COConduct Vision Software Manual

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1. Install and Run Application

The application can be installed in folder C:\ConductScience. There are subfolders

ConductVisionF\ConductVisionPy ConductVisionF\ConductVisionUI

The executable is ConductVisionUI\bin\ConductVisionUI.exe. Double click on the executable. The application appears as below:

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2. Maze Types

Click on the maze type field to view or select a maze type. You can switch to another maze without having to restart the application.

The maze types are defined in the package the user purchased. Pack1 is currently available.

- Pack1: Barnes, Light-Dark, Novel Object, OpenField, OpenField4 (Open Field Set of 4), Elevated Plus, Radial Arm, T-maze, Y-maze, U-maze (User defined maze)
- Pack2: Sociability, Phenotyping, Water Maze
- PackFish: Zebrafish
- PackFC: Fear Conditioning System
- PackAuto: Automated mazes

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	- Video Tracking	Open Field Drawing	Tracking Details	Log Log Levet None +				
Current Protocol Protocol ID: -1 Name Maze Type: LastUpdated slected Result:				OpenField				

3. Video Service Connection

To use AI based video tracking service, the user needs to start the service stream. When the service stream is established, the status field shows text Started and color becomes green. If there is a need to stop the stream because of the exception, click on the stop button and then start again.

When the application starts, it is in the stop state.

The stream uses local machine port 8030. It is usually available for users. If the port is blocked, please contact your system administrator to open the port.

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OpenField •			: 🖹 🎲 -
Experiment Protocols OpenField Protocol OpenField Protocol Protocol Params Trails 1-30: Uideo Source: Video Cam Track Part Head		Open Field Drawing Data RectV: 0 RectV:	Experiment Run rent Protocols Result Name: Sut: Progress Video Service Status Stream: #2 Status: Started Stream Uri: localhost.8030
Current Protocol Protocol Name LastUpdated: slected Result:	Open Field Drawing	Tracking Details	Log Levet None OpenField

3. Experiment Configuration

The application provides a user interface to configure and execute experiments (protocols) and view execution results.

3.1 New Experiment

To create an experiment protocol, right click on "OpenField Protocols" on the left panel. A menu item New appears as shown below:

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OpenField *				1 😫 🎯 -
Experiment Protocols	OpenField Protocol OpenField Result Behavior Measure Animal 1 Protocol Params Trials 1-30. 10.2 Trial Dur(s): 30.2 Auto Trial 1 Video Source: Video File O Camera Preview Triack Part: Preview	Load	Open Field Drawing Data RectX: 0 RectY: 0 RectX: 0 Cervas RectX: 0 Get0 360 Show Reide Pixel Length: 100 Actual Length(cm): 0 Show Grids	Experiment Run ren Protocol Result Name: Start: Video Service Satus Stream: Statu: Stream: Stream Un: Iocalhost8030 Log Levet: None -
Current Protocol	Video Tracking	Open Field Drawing NRows: 5: NCols: 5:	Tracking Details	OpenField
Protocol ID: -1 Name: Maze Type: LastUpdated: elected Result:		1		

If a different maze like LightDark is selected, the protocols will be "LightDark Protocols".

Click on New menu item, a "New Experiment" window appears as shown below. Fill in an experiment name and click on Save button.

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OpenField •		🖹 🎲 -
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	Video Tracking Open Field Drawing Tracking Details Tracki	
Current Protocol Protocol ID: -1 Name: Maze Type: LastUpdated: Hected Result		OpenField

Once the experiment is created, it appears in the folder "OpenField Protocols" as shown below:

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OpenField *				i 😫 🎲 -
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-Current Protocol Protocol ID: [0 Name: X Maze Type: OpenField LastUpdated:	Video Tracking	Open Field Drawing NRows: 5 S NCots: 5 S	← Tracking Details TriaL_ Seq Area X Y Z Time FromS ★	OpenField

An experiment can be deleted by right click on the experiment. The current active protocol is indicated in the left bottom of the screen.

3.2 Configure Parameters

To configure an experiment, double click on the experiment under the folder "OpenField Protocols".

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DpenField •			📔 🎲 -
CopenField Protocols OpenField Protocols	Load	Open Field Drawing Data RectX: 0 RectV: 0 RectW: 0 RectH: 0 Canvas Rect 0 0 640 360 Show Ruler Puel Length: 100 Actual Length(cm): 0 If Show Grids ➡	Experiment Run rent Protocol: X Result Name: X.Res Video Service Status Stream: #2 Status: Stopped Stream Uri: localhost8030 Log Level: None -
Current Protocol Protocol Protocol Name Mase Type OpenField LastIpdated	CopenField Drawing	Tracking Details	OpenField

3.2.1 Protocol Parameters

- Trials (1-30) represents number of the trials to continuously run in the session
- Trial Durs(s) represents the trial duration in seconds
- Auto Trial If selected, the next trial will automatically start after the completion of a trial. If not selected, a dialog will appear asking the user to place the animal in the starting position before starting.
- Video Source Video file to track a video file, the user needs to load a video file.
- Video Source camera this is to track rodent in real-time
- Preview in living tracking mode, the user can preview the maze; stop preview will
 produce a thumbnail that can be used for drawing the tracking areas.
- Track Part the user can choose the track part, either head or body. Some mazes only allow for head tracking.

3.3 Area drawing

There are two styles of drawing: rectangular area and polygon.

Rectangular area drawings include

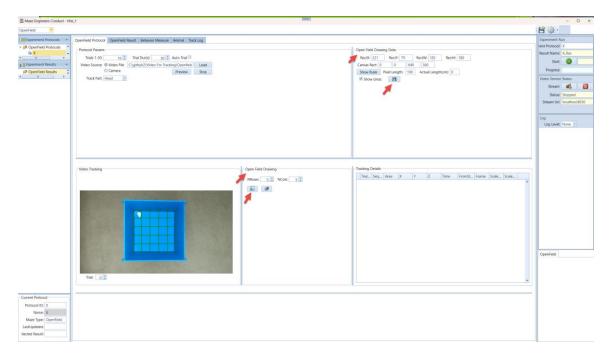
- Barnes
- Light-Dark
- Novel Object
- OpenField
- OpenField4 (Open Field Set of 4)

Polygon area drawings include

- Elevated Plus
- Radial Arm
- T-maze
- Y-maze
- User defined maze

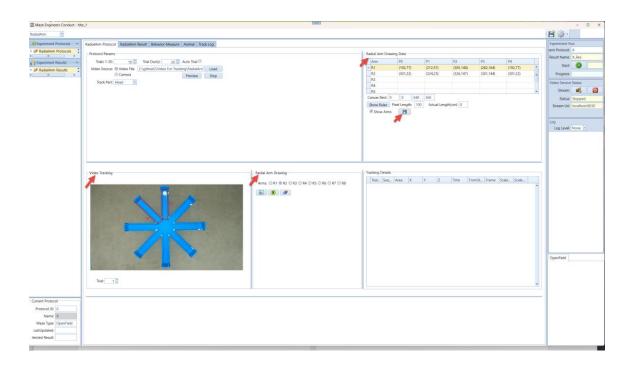
3.3.1Drawing a Rectangle

- Click Button in the Open Field Drawing group to enable the drawing mode.
- Select NRow and NCol
- On the maze, select the point on the left up corner and drag to the right bottom inside the maze
- After the drawing, click Save button on Drawing Data group.



3.3.2 Drawing a Polygon

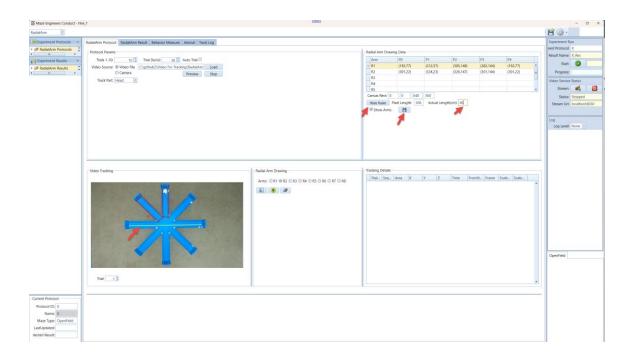
- Enable Button in Radial Arm Drawing group to enable drawing mode
- Select a radial arm
- Click four points of an arm to form a polygon
- After the drawing, click Save button on Drawing Data group.



3.4 Ruler

In software, the camera image distance is defined as pixels. We are interested in reporting the distance meters like cm. So, we need to know the pixels distance on screen maps to meter distance cm.

- Click on the Show Ruler button, and a line appears on the maze
- Draw the ends of the line to two end points of the maze
- Enter the real distance in the field.
- Click Save button the save the data



4. Experiment Run

To execute an experiment, select the protocol under "Protocols" on the left navigation panel and double click on it. Make sure the service stream is connected.

4.1 Run Experiment

Enter a name for the experiment run and click Start button. This will set system in the running state.

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When the start button is clicked, the button state becomes stop. User can click on a stop button to stop the session run.

The experiment will stop when total time reaches, or all trials are completed, or the user stops it.

In the Video Tracking group, the animal moves are tracked.

In the Tracking Details group, the track details are recorded. The data grid only should the latest trial. When a trial completes, the tracking data is saved.

4.2 Result Tables

Select the result from the left Experiment Result. The results are shown on the Result tab. There are five grids.

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Current Result Status: show the protocol name, result name, protocol run start time, complete time and run status

Replay Group: it allows user to replay the video at a user defined speed (frame per second)

Replay Details: it contains all tracking data of the session (multiple trials)

Summary Result: shows the statistics of each area including the enter count, duration and distances.

Area Group: shows area drawing information. The data are not important for the user at this point.

5. Behavior Measure

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The Behavior Measure tab provides calculations of the animal motor measurements.

It allows calculation of any number of result (multiple results), trials (multiple trials) or units (open field set of 4 has 4 units).

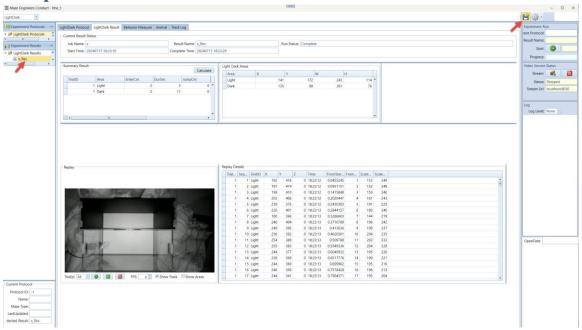
Charting provides drawing of the measurements (single trial or cross trial comparison).

6. Animal

The tab provides a place for user to enter the animal information. The animal information then is applied to the results.

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7. Export Data



- Select a result
- Click the Export button
- The out is .csv file

8. Troubleshooting

8.1 Log display

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pinter pipeline brokowie pipel	Exercisers Run Spectrums Run State State <t< th=""></t<>

- The log content can be displayed on the screen.
- The log file is in the Log folder under your deployment folder C:\ConductScience\bin\Log

8.2 Database files and user data

The database file contains the protocols and results. There is a separate folder containing database files and video data for each maze under bin.