

iCROSS NEO

Operation Guide



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1. Overview of iCROSS Taekwondo Scoring System



<Fig. 1 System Overview>

In order to realize intelligent electronic scoring system for Taekwondo game, iCROSS Technology Inc. develops and manufactures electronic devices and software including electronic body protector and electronic headgear. iCROSS Neo is a court operation program that is installed in a court operation PC and controls and manages game performing at the court.

2. Preparation and Configuration

2-1 Operation Program Package

Operation Program is provided with a package of 3 folders and several files including iCROSS Neo program.

- DLL folder: includes 7 DLL files may be needed to execute MFC program in your PC.

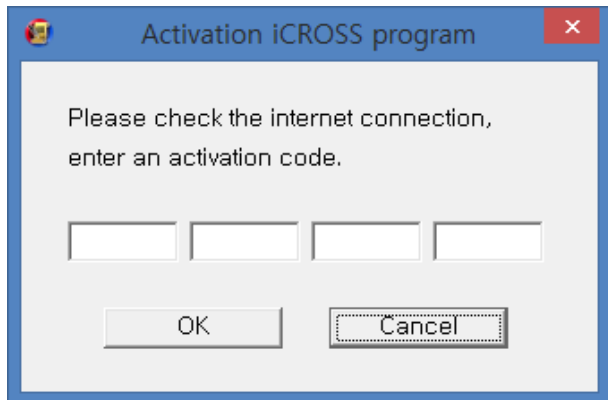
- DRIVER folder: includes device driver installation programs for a receiver.
- INI folder: includes 3 INI files stored information of operation program or user set.
- TMP folder: stores 2 files for initial backup.
- Activation: a program to register the product number to the web and to activate.
- iCROSS Neo Updater: a program makes the iCROSS Neo up to date through the net.
- Taekwondo.mdb: a database file for all data during game.
- USBXpress_Install: a program to install a device driver for a receiver manually.
- ReadMe.txt: a text file that informs and notifies about the operation program

And there are several DLL files and help files.

2-2 Installation Device Driver for a Receiver

In order to install a device driver for a receiver manually, execute USBXpress_Install program for CP210x USB to UART bridge of Silicon Labs that is located under the driver folder.

2-3 Activation



<Fig.2-3 Window of Activation Program>

First of all, please register your product number before running iCROSS Neo by executing activation program..

Activation program registers the product number to the web and activates iCROSS Neo operation program. When registering the product number, check the internet connection.

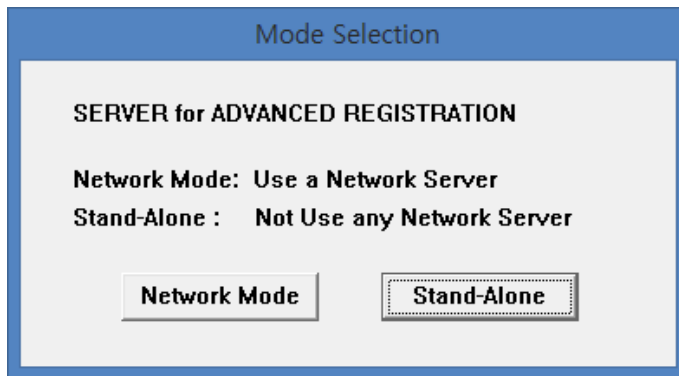
Off-line registering permits only one day activation.

Product number is not included in an operation program package but provided through distribution channel.

3. Startup iCROSS Neo

Executing iCROSS Neo, a mode selection dialog window is shown up.

(* This step can be skipped depending on the version of the program.)



<Fig.3 Mode Selection Dialog Window>

3-1 Stand-Alone

The operation program runs without any network server. All match games are made and registered and all players to have match should be registered on this program at a stadium site.

The program manages and controls all games by itself.

3-2 Network Mode

A computer to run the operation program is networked with a server. The operation program gets information of games, players and devices from the server. Whenever every game ends the operation program sends the result of the game to the server

4. Operation iCROSS Neo(Stand-Alone)

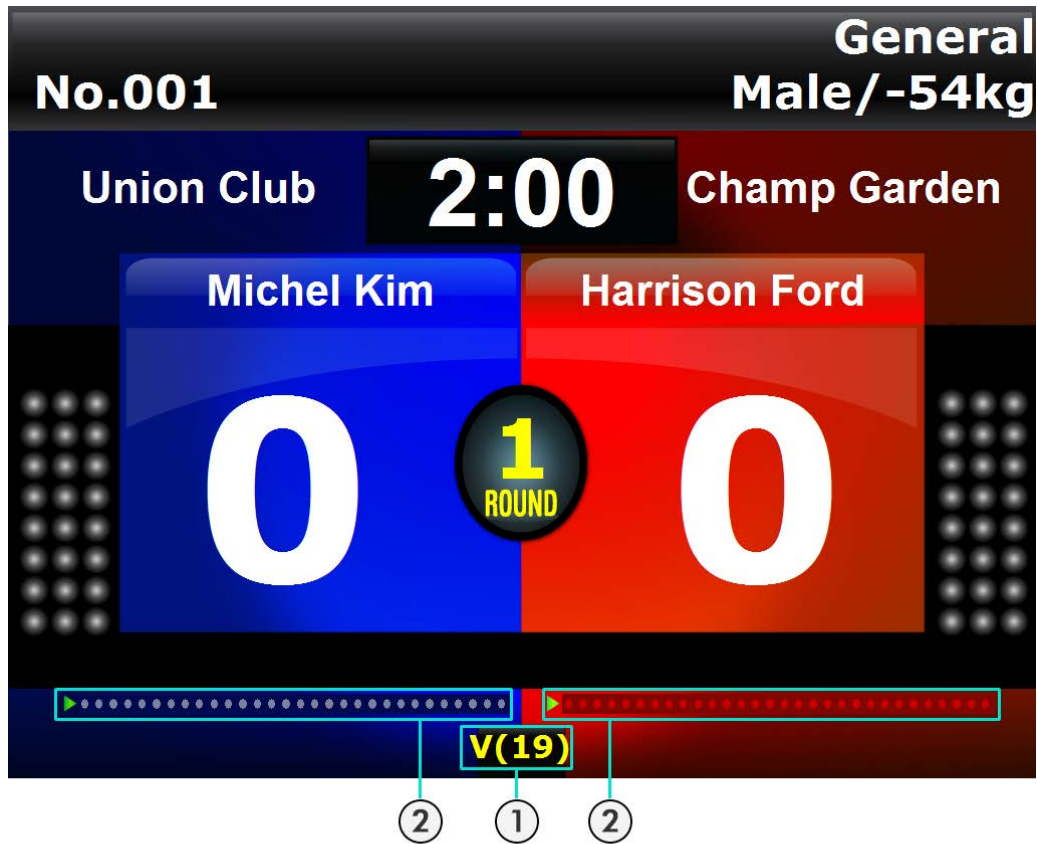
4-1 Main Window



<Fig.4-1 Initial Main Window>

- 1) System Menu Button
- 2) Swap Screen Menu Button
- 3) Rule Setting Menu Button
- 4) Registration Menu Button
- 5) Open Control Panel Menu Button
- 6) Result View Menu Button
- 7) Power Table Menu Button

4-2 Screen at a Stadium Monitor



<Fig.4-2 Stadium Monitor Screen>

- 1) Valid Power Strength Level of Vest or Head Gear
- 2) Hit Power Strength Graphic Gauge

4-3 Main Menu

4-3-1 System Menu

There are language menu and about program menu besides general system menu like move, minimize, maximize and close window menu.

Language menu has 3 language selection submenus. iCROSS Neo supports 3 languages – English, Chinese and Korean – according to the computer system locale.

About program menu shows the operation program's information includes version number.

4-3-2 Swap Screen

This menu button reverses left half and right half display of the stadium monitor screen after asking confirmation.

4-3-3 Rule Setting

The screenshot shows the 'Rule Setting' dialog window. It contains several sections: 'Court No.' with a large green '1' and a 'Set' button; 'Equipment' with dropdowns for 'e-Head Gear', 'e-Foot Protector', and 'e-Hand Protector'; 'Referee' with radio buttons for 0, 1, 2, and 3; 'Use WTF Rule' and 'Use Vibration' checkboxes; 'Rule' section with checkboxes for 'Win by Point Ceiling' and 'Win by Point Gap', and input fields for 'Match Time', 'Rest Time', and 'Kye-Shi Time'; 'Ref. Button Point' with dropdowns for 'Top', 'Middle', and 'Bottom'; and 'Protector Point' with dropdowns for 'Head Kick', 'Body Kick', and 'Body Punch'. At the bottom are 'APPLY' and 'CANCEL' buttons. Numbered callouts 1 through 8 point to specific elements: 1 points to the Court No. display, 2 to the Equipment section, 3 to the Referee section, 4 to the Use WTF Rule checkbox, 5 to the Use Vibration checkbox, 6 to the Match Time input, 7 to the Ref. Button Point section, and 8 to the Protector Point section.

<Fig.4-3-3 Rule Setting Dialog Window of Stand Alone Mode>

- 1) Select Court No.: each court has to have own number.
- 2) Select Usage of Electronic Protectors
- 3) Set Number of Judges

4) Toggle to Use of WTF Rule

5) Toggle to Use of Vibration:

If this option is checked, referee devices would be vibrated when any player's valid impact is detected.

6) Set Details of Game

7) Set Points of Referee Box's Buttons

. Top Button : for Head Kick Points / Head Attack Technical Points

. Middle Button : for Body Punch Points / Special Purpose Additional Points

. Bottom Button : for Body Kick Points / Body Attack Technical Points

8) Set Gain Points from Protectors

4-3-4 Registration

The Registration Dialog Window is divided into several sections:

- Referee (1):** Contains buttons for Ref.1, Ref.2, Ref.3, and None.
- Go Back Round (2):** A checkbox option.
- Game Rule (3):** Includes Match Time, Rest Time, and Kye-Shi Time fields with increment/decrement buttons. A Rule Correction button is also present.
- Game List File (4):** A text input field with a file selection icon.
- Game List Table (5):** A table with columns: NO, Class, Sex, Weight, C.Name, C.From, C.Nation, H.Name, H.From, H.Nation, Last.
- Player (7):** Divided into Chung Player and Hong Player sections. Each section has fields for NO., Name, From, Nation, VEST, HEAD, and Valid Power (V, H, F).
- Match (6):** Includes Game No., Class, Sex, Weight, Last, and Nation Selection dropdowns.
- Buttons:** CLOSE, ADD GAME, and CORRECTION.

<Fig. 4-3-4-a Registration Dialog Window>

After setting rule of game, the registration main menu button is activated.

1) Register Referee Devices

Register referee devices by pressing device's reg. button & clicking reg. button.

2) Go Back Round Option

Go back to an elapsed game time of any certain round.

3) Correct Rule of Game

4) Get an external Game List File

You can get an external game list file and add the content games to the database.

5) List of Games Registered

6) Register Game and Players

7) Equip Protectors and Choose a Game & Player's Protectors

After Registering Referee's Devices, an EQUIP button will be activated.

Registration

Referee

Ref.1 Ref.2 Ref.3

OK OK OK

Go Back Round

Time 2:00 Round 1 Apply

Game Rule

Match Time 2:00 Rest Time 1:00 Kye-Shi Time 0:30

Rule Correction

Game List File

NO	Class	Sex	Weight	C.Name	C.From	C.Nation	H.Name	H.From	H.Nation	Last
----	-------	-----	--------	--------	--------	----------	--------	--------	----------	------

Player

Chung Player Hong Player

NO. Name From Nation VEST HEAD Valid Power : V H F

EQUIP

Match

Game No. 001 Class Olympic Sex Male Weight -50kg Last None

Chung Player Hong Player

>From >Nation Selection

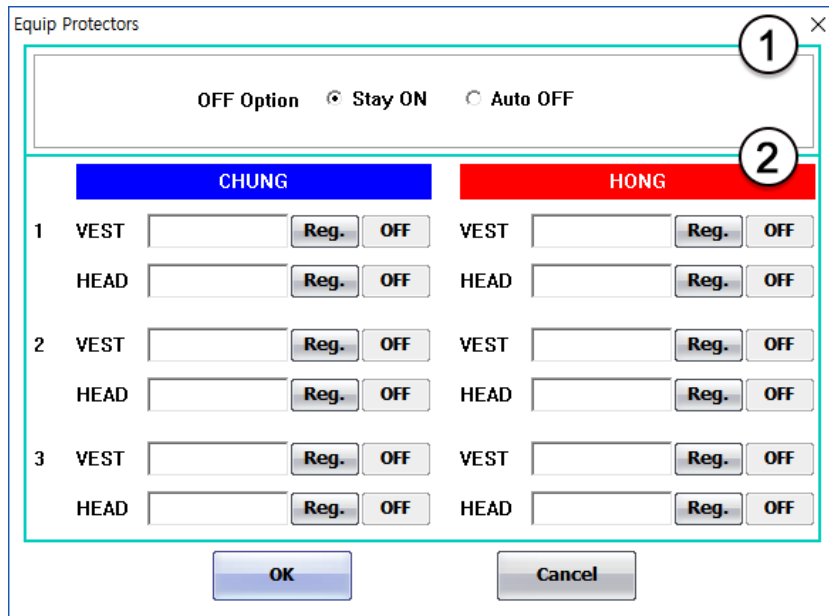
ADD GAME CORRECTION

CLOSE

<Fig. 4-3-4-b Registration Dialog Window after Registering Referee's Devices>

Clicking the EQUIP button, an Equip protectors dialog window will pop up.

4-3-5 Equipment of Protectors



The dialog window titled "Equip Protectors" contains the following elements:

- OFF Option:** A group box at the top with three radio buttons: "Stay ON" (selected), "Auto OFF", and "Auto OFF". A circled number 1 is next to this group.
- Protectors List:** A table with two columns, "CHUNG" (blue header) and "HONG" (red header). Each column has three rows of equipment (1, 2, 3) for "VEST" and "HEAD". Each entry consists of a text box, a "Reg." button, and an "OFF" button. A circled number 2 is next to the "HONG" header.
- Buttons:** "OK" and "Cancel" buttons at the bottom.

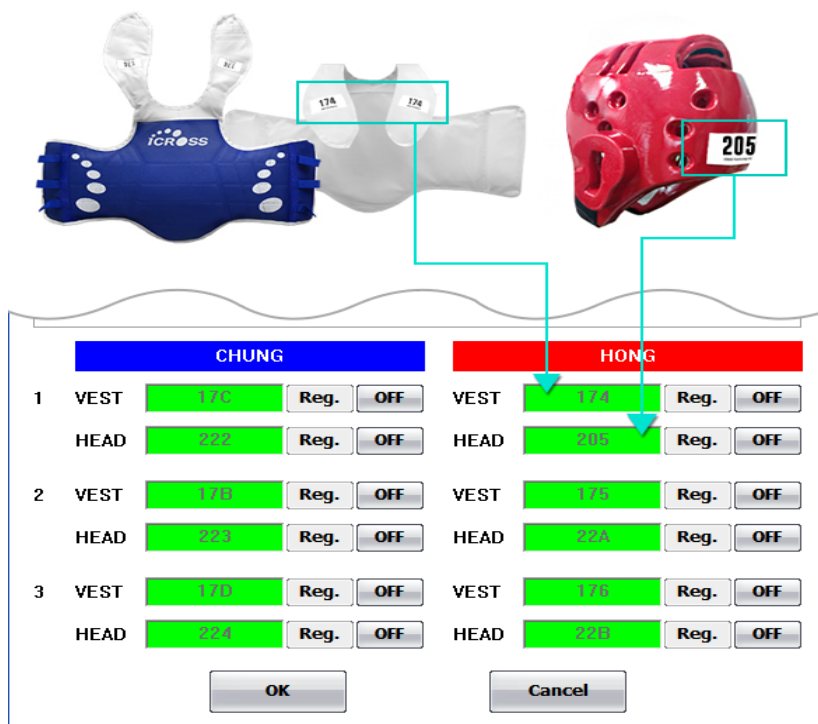
	CHUNG			HONG		
1	VEST	<input type="text"/>	Reg. OFF	VEST	<input type="text"/>	Reg. OFF
	HEAD	<input type="text"/>	Reg. OFF	HEAD	<input type="text"/>	Reg. OFF
2	VEST	<input type="text"/>	Reg. OFF	VEST	<input type="text"/>	Reg. OFF
	HEAD	<input type="text"/>	Reg. OFF	HEAD	<input type="text"/>	Reg. OFF
3	VEST	<input type="text"/>	Reg. OFF	VEST	<input type="text"/>	Reg. OFF
	HEAD	<input type="text"/>	Reg. OFF	HEAD	<input type="text"/>	Reg. OFF

<Fig. 4-3-5-a Equip Protectors Dialog Window>

1) OFF Option

Select an option of automatically turning off or stay on player equipment at the end of each game.

2) Registering Protectors



<Fig. 4-3-5-b Equip Protectors Dialog Window Registering Player's Protectors>

With a protector powered on, enter its MAC address and click reg. button.

Device MAC address is printed on each protector, on both shoulders of a body protector and on the back of a headgear.

4-3-6 Choose a Game & Player's Protectors

Registration

Referee: Ref.1 Ref.2 Ref.3 OK OK OK

Go Back Round Time: 2:00 Round: 1 Apply

Game Rule: Match Time: 2:00 Rest Time: 1:00 Kye-Shi Time: 0:30 Rule Correction

Game List File

NO	Class	Sex	Weight	C.Name	C.From	C.Nation	H.Name	H.From	H.Nation	Last
001	Olympic	Male	-58kg	Michel Kim	Union Club	Selection	Harrison ...	Champ G...	Selection	None

Player: Chung Player Hong Player

NO. 001 Name: Michel Kim From: Union Club Nation: VEST: 1: 17C HEAD: Valid Power: V 19 H 3 F 29

Match: Game No. 002 Class: Olympic Sex: Male Weight: -58kg Last: None Chung Player Hong Player

ADD GAME CORRECTION

<Fig. 4-3-4-b Registering Dialog Window Choosing Player's Protectors>

Select a game among the game list and designate the player's protectors.

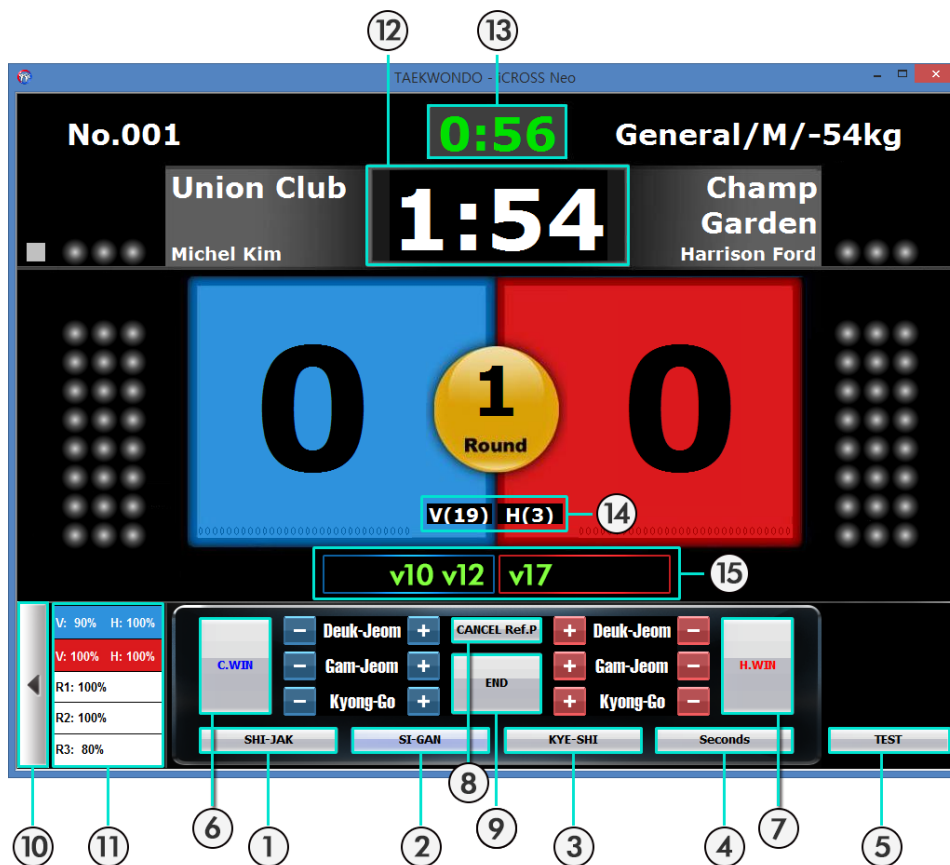
4-3-7 Control Panel Menu



<Fig.4-3-7-a Main Window: Ready to Start>

After assigning a game and registering all devices in registration menu, Control Panel menu button is enabled.

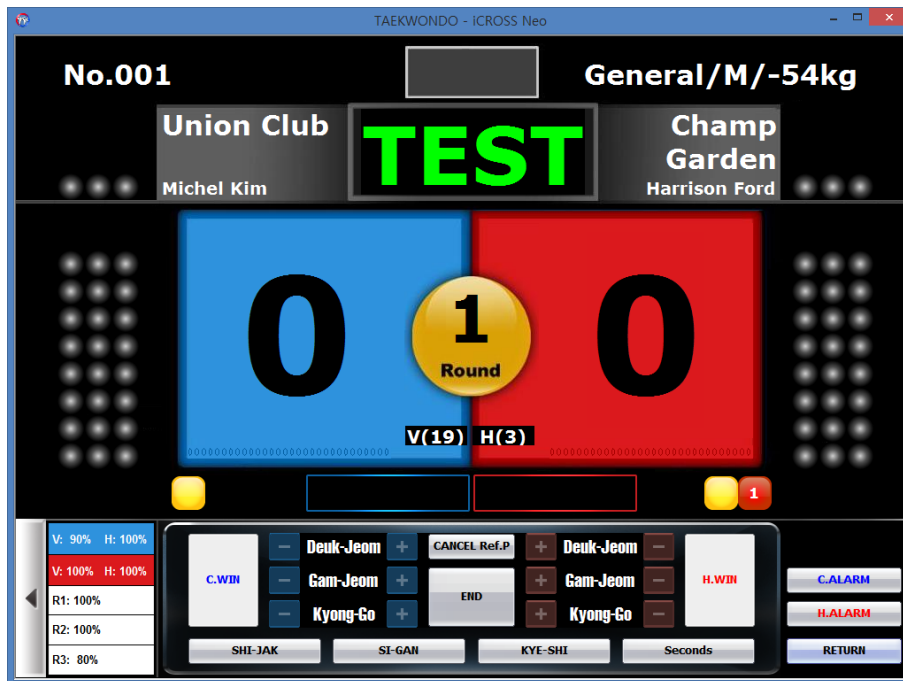
Control Panel button opens control panel for managing a game and closes it when the control panel is open.



<Fig.4-3-7-b Main Window: During Game>

- 1) SHI-JAK; start game
- 2) SI-GAN; pause time
- 3) KYE-SHI; referee time
- 4) Seconds; count 8/10 seconds
- 5) TEST; test mode for testing equipment
- 6) C.WIN; declare chung player wins
- 7) H.WIN; declare hong player wins
- 8) CABCEL Ref. P; cancel referee point
- 9) END; end a game
- 10) Close Control Panel & Back to Main
- 11) Battery Level Indication

- 12) Match Time (Remaining)
- 13) Rest Time, SI-GAN, KYE-SHI and Seconds (Remaining)
- 14) Valid Power Strength Level of Vest and Head Gear
- 15) Recent Hit Power Strength



<Fig.4-3-7-c Main Window: Test Mode>

Clicking TEST button on the control panel, test mode is open.

Because results of impact electronic protectors are displayed on the screen, you can check if player's devices work or not and can test to vibrate referee devices by clicking C.ALARM and/or H.ALARM button.

When a game ends, declare who wins.



<Fig.4-3-7-d Just Before Confirming Winner>

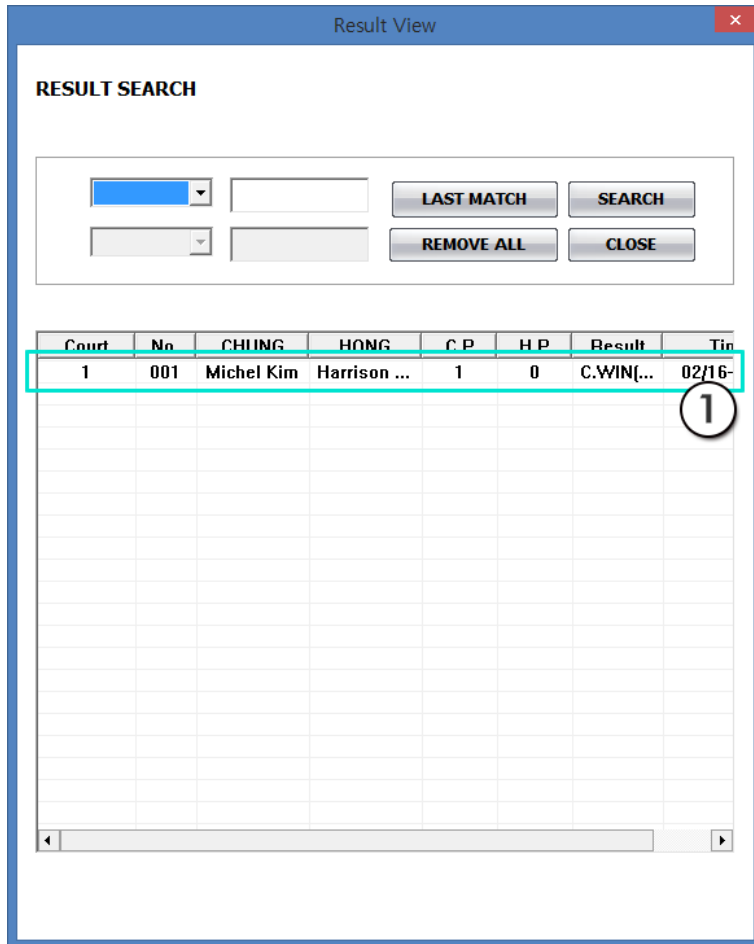


<Fig.4-3-7-e When Winner is Declared>

After a winner of a game is decided, end the game clicking END button. The game of the database is finished process and all devices of both players are off.

4-3-8 Result View

Clicking Result View button, result of last game is shown.



<Fig.4-3-8-a Result Search Dialog Window>

Search and select a game you want to see the result of.

- 1) Double clicking a game on the list, the summarized result of the game is shown.

Result of a Game

GAME RESULT

General -54kg (Male)

Game No.001

2016-02-16 13:52

C.WIN((PTF) Points win (normal))

Michel Kim

< Union Club >

1

vs

0

Harrison Ford

< Champ Garden >

0	Point of Head	0
0	Point of Vest	0
0	Point of Fist	0
0	Point	0
0	Gam-Jeom	0
1	Kyong-Go	3

e-Head Gear (O)

e-Foot Protector (O)

e-Hand Protector (X)

☐ Summary
 ☒ Include All

Close

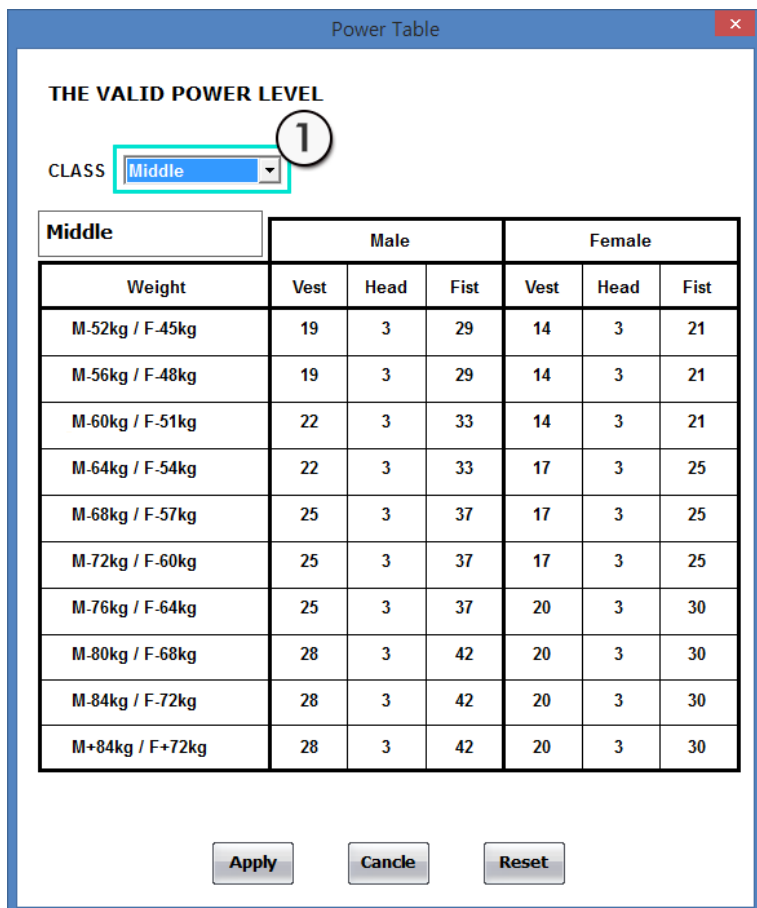
Print

<Fig.4-3-8-b Game Result Dialog Window>

You can print details of the game by pressing print button.

4-3-9 Power Table

Reference impact power strength level is dedicated according to the player's gender, class and weight by WTF and KTA. The valid power strength is stored in tables. You can adjust the value of power tables and use it in informal game.



The dialog window titled "Power Table" contains a section "THE VALID POWER LEVEL". Below this, there is a "CLASS" dropdown menu currently set to "Middle", which is highlighted by a red circle with the number "1". Below the dropdown is a table with the following structure:

Middle	Male			Female		
	Vest	Head	Fist	Vest	Head	Fist
M-52kg / F-45kg	19	3	29	14	3	21
M-56kg / F-48kg	19	3	29	14	3	21
M-60kg / F-51kg	22	3	33	14	3	21
M-64kg / F-54kg	22	3	33	17	3	25
M-68kg / F-57kg	25	3	37	17	3	25
M-72kg / F-60kg	25	3	37	17	3	25
M-76kg / F-64kg	25	3	37	20	3	30
M-80kg / F-68kg	28	3	42	20	3	30
M-84kg / F-72kg	28	3	42	20	3	30
M+84kg / F+72kg	28	3	42	20	3	30

At the bottom of the dialog, there are three buttons: "Apply", "Cancel", and "Reset".

<Fig.4-3-9 Power Table Dialog Window>

1) Selecting a class you want to edit, you can adjust the power level directly.

Valid Power Strength Level Tables according to the class, gender and weight

(Power levels are initial recommended values and are adjustable for characteristic of a game.)

Olympic	Male			Female		
Weight	Vest	Head	Fist	Vest	Head	Fist
M-58kg / F-49kg	19	3	29	17	3	25
M-68kg / F-57kg	22	3	33	17	3	25
M-80kg / F-67kg	25	3	37	20	3	30
M+80kg / F+67kg	28	3	42	20	3	30

World Junior	Male			Female		
Weight	Vest	Head	Fist	Vest	Head	Fist
M-45kg / F-42kg	22	3	29	17	3	21
M-48kg / F-44kg	22	3	29	17	3	21
M-51kg / F-46kg	25	3	33	17	3	21
M-55kg / F-49kg	25	3	33	20	3	25
M-59kg / F-52kg	28	3	37	20	3	25
M-63kg / F-55kg	28	3	37	20	3	25
M-68kg / F-59kg	31	3	42	31	3	30
M-73kg / F-63kg	31	3	42	31	3	30
M-78kg / F-68kg	31	3	42	31	3	30
M+78kg / F+68kg	31	3	42	31	3	30

General	Male			Female		
Weight	Vest	Head	Fist	Vest	Head	Fist
M-54kg / F-46kg	22	3	29	17	3	21
M-58kg / F-49kg	22	3	29	17	3	21
M-63kg / F-53kg	25	3	33	17	3	21
M-68kg / F-57kg	25	3	33	20	3	25
M-74kg / F-62kg	28	3	37	20	3	25
M-80kg / F-67kg	28	3	37	20	3	25
M-87kg / F-73kg	31	3	42	23	3	30
M+87kg / F+73kg	31	3	42	23	3	30

Middle	Male			Female		
Weight	Vest	Head	Fist	Vest	Head	Fist
M-52kg / F-45kg	22	3	29	17	3	21
M-56kg / F-46kg	22	3	29	17	3	21
M-60kg / F-51kg	25	3	33	17	3	21
M-64kg / F-54kg	25	3	33	20	3	25
M-68kg / F-57kg	28	3	37	20	3	25
M-72kg / F-60kg	28	3	37	20	3	25
M-76kg / F-64kg	28	3	37	23	3	30
M-80kg / F-68kg	31	3	42	23	3	30
M-84kg / F-72kg	31	3	42	23	3	30
M+84kg / F+72kg	31	3	42	23	3	30

Elementary	Male			Female		
Weight	Vest	Head	Fist	Vest	Head	Fist
M-41kg / F-40kg	17	3	21	17	3	21
M-45kg / F-43kg	17	3	21	17	3	21
M-49kg / F-46kg	17	3	21	17	3	21
M-53kg / F-49kg	20	3	25	20	3	25
M-57kg / F-52kg	20	3	25	20	3	25
M-61kg / F-55kg	20	3	25	20	3	25
M-65kg / F-58kg	20	3	25	20	3	25
M-69kg / F-62kg	23	3	30	23	3	30
M-73kg / F-66kg	23	3	30	23	3	30
M-77kg / F-70kg	23	3	30	23	3	30
M+77kg / F+70kg	23	3	30	23	3	30

Child	Male / Female		
Weight	Vest	Head	Fist
-33kg	10	3	13
-35kg	10	3	13
-37kg	10	3	13
-39kg	10	3	13
-41kg	10	3	13
-44kg	10	3	13
-47kg	10	3	13
-50kg	10	3	13
-53kg	10	3	13
-56kg	10	3	13
+56kg	10	3	13

Cadet	Male			Female		
Weight	Vest	Head	Fist	Vest	Head	Fist
M-33kg / F-29kg	17	3	21	17	3	21
M-37kg / F-33kg	17	3	21	17	3	21
M-41kg / F-37kg	17	3	21	17	3	21
M-45kg / F-41kg	20	3	25	20	3	25
M-49kg / F-44kg	20	3	25	20	3	25
M-53kg / F-47kg	20	3	25	20	3	25
M-57kg / F-51kg	20	3	30	20	3	25
M-61kg / F-55kg	23	3	30	23	3	30
M-65kg / F-59kg	23	3	30	23	3	30
M+65kg / F+59kg	23	3	30	23	3	30

Mini Cadet	Male			Female		
Weight	Vest	Head	Fist	Vest	Head	Fist
M-29kg / F-29kg	10	3	15	10	3	15
M-36kg / F-36kg	10	3	15	10	3	15
M-40kg / F-40kg	11	3	16	10	3	15
M-46kg / F-46kg	12	3	18	11	3	16
M-52kg / F-52kg	13	3	19	12	3	18
M+52kg / F+52kg	13	3	19	12	3	18

4.4 How to Make a Game List File

A game list file of Microsoft excel form should be made with metadata predefined in iCROSS Neo program. Necessary metadata is located at the top of a game list file, defines each column of the file as what it is like bellow table.

SN	MetaData	Meaning	Remark
1	#CT-	Court Number	From 1 to 6
2	#GN-	Game Number	3 digit number
3	#CL-	Class	
4	#SX-	Sex	
5	#WT-	Weight	
6	#TT-	Titie/Remark	
7	#CN-	Chung player Name	
8	#CF-	Chung player From	
9	#NC-	Nation of Chung player	Use ISO nation code
10	#HN-	Hong player Name	
11	#HF-	Hong player From	
12	#NH	Nation of Hong player	Use ISO nation code
13	#WN-	Winner Name	
14	#WF-	Winner From	
15	#NW-	Nation of Winner	
16	#CV-	Chung player's Vest MAC address	Not user field
17	#CH-	Chung player's Head MAC address	Not user field
18	#HV-	Hong player's vest MAC address	Not user field
19	#HH-	Hong player's Head MAC address	Not user field

Notice:

Property of court number, game number and nation columns should be text.

Because a designated game list file is updated when every game ends, the game list file should not be open when it is updating.

Example of a game list file)

Local Match															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1															
2							Headline, Title or Introduction...								
3															
4	#GN-	#CL-	#SX-	#WT-	#TT-	#CN-	#CF-	#NC-	#HN-	#HF-	#NH-	#WN-	#WF-	#NW-	
5															
6	1	olympic	female	-42kg	L-256	Merry	Stadium 20C		372 Rhiza	Phil Café		400			
7	2	general	male	-50Kg	L-32	Tom	American Gym.		Brown	Body Fit					
8	3	child	male	-33Kg	Primary	Baby	Kid Country		Puppy	Pet Garden					
9	4	cadet	female	-60Kg		Kim	Gyonggido		Park	Seoul					
10	5	general	male	-50Kg	L-16		0	0	Tommy Lee						
11	6	middle	male	-55kg	Primary	G.O.D	music club		Dragon	buskers					
12	7	elementar	female	-40kg	Event	BB Prince	Kids Café		Wild Cats	Cloud Castle					
13															

<Fig.4-4 Example Contents of Game List>

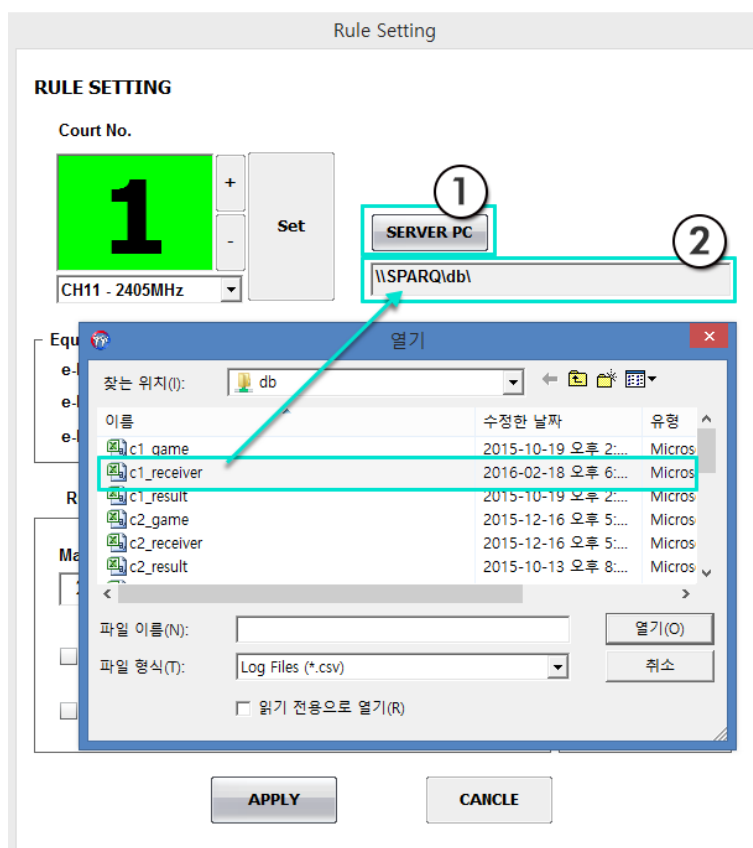
(1) Put a metadata row at the top of the game list.

(2) in case of designating a winner of game number 2 as Chung Player of game number 5

5. Operation iCROSS Neo(Network Mode)

5-1 Server Connection

In Rule Setting dialog, set a server and connect shared data files in the server for exchanging information.



<Fig.5-1 Rule Setting Dialog Window of Network Mode>

After setting court number,

- 1) Click SERVER PC button, open a file browser window.
- 2) Search a server networked and shared data file for its court number.

There are six sets of shared files under the network shared DB folder of the server.

5-2 Registration (Get a Game from a Server)

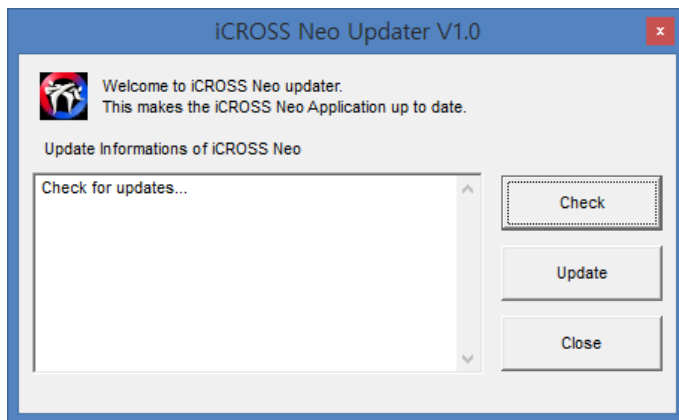
In network mode, iCROSS Neo does not make any game and not create any player's information

The server sends game information including player's information through the shared data file designated. Game information sent from the server is listed on the game list board of registration dialog window of iCROSS Neo. An operator just selects a game of them and register player's devices in the same way of stand-alone mode.

6. Update Program through the net

iCROSS Neo Updater program makes the operation program up to date through the internet.

Execute iCROSS Neo Updater program located under the same folder iCROSS Neo is installed.



<Fig.6 Window of iCROSS Neo Updater Program>

Clicking the check button when the PC is connected to the internet, update information would be displayed. If anything to update, update all by clicking update button.