	Hard	Hard	
0 /	PuttingAwayGroceries	4	12/19/2016 10:46:35 AM	0:05:09	44	359		2.7 s	0.41 m/s	0.43	0.57	Hard	Hard	
v .	PuttingAwayGroceries	3	12/21/2016 10:09:48 AM	0:04:42	48	360	GoldStar	2.6 s	0.42 m/s	0.42	0.59	Hard	Hard	
	PuttingAwayGroceries	2	12/23/2016 10:06:02 AM	0:05:15	48	360	GoldStar		0.47 m/s	0.43	0.59	Hard	Hard	
	PuttingAwayGroceries		1/4/2017 10:49:29 AM		48	360	GoldStar		0.41 m/s		0.56	Hard	Hard	
	PuttingAwayGroceries		1/16/2017 10:49:37 AM	0:04:29	48	354		2.7 s	0.51 m/s		0.48	Hard	Hard	
	PuttingAwayGroceries	4	1/18/2017 10:19:07 AM	0:04:51	48	360	GoldStar	2.5 s	0.42 m/s	0.44	0.54	Hard	Hard	
	Subtask Completion Tin	ne												
	-				uhteel. (Compl	letion Tin							
	₂ 3.5			3	UDLASK	comp	letion Tin	le						
	condi													
	es 3													
	PuttingAwayGrocer										-			
	PuttingAwayGrocer 12/14/2016 10:17:	ies 1 47 AM	PuttingAwayGroo 12/19/2016 10:4	ceries 4 6:35 AM		Putti 12/23	ingAway0 3/2016 1	Groceries 2 0:06:02 AM		PuttingAw 1/16/2017	/ayGro 7 10:4	ceries 2 9:37 AM		
	P	uttingAwa	yGroceries 2 10:42:52 AM	PuttingA 12/21/20	wayGro	ceries	3	Putting	AwayGro	ceries 4	10.11	Putting	AwayGroo 017 10:19	
				12/21/20	16 10:0	9.48	AM	1/4/20	17 10:49	1.29 AM			11710.19	

Figure 7. Activity History View

15. 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.

			Pull-down menu to select , activity	Pull-down menu to select date that activity was performed
	/679wf: Activity De	tails		
	PreparingDinner	itans	- 12/5/201	6 10:31 AM
⊒ Ъ	Repetition:	4		
<u>_</u>	Duration:	0:06:27		
Ъ	Coins:	546		
-	Badge:	Master		
	Motor difficulty:	Hard		
	Cognitive difficulty:	Hard		
	MOTOR			
	Functional reaches:	49		
	Motor score:	28.4		
	Subtask completion time:	7.2 s		
	Peak hand speed:	0.64 m/s		
	Normalized speed:	0.34		
	MAPR:	0.43		

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).

۶ =	Time	Session Duration		Activities Completed	Reaches	Coins	Subtask Completion Time	Peak Hand Speed	Normalized Speed	MAPR	Last Activity	Motor Difficulty	Co Di
	12/2/2016 10:07:44 AM	0:55:01	0:37:55	5	257	2439		0.63 m/s	0.39	0.54	GardenPlanting 3	Hard	н
ហ		0:53:32	0:44:06	6	311	2748		0.49 m/s		0.61	BallsAndBoxes 4	Hard	H
	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	Н
	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	H
	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	H
	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	H
	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	ł
	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	ł
	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	ł
	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	ł
	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	ł
	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	ł
	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	ł
	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	ł
to	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	ŀ
rate	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	ł
ulative	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	ł
ort 🗸	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	ł

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).

	12/7/2016 10:04 AM Session duration: 0	:53:08										
ull-down to	Activity Name	Start Time	Activity Duration	Reaches	Coins Badge	Subtask Completion Time	Peak Hand Speed	Normalized Speed	MAPR	Motor Difficulty	Cognitive Difficulty	
	OrganizingCloset 1	12/7/2016 10:06:57 AM	0:06:08	32	480	4.3 s	0.61 m/s	0.35	0.50	Hard	Hard	
lect date of	SoupKitchenVolunteering 1	12/7/2016 10:18:09 AM	0:08:43	43	670	7.9 s	0.62 m/s	0.31	0.39	Hard	Hard	
	OrganizingCloset 2	12/7/2016 10:27:19 AM	0:04:37	32	470	4.2 s	0.62 m/s	0.37	0.50	Hard	Hard	
session	SoupKitchenVolunteering 2	12/7/2016 10:33:23 AM	0:07:21	43	624	6.8 s	0.55 m/s	0.31	0.37	Hard	Hard	
and the second second second	GroceryShopping 1	12/7/2016 10:42:08 AM	0:15:13	30	260		0.75 m/s	0.34	0.44	Hard	Hard	
	Total		0:42:02	180	2504	4.5 s	0.64 m/s	0.34	0.43			
Click to generate												
Session												
Carls of the Delight States												
Report 🔨												

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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7 Customer Support

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