MURLIE User Manual

with N-Bridge

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NVISAGE TECHNOLOGIES

Table of Contents

1. Instruction 3

1.1 Document Guide 4

1.1.1 Target Audience 4

1.1.2 Symbols 4

1.1.3 Revision History 4

2. Installation 5

2.1 Installation Condition 6

2.1.1 Compatible PC Specifications 6

2.1.2 Pre-Installation Considerations 6

3. N-Bridge 7

3.1 Program UI 8

3.2 Features 10

3.2.1 Settings – OneStop Settings 12

3.2.2 Settings – Options 13

4. MURLIE 15

4.1 Program Execution 16

4.2 Shot Analysis Mode 18

4.2.1 STATS 19

4.2.2 Settings 21

4.2.3 Record Page 28

4.2.4 Analysis Tab 30

1 Instruction

NVISAGE TECHNOLOGIES

1.1 Document Guide

1.1.1 Target Audience

This manual is intended for users of MURLIE, a software for N1, NEO-E, NEO-T, and N2.

1.1.2 Symbols

This product should be operated under safety instructions with the warning or caution symbol in this manual. It is important for you to read and understand the contents to operate the products safely.

Warning

- This symbol provides information that the user must follow to ensure personal safety or prevent product damage.

Caution

- This symbol provides information that the user must follow to prevent data loss or damage.

Information

- This symbol provides additional information.

1.1.3 Revision History

Version	Date	Description
1.2	Sept.17th, 2025	Edited) 3.1 Program UI Edited) 3.2.1 Settings – OneStop Settings Deleted) Profile Landing Page from 4.1 Program Execution Edited) 4.2 Shot Analysis Mode
1.1	August 7th, 2025	Added) 3. N-Bridge
1.0	June 20th, 2025	Initial release

2 Installation

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2.1 Installation Condition

MURLIE Software package consists of:

- MURLIE SW
- N-Bridge SW
- Re-released vs2013 package

2.1.1 Compatible PC Specifications

To execute MURLIE, the computer operating system should be Windows 10 or 11 x64.

PC Environment	Recommended Specifications	Minimum Specifications
CPU	Intel i7, 10th generation or higher	Intel i5 8400
RAM	16 GB or greater	8 GB (16 GB for Swing Optix)
GPU	NVIDIA RTX 30 series or higher	GeForce GTX 1060
GPU Memory	16 GB or greater	-
Hard Disk	50 GB or greater	-

2.1.2 Pre-Installation Considerations

The installation procedure is introduced under the assumption that the user connects the device and the computer through a peer-to-peer communication network. Before starting the installation, ensure that the required components are in place as listed below:

- NVISAGE sensor (one among N1, N2, Neo-E, and Neo-T)
- A desktop computer with a GigE network card installed
  - For the N1 sensor, the use of an Intel PCI-Express network interface card is recommended.
  - If the computer's motherboard only supports PCI, use an Intel PCI network interface card (GT, MT, or PRO/1000 series).
  - The latest version of the network interface card driver can be downloaded from the manufacturer's website.
- A standard Ethernet cable.
  - For the N1 sensor, the use of a shielded (STP) Category 5 or higher Ethernet cable is recommended.

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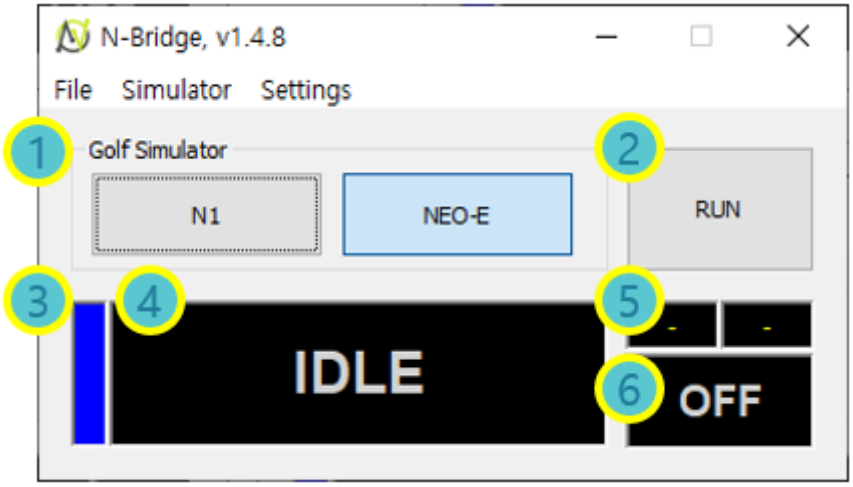
3.1 Program UI

N-Bridge is a software program that integrates simulator devices with MURLIE. The program interface is as shown below:



No.	Item	Description
1	Golf Simulator	Displays the selected device in blue.
2	Run/Close Button	Opens the device to prepare data transmission or disconnects the device.
3	Connection Type	Displays wireless connections in green and wired connections in blue.
4	Connection Status	Shows connection status: IDLE, Search, and Shot.
5	Swing Orientation & Mode Panel	Displays the current setting: either handedness (RH/LH) or swing mode (PT/NP).
6	Simulator Integration Status	Shows the connection status of external simulators.

How to Execute

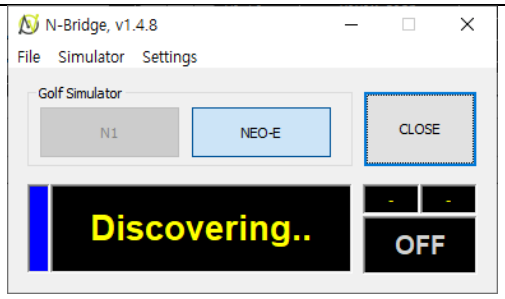
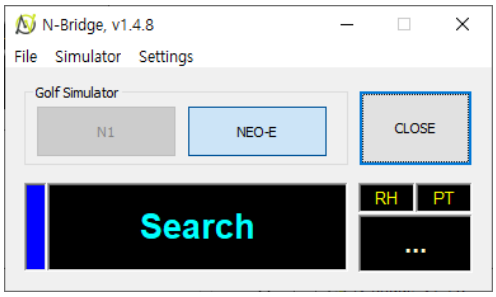
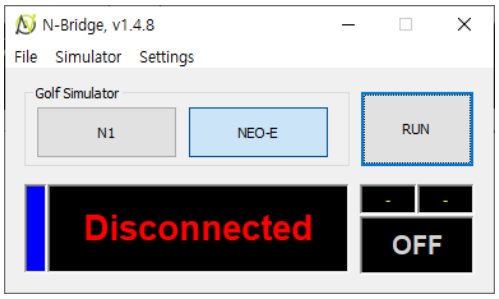
1 Select the simulator you want to connect to from the **Golf Simulator** box.

2 Click the **Run** button.

3 Check the connection status classified into the following 3 types:

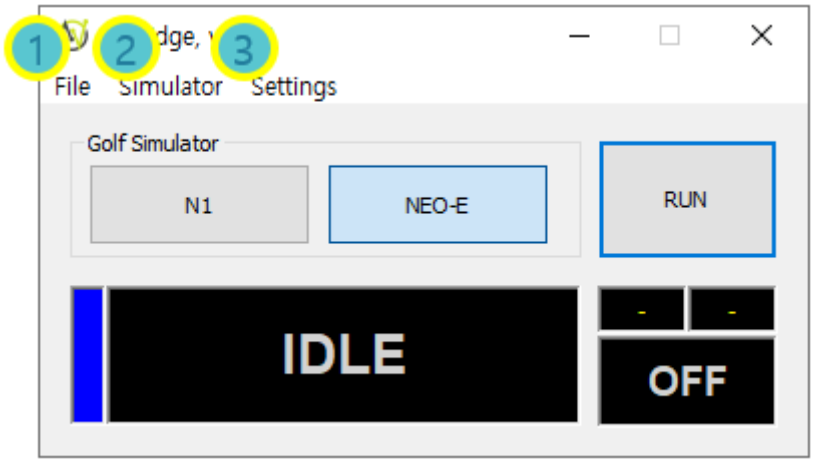
▫ To use **wireless connection**, the Connectivity Type in OneStop Settings should be set to Wireless in advance. Refer to <N-Bridge OneStop Settings Guide> for more details.

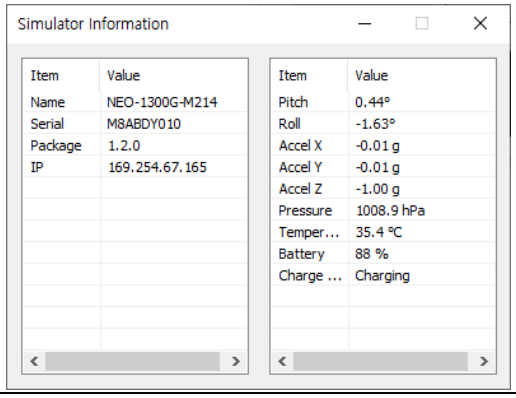
Type	Image	Description
Discovering		Indicates that it is connecting.

		
Search		Indicates that it is successfully connected. • The left bar turns **blue** when wire-connected. • The left bar turns **green** when wirelessly connected.
Disconnected		Indicates that it is disconnected.

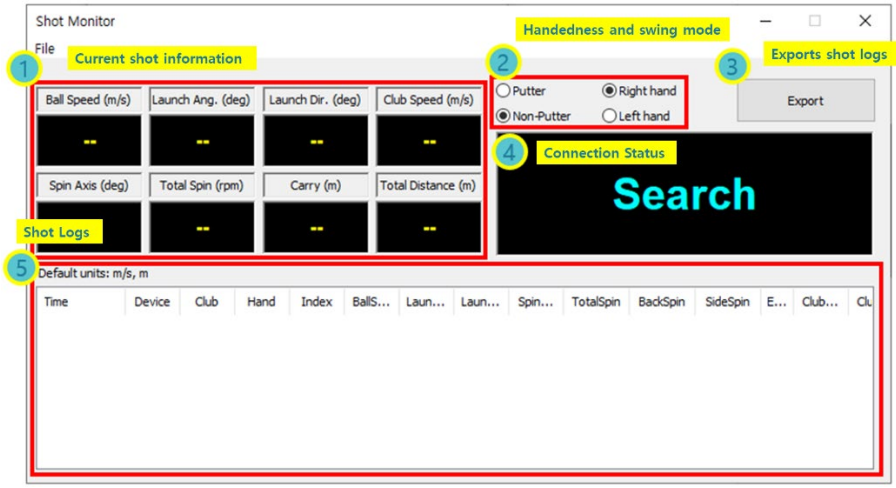
3.2 Features

All program features can be accessed through the 3 tabs in the menu bar: File, Simulator, and Settings.

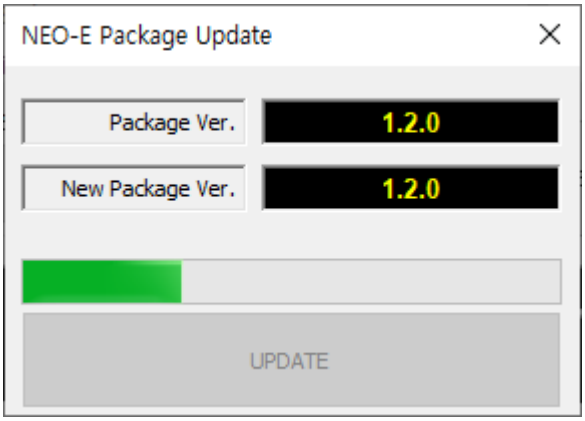


No.	Item	Description
1	File	Includes Open/Export Logs and Exit. • **Open Log**: Opens the log folder saved in the PC. • **Export Log**: Compresses the log to be saved and allows the user to choose a save folder. • **Close**: Ends the program.
2	Simulator	Includes Information, Shot Monitor, Calibration, and Update. • **Information**: Displays the current information of the device. 

- **Shot Monitor**: Displays the shot log of the connected device.



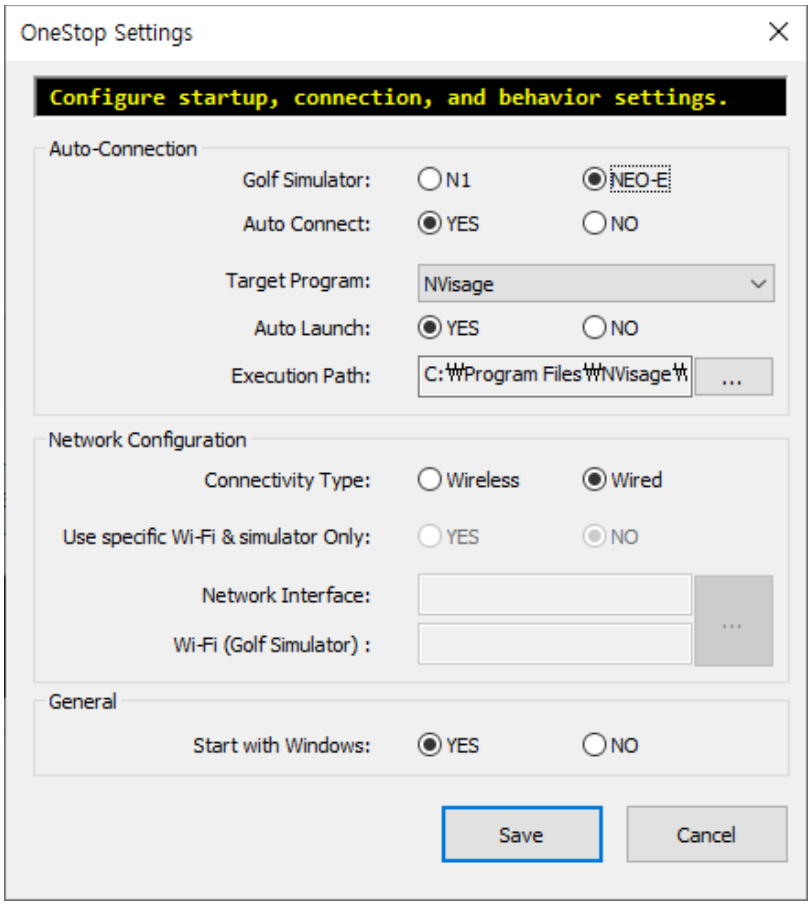
- **Calibration**: N/A
- **Update**: Checks the firmware information and updates it to the latest version.



  - To update the firmware, new package version should be higher than package version.
  - The system notifies the user if an update is available.

3 Settings	Includes OneStop Settings and Options. **OneStop Settings**: Consists of Auto-Connection, Network Configuration, and General. ▫ Detailed information is provided in <3.2.1 Settings – OneStop Settings>. **Options**: Consists of General and Network Configuration. ▫ Detailed information is provided in <3.2.2 Settings – Options>.

3.2.1 Settings – OneStop Settings

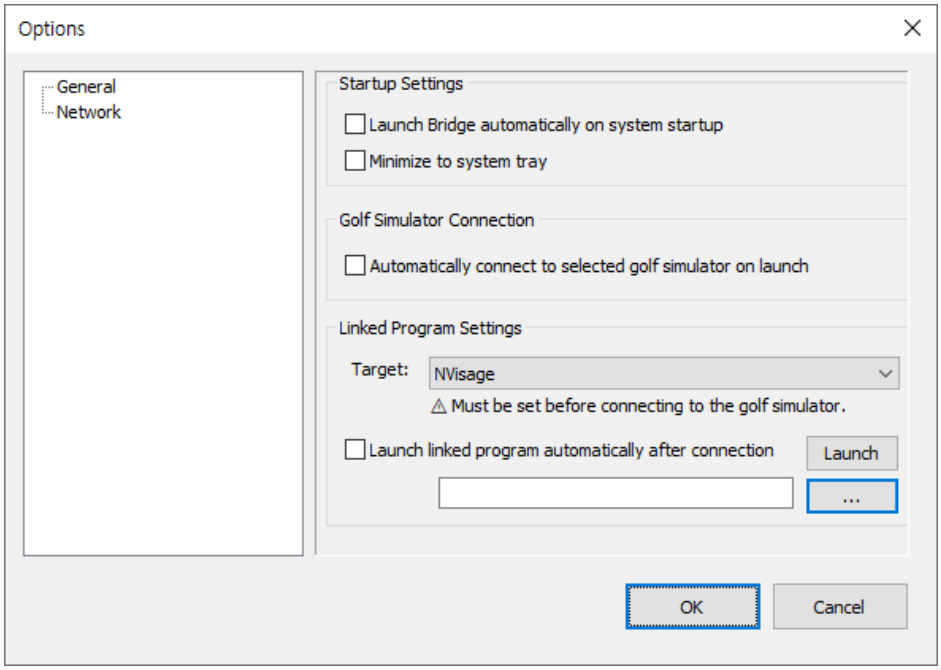


Category	Subcategory	Description
Auto-Connection	Golf simulator	Selects the simulator you want to automatically connect.
	Auto Connect	• Yes: Automatically connects the selected golf simulator to the N-Bridge program. • No: Disables auto connection between the selected golf simulator and the program.
	Target Program	Selects the target program for automatic connection. ▫ If a specific program is selected, no other target programs can be launched—even when "Auto Launch" is set to No.
	Auto Launch	Decides whether to execute the target program when opening the N-Bridge.
	Execution Path	Sets the path of the program selected in the Target Program. ▫ If the path is not selected, the target program does not run even if Auto Launch is set to YES.
Network Configuration	Connectivity Type	Selects whether to use a wired or wireless connection.
	Use specific Wi-Fi & simulator Only	Yes: Specifies the Wi-Fi to connect to automatically. No: Selects directly from the PC's Wi-Fi settings.
General	Start with Windows	Sets whether N-Bridge launches automatically when the PC is restarted.
Save		After clicking the **Save** button, the program closes automatically. To apply the changes, the user must restart the program.

3.2.2 Settings – Options

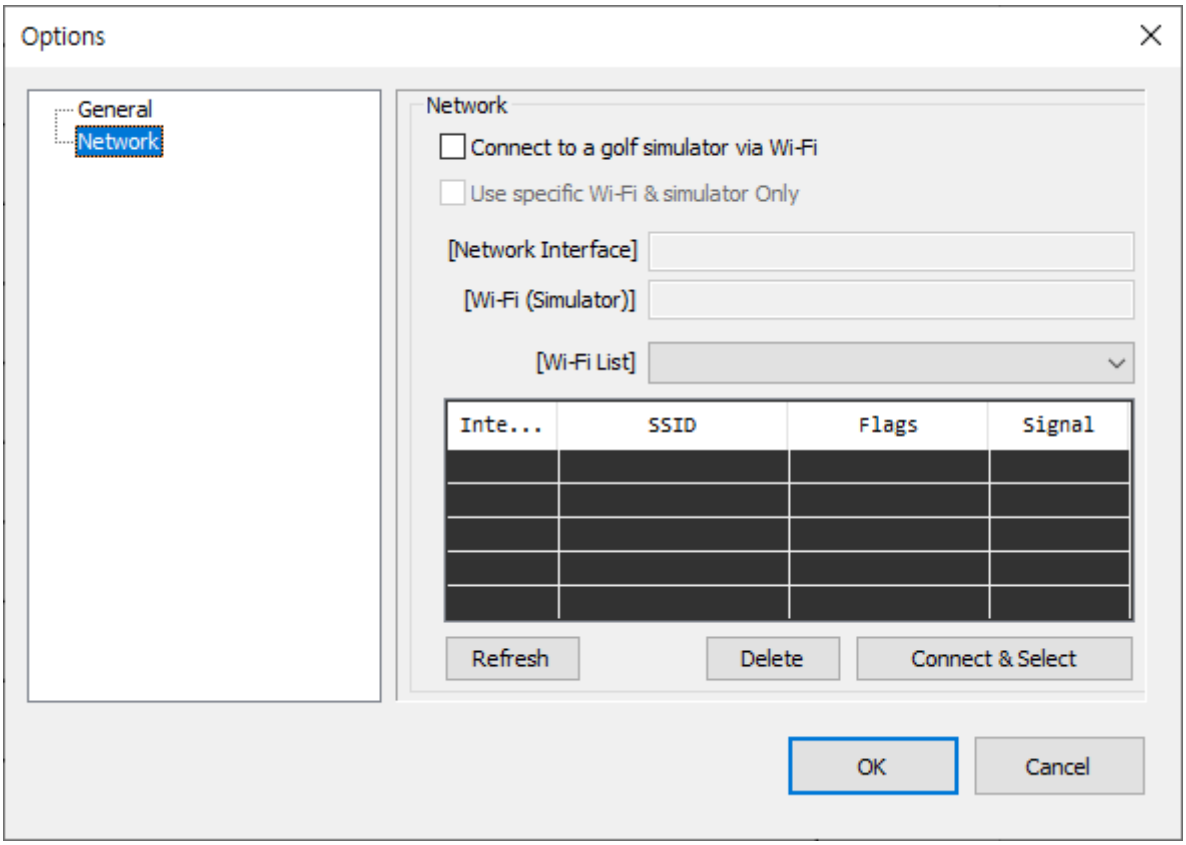
The Options window is classified into 2 categories: General and Network.

General



Category	Subcategory	Description
General	Startup Settings	**Launch Bridge automatically on system startup** • Enables/disables auto execution of the N-Bridge when rebooting the system. **Minimize to system tray** • Decides whether to minimize to system tray.
	Golf Simulator Connection	• Decides whether to automatically connect to the golf simulator when N-Bridge is turned on.
	Linked Program Settings	**Target** • A user can select the program they want to connect to the simulator. **Launch** • Runs the selected .exe file to verify that it launches correctly.

Network



Category	Subcategory	Description
Network	Network	Selects whether to use a wireless network connection.

4 MURLIE

Program Execution
Shot Analysis Mode

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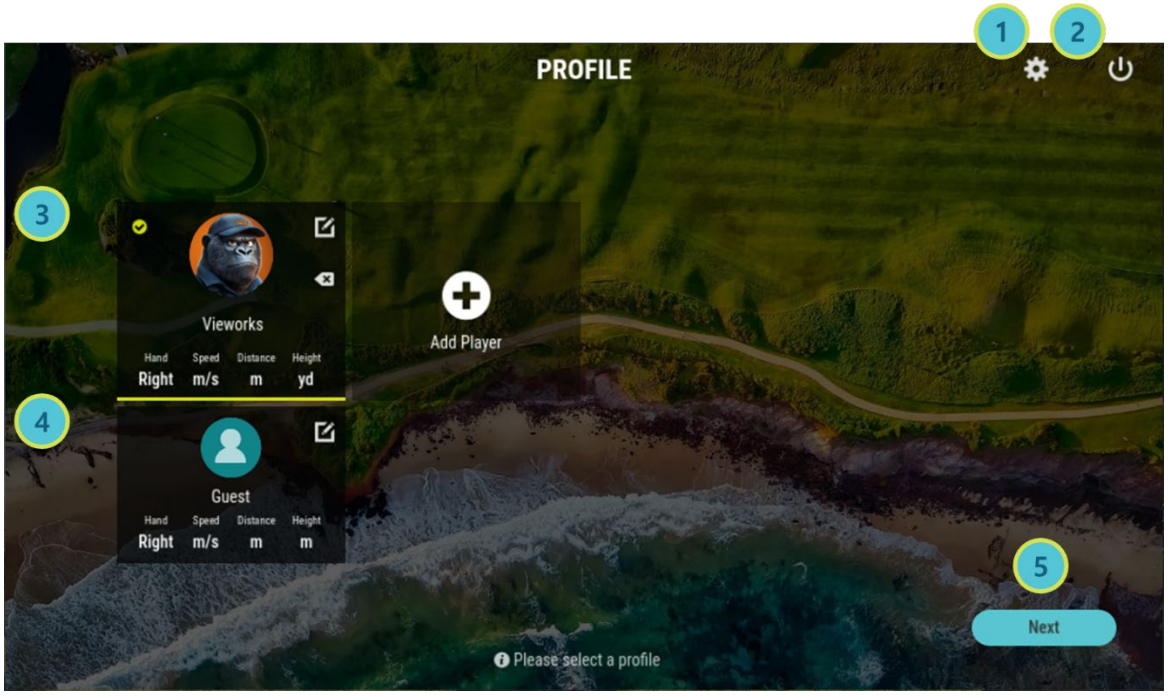
4.1 Program Execution

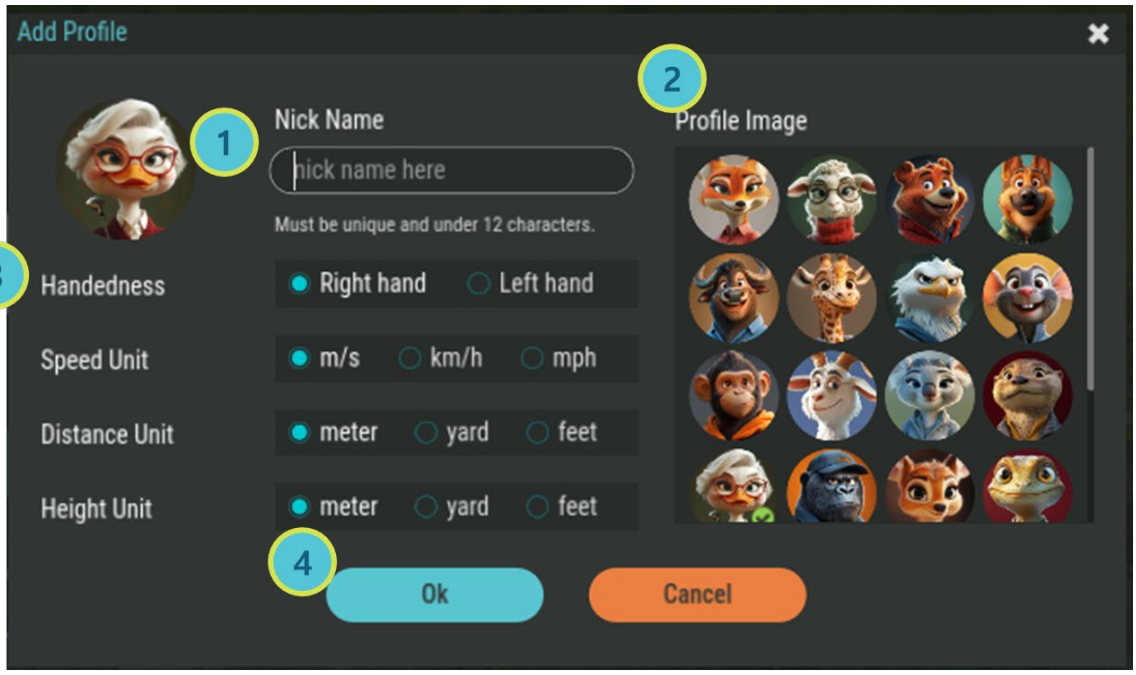
MURLIE is a Driving Range program equipped with Shot Analysis and Driving Range modes. With this program, a user can analyze and record shots. The following are the steps to run the MURLIE program:

Profile



No.	Name	Description
①	Setting	Selects the image quality.
②	Exit	Ends the program.
③	Add Profile	Adds a user profile.
④	Saved Profile	Shows the saved profile.
⑤	Next	Switches to the Mode Selection screen.

Add Profile Screen Configuration

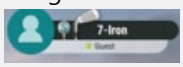


No.	Name	Description
①	Nickname	Enter the nickname you want to use.
②	Select Image	Select a profile image.
③	Set User Type	Choose your dominant hand and select the preferred speed or distance unit.
④	Apply	Apply the changes.

4.2 Shot Analysis Mode

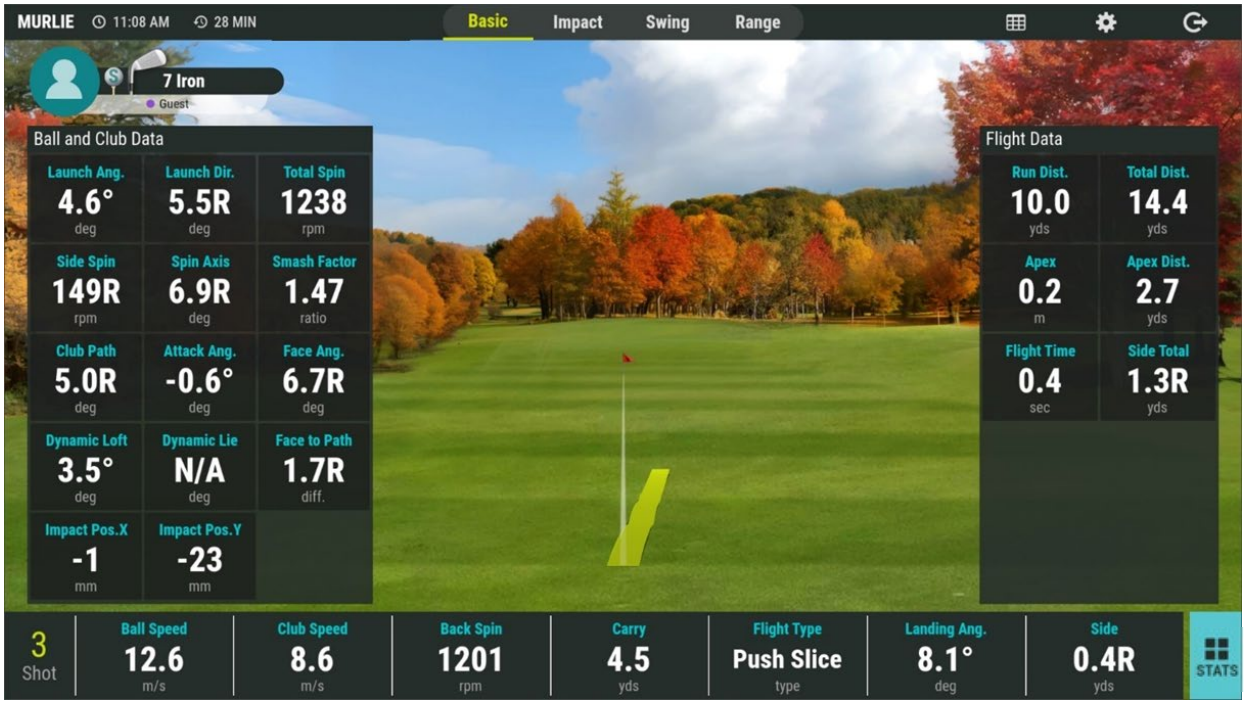
The image below is the first screen a user sees in Shot Analysis Mode, and each item is described in detail starting on the next page.

No.	Name	Description
①	STATS	Selects which measurement to display at the bottom of the screen.
②	Settings	Customizes data display preferences.
③	Record Page	Displays previous shot records.
④	Analysis Tab	Shows analysis results from 4 perspectives —Basic, Impact, Swing, and Range— after a shot is made.

- To distinguish each session by adjusting tag colors, club and ball types, and notes, click this  section. It is also adjustable in the Record Page window.
- It is recommended to customize **Display** and **Device** data in **Settings** before making a shot.
- Dynamic Lie in the Club Front View box is not available on NEO-E.

4.2.1 STATS

In full view mode, hovering over a data box displays a popup with a description of the data.



To select which data to display at the bottom of the screen:

1 Click the STATS button (STATS).

2 Drag and drop the data you want to display from the Ball and Club Data and Flight Data boxes to the bar at the bottom of the screen. Conversely, you can move unwanted data from the bottom bar back to the Ball and Club Data and Flight Data boxes.

- On mobile devices, drag and drop is unavailable until the setting button ( ) in the Flight Data box is clicked.

3 To apply changes, click the Plot button (PLOT).

Data Description

Category	Terminology	Description	Unit	Note
Flight Data	Carry Distance	The distance between the ball's starting point and the first point where the ball lands on the ground.	m, yards	
	Total Distance	The distance between the ball's starting point and the point where the ball stops.	m, yards	
	Run Distance	The distance between the first point where the ball lands and the point where the ball stops.	m, yards	
	Side Distance	The carry point where the ball lands to the left or right of the target line.	m, yards	+ : Right - : Left
	Side Total	The point where the ball stops to the left or right of the target line.	m, yards	+ : Right - : Left
	Apex	The maximum height of the ball's trajectory.	m, ft	

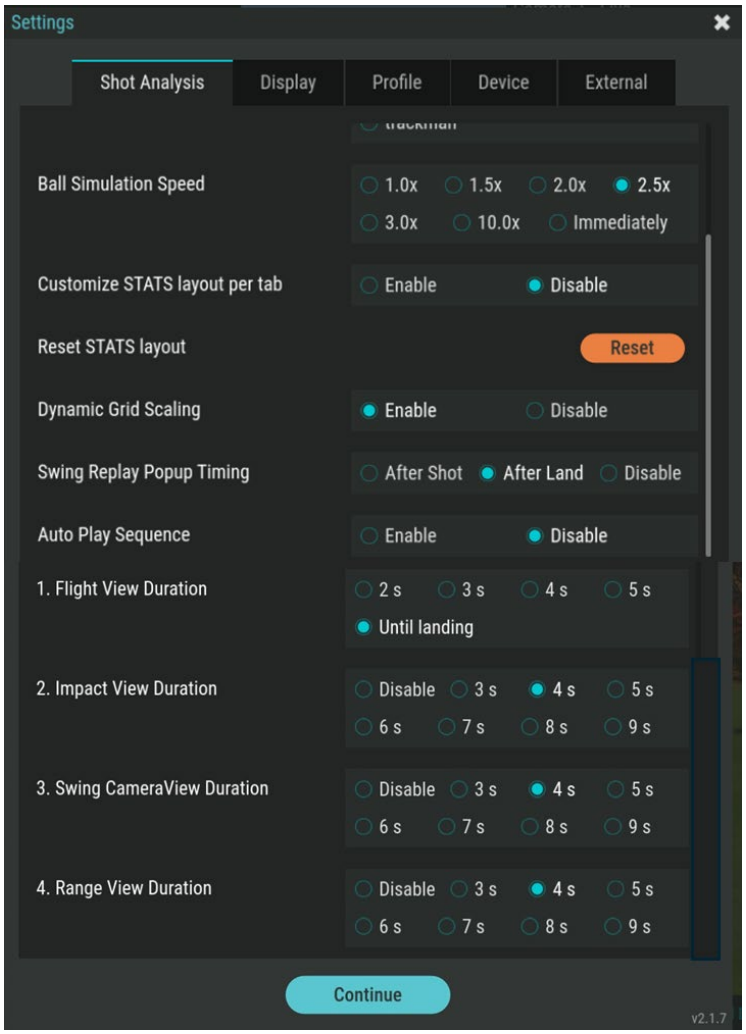
	Apex Distance	The distance on the ground when the ball reaches its maximum height.	m, yards	
	Flight Time	The flight time until the ball first hits the ground.	sec	
	Flight Type	The flight path of the ball.	-	
	Landing Angle	The angle of incidence of the ball when it first hits the ground.	deg	
Ball and Club Data	Ball Speed	The ball speed immediately after impact.	km/h, m/s, mph	
	Launch Angle	The launch angle (angle at which the ball leaves the ground).	deg	
	Launch Direction	The horizontal angle of the ball relative to the target line (measured immediately after the ball leaves the clubface).	deg	
	Total Spin (Spin Rate)	The spin amount immediately after impact (around the spin axis).	rpm	
	Spin Axis	The angle between the ball's rotation axis and the horizontal plane.	deg	
	Side Spin	The side spin of the ball.	rpm	
	Back Spin	The backspin of the ball.	rpm	
	Smash Factor	Ball speed / Head speed Accuracy of hitting the sweet spot with the ball.	-	
	Club Path	The direction of the clubhead at the moment of impact.	deg	+ : Right - : Left
	Club Speed	The clubhead's speed just before impact.	km/h, m/s, mph	
	Attack Angle	The upward/downward movement direction of the clubhead.	deg	+ : Upward - : Downward
	Face Angle	The direction the clubface is pointing relative to the target line at impact.	deg	+ : Right - : Left
	Dynamic Loft	The vertical angle of the clubface at the point of contact with the ball.	deg	
	Dynamic Lie	The horizontal angle of the clubface at the point of contact with the ball.		
	Face to Path	The difference between the face angle and the club path.	deg	
	Horizontal Impact	The exact point where the ball contacts the clubface in the horizontal direction at impact. The Club Sticker is measured as the origin, and the Heel direction is expressed as a positive number.	-	
	Vertical Impact	The exact point where the ball contacts the clubface in the vertical direction at impact. The Club Sticker		

	is measured as the origin, and the ground direction is expressed as a positive number.

4.2.2 Settings

The Settings menu is classified into 5 tabs: Shot Analysis, Display, Profile, Device, and External.

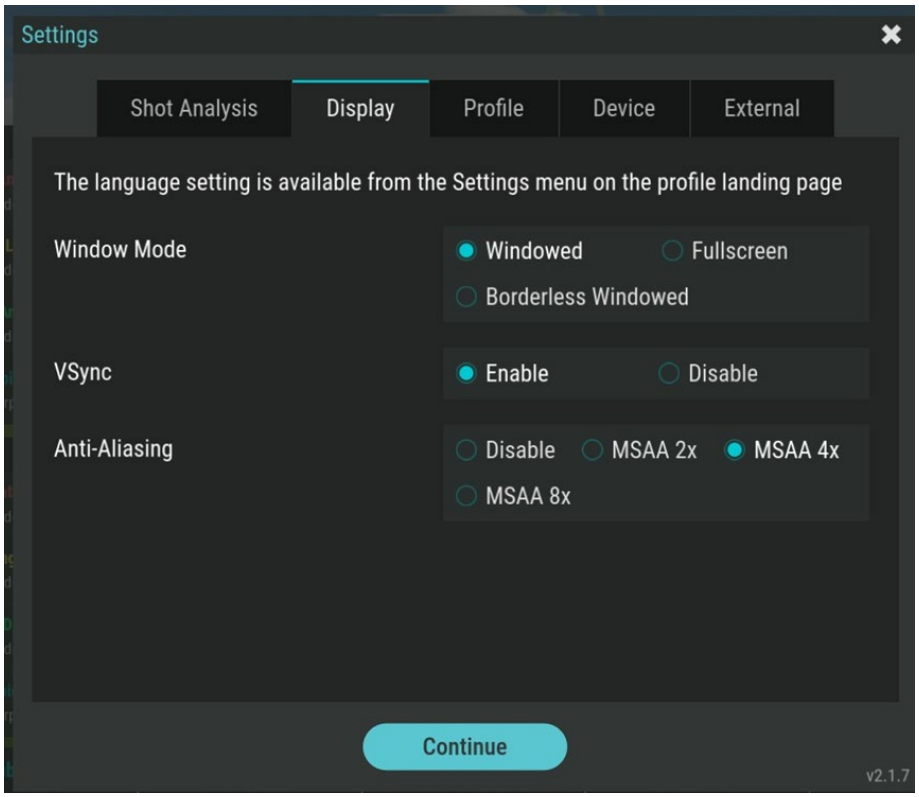
Shot Analysis



Item	Description
Background Image	Selects the background image.
Ball Simulation Speed	Sets the speed at which the ball is simulated after a shot.
Record Shot to Session	Determines whether to save a shot to Record Page.
Customize STATS layout per tab	Determines whether to use unified STATS layout to all tabs – Basic, Impact, Swing, and Range - or to customize it per tabs.
Reset STATS layout	Initiates the customized data in STATs layout.
Dynamic Grid Scaling	Determines whether to fix the grid size of the Flight Graph in Basic and Range tabs.
Swing Replay Popup Timing	Determines when to bring up the video in Impact, Basic, and Range tabs.

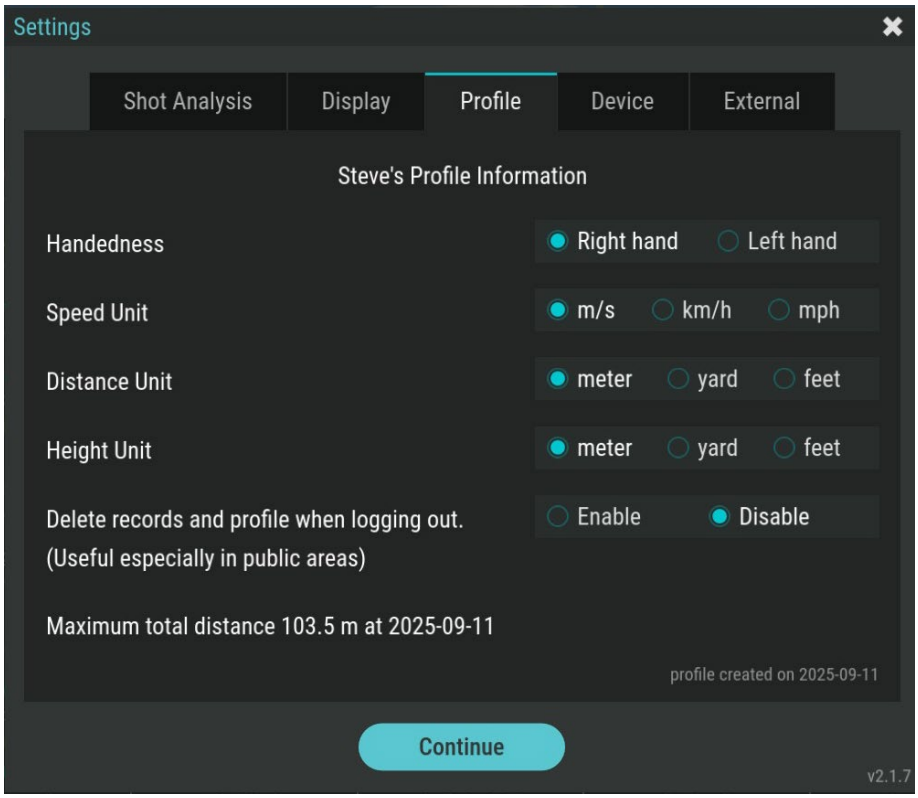
Auto Play Sequence	Determines which view to replay: Basic flight view, impact view, swing camera view, or range view. • The Basic flight view replay cannot be disabled. • The swing camera view is only available when a swing camera is connected. When a swing camera is disconnected, the option will not appear.

Display



Item	Description
Window Mode	Sets the size of the window. • You can switch between windowed mode and fullscreen mode using the **Alt+Enter** shortcut key.
VSync	This function is used to limit the FPS to match the monitor's refresh rate. Therefore, it is highly recommended to always enable the function to minimize power consumption.
Anti-Aliasing	This function is used to smooth out jagged edges in the image. Higher anti-aliasing settings result in smoother trajectory edges but also lead to increased GPU usage.

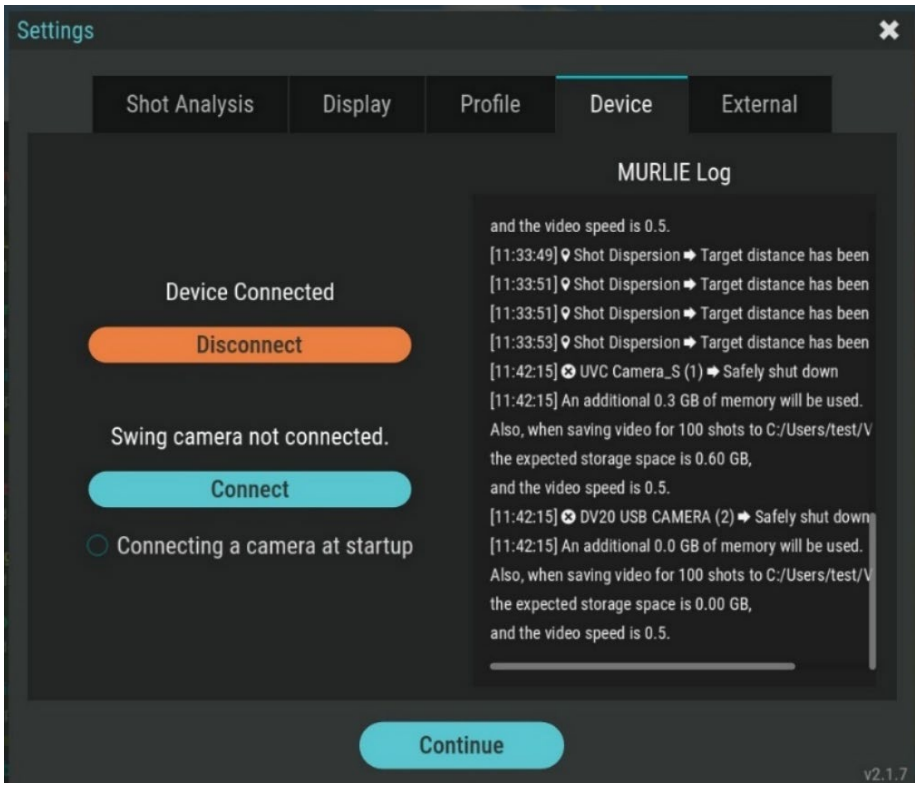
Profile



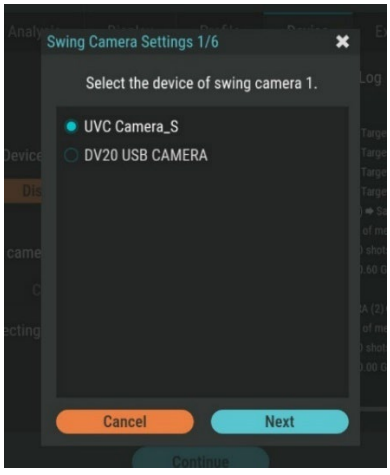
Item	Description
Handedness	-
Speed Unit	-
Distance Unit	-
Height Unit	-
Delete records and profile when logging out	Deletes all the data saved in the program when a user is logged out. This function is especially useful in public areas.

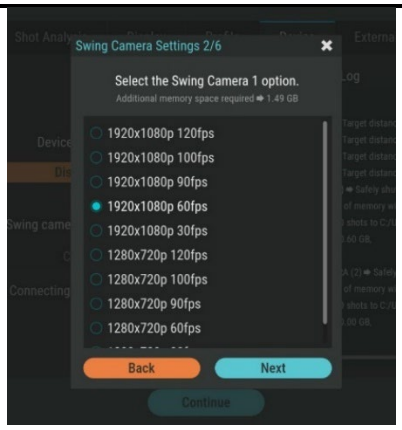
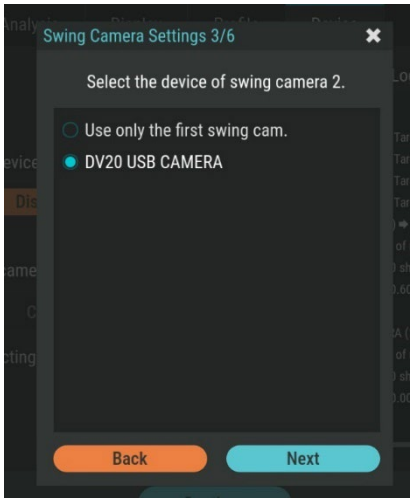
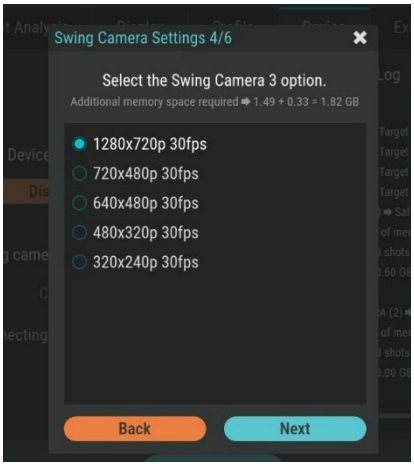
Device

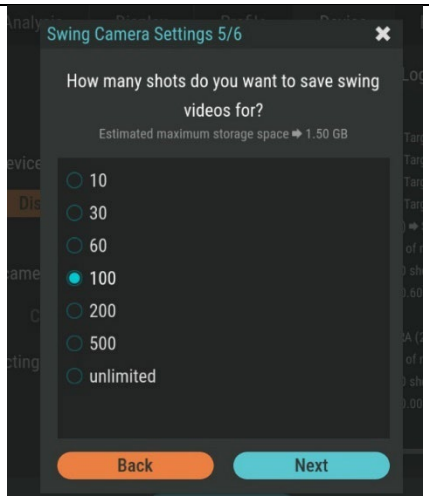
In this tab, a user can connect the viewer to a device. When connection is successfully made, logs output on the right side.



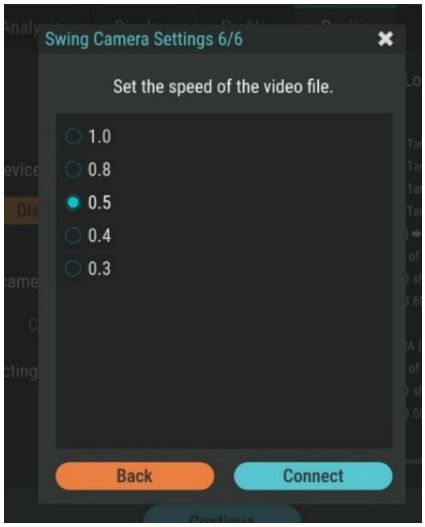
Camera Setup Sequence

Seq.	Image	Description
1	-	Click the Connect button under the **Swing camera not connected.** sentence.
2		The UVC Camera, a device provided by NVISAGE, is selected by default.
3		Select the resolution and frame rate by considering the expected memory usage shown on the screen and the capacity of your computer.

		▫ If the selected settings use too much of the computer's capacity, the program may slow down or malfunction.
4		• If you are setting only one camera, click the option above. • If you are setting up another camera, click **DV20 USB CAMERA**.
5		Select the resolution and frame rate by considering the expected memory usage shown on the screen and the capacity of your computer. ▫ If the selected settings use too much of the computer's capacity, the program may slow down or malfunction. ▫ The expected memory usage shown on the screen is the sum of two cameras.
6		Select the number of shots to save by considering the expected memory usage shown on the screen and the capacity of your computer. ▫ If the selected settings use too much of the computer's capacity, the program may slow down or malfunction.



7



Choose the video speed.

CAUTION

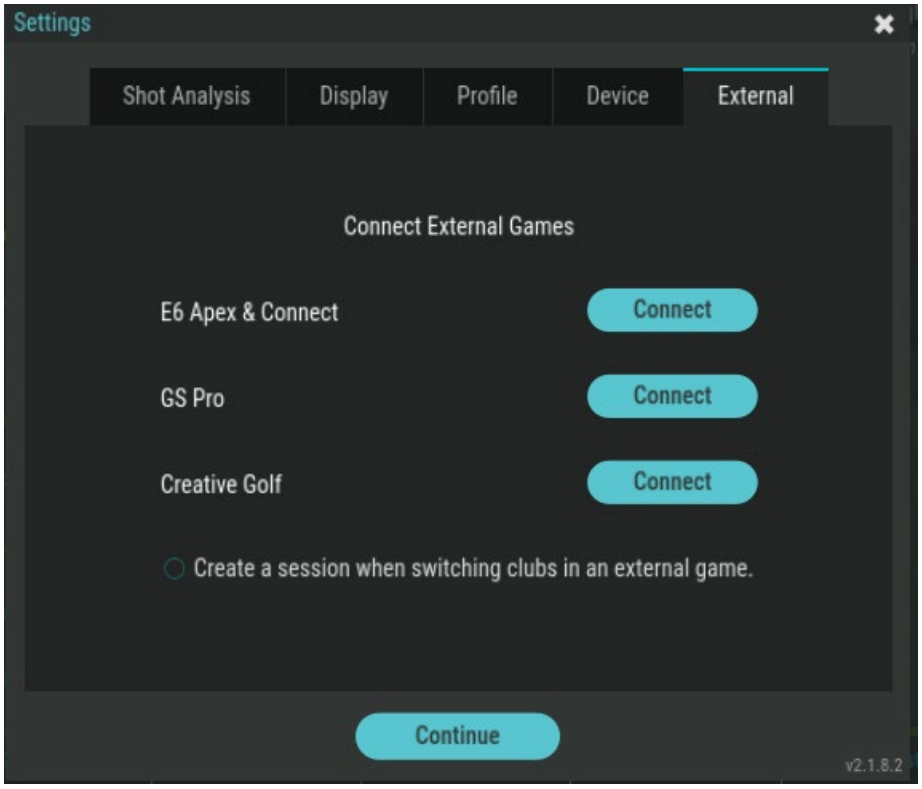
A user may encounter the following 3 problems:

Problem 1: When connecting two cameras, one may fail to connect.
Problem 2: 2 cameras are successfully connected but the resolution is poor.
Problem 3: The acquisition did not complete for the set number of shots.

The cause of **Problem 1 & 2** is insufficient USB memory bandwidth.
To resolve these problems: 1) Do not use USB Hub and 2) Connect one camera to a USB port on the front of the desktop and the other to a USB port on the back, or connect both cameras to USB ports on the back.
Problem 3 occurs because the selected resolution and frame rate exceed the computer's capacity. Choose lower settings to resolve the issue.

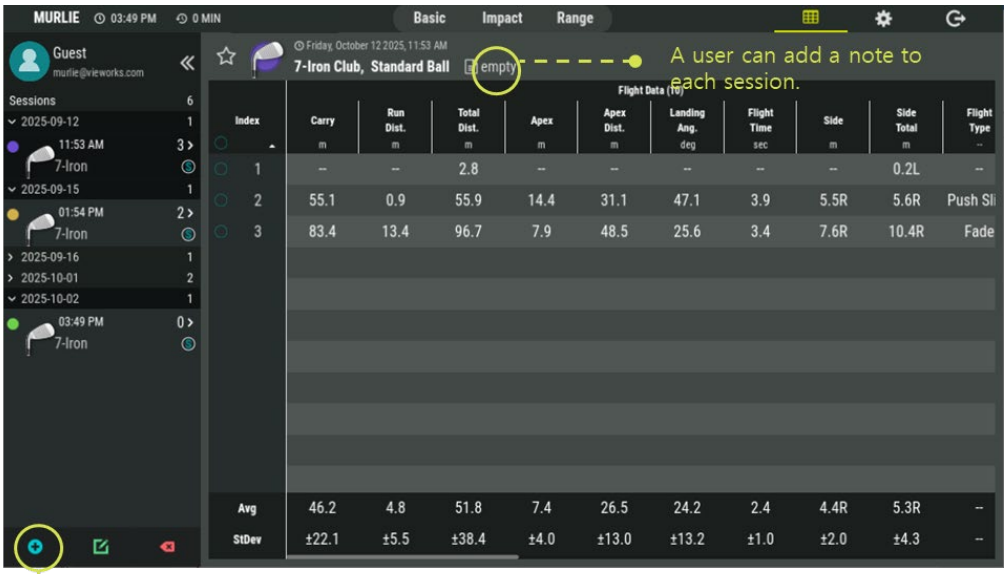
External

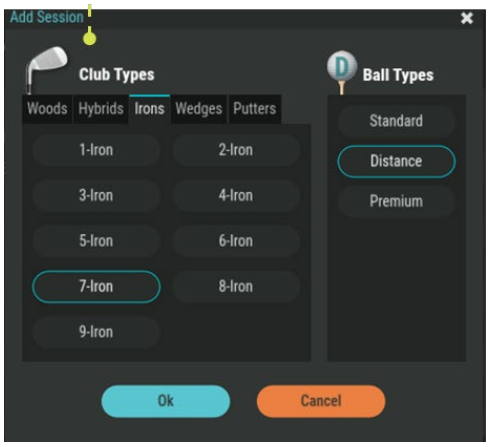
In this tab, a user can connect the program to an external game software.



4.2.3 Record Page

Up to 27 shot data can be saved by each session. If you select a previous session and hit a shot, the shot will be added to that session.





Each session can be distinguished by club types and ball types.

Tips for Accurate Analysis

1 Double click the value you want to analyze in the Index, and the recorded video will pop-up.

2 Click the icon to draw a line or make a circle.

- Line is useful when drawing a centerline to analyze how much the body is tilted.
- Circle is useful when analyzing approach or finish positions.

3 To apply changes, click the X button. To delete changes, click the trash button.

The UI of Other Data section

No.	Name	Description
①	**Note**	You can add a note to each swing.
②	**Swing Video**	The swing video file for each swing can be opened after recording the next shot.
③	**Video File Path**	A video file is automatically saved to the Download→Murlie folder on the user's computer.
④	**Refresh**	By clicking **Refresh**, a user can open the latest recorded swing video without recording the next shot.

4.2.4 Analysis Tab

A user can see and analyze the shot from various perspectives: Basic, Impact, Swing, and Range.

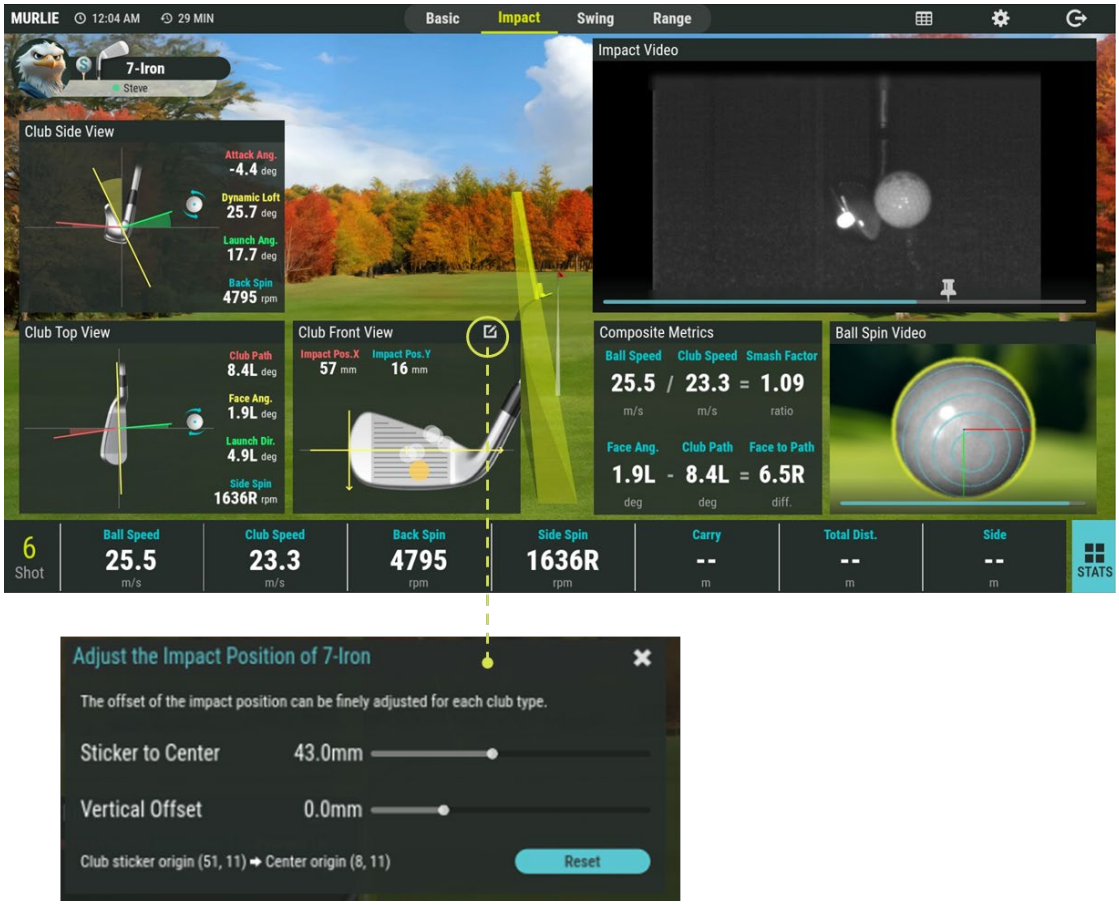
Basic Tab

In this tab, a user can see where the golf ball struck the club from both the front and side views, as well as view the flight graph.

- Dynamic Lie is not supported by the NEO-E.

Impact Tab

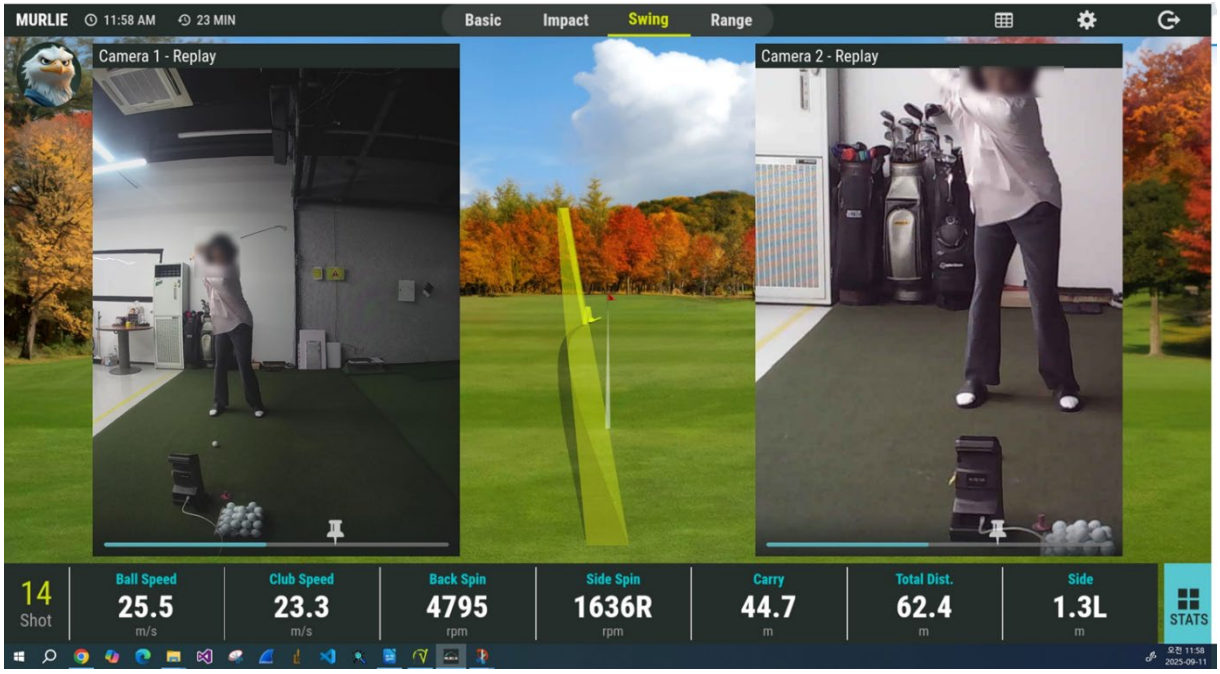
In this tab, a user can see where the golf ball struck the club from the front, side, and top views, live video, impact video, composite metrics and ball spin video.



Name	Description
Distance to Center	Adjusts the distance from the sticker to the center.
Vertical Offset	Adjusts the point where the ball hits the club vertically.

Swing Tab

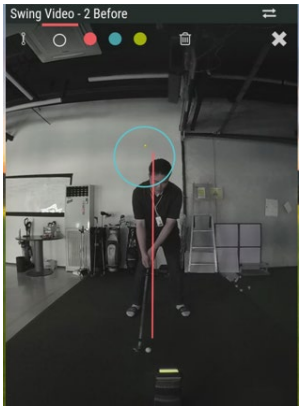
In this tab, a user can compare the latest swing form with previous swing forms. By default, the Live Video displays the latest swing form, while the Swing Video shows previous ones.



- Live view is on only when the device is in ready mode.
- If the Ready button is not clicked with two cameras connected, Camera 1 displays the live view while Camera 2 displays the replay view.
- To change the number of replayed video, refer to the Device section in <4.2.2 Settings>.

Tips for Adjustments

- To change the video you want to play in Swing Video and Live Video, click the icon.
- To analyze the swing form, hover with the mouse over the desired video until the icon appears. Click the icon and draw a line or a circle at any position you like as shown below:



- To move to a specific scene, use the blue progress bar.

Range Tab

In this tab, a user can see the shot dispersion and flight graph.

Tips for Detailed Adjustments

Window	Description
Shot Dispersion	• The latest ball is displayed in yellow while the previous balls are displayed in white. • To zoom in/out, scroll up/down the blue bar. • To switch to Carry/Total Distance, click the icon. ▫ Carry: The first point where the ball lands on the ground. ▫ Total Distance: The point where the ball stops.
Flight Graph	In the Range tab, previous trajectories are shown as overlays.

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