

Description of sample project —

Rat in Open Field

for The Observer XT

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The sample project Rat in open field

The Observer XT installation USB stick contains a sample project, **Rat in open field**, where the behavior of a rat in a wall-less open field is coded from video and analyzed.

You can find this project in the folder **Documentation/Sample Projects/Animal Sample Project**. The project is stored in a backup file (*.vpb).

Other sample projects

You can download many other sample projects on the Noldus IT website.

To download a sample project

1. Browse to www.noldus.com and select MyNoldus. Log in with your username and password. If you do not yet have an account, you can create one.
2. Go to **Downloads > The Observer XT > Sample projects**.
3. Download the sample project together with the accompanying videos and the file *Description of sample projects of The Observer XT - zoology entomology neuroscience.pdf*.

Install the sample project

To install the sample project

1. On The Observer XT installation USB stick, open the folder Documentation\Sample Projects\Animal Sample Project\Project backup. Copy the file **Rat in open field.vpb** to a location on your computer.
2. On The Observer XT installation USB stick, open the folder Documentation\Sample Projects\Animal Sample Project\Video file. Copy the video file **Rat in Open Field.mpg** to the default **Video Files** folder of The Observer XT on your computer:

C:\Users\Public\Public Documents\Noldus\The Observer XT\Video Files.
3. In The Observer XT, choose **File > Restore Backup**.
4. Browse to the backup file. Optionally click **Browse** and select another experiment location. By default the project is saved on:

C:\Users\Public\Public Documents\Noldus\The Observer XT\Projects
5. Click **Open**. The project opens on your screen.

Explore Rat in open field XT

SETUP

Choose **Setup** > (choose one of the options below).

Coding Scheme

One mutually exclusive behavior group with 14 behaviors. The behavior *Groom* has a modifier group *Body part* with modifiers *Head* and *Body*. The behavior *Sniff* has a modifier group *Object* with modifiers *Substrate* and *Air*.

Independent variables

The values of the independent variables are hypothetical. This sample project serves as an example of how to analyze observational data files by treatment, dosage, etc. The project contains the following independent variables:

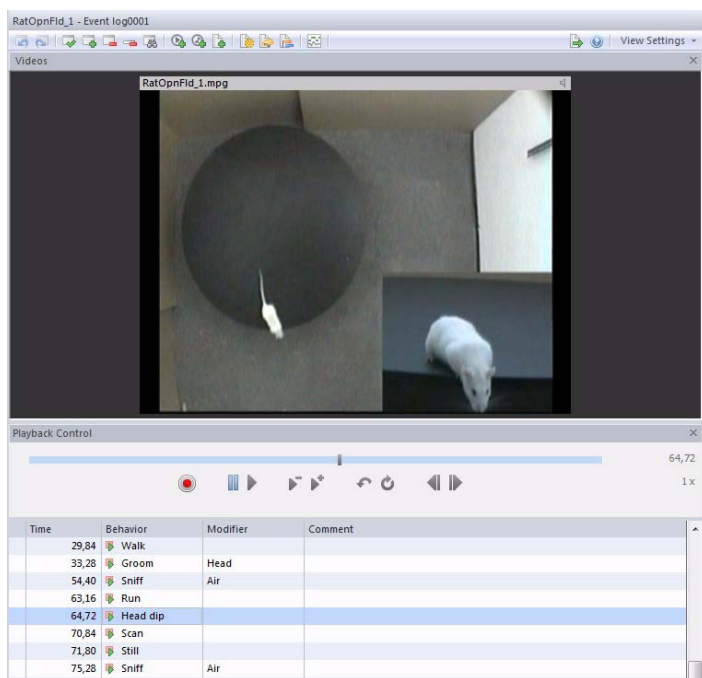
- Rat ID.
- Sex of the rat: *Female* or *Male*.
- Age (in weeks).
- Treatment: *Control* or *Treated*.
- Drug: name of the drug.
- Dose: dose of the drug.
- Observer: Initials of the person who did the observations.
- Time of day: *Morning* or *Afternoon*.
- Group ID.

OBSERVE

Choose **Observe** > **Observation** > **Open**. Choose one of the following:

- Rat in Open Field_1. Original observation of the video Rat in open field.mpg.
- Rat in Open Field_1_edited. This is used for comparison with the original observation in a reliability analysis.

This sample project shows a rat in a circular, wall-less open field arena. An overhead camera shows spatial displacement, while a close-up camera allows scoring of the details of sniffing, grooming, etc. Both signals have been mixed into a single video file.



If the video file is not found

If, after opening an observation, The Observer XT cannot find the corresponding video file, a window appears on top. Browse to the video file, and click **Open**.

To change the default Video Files folder, choose **File > Preferences > File locations**.

ANALYZE

Data profiles

Choose **Analyze > Select Data > Open Data Profile**. Choose one of the data profiles listed below and click **OK**.

- **Default data profile** – The default data profile with all data.
- **Locomotion behaviors merged** – In this data profile the behaviors *Walk*, *Run*, *Rear*, and *Jump* are merged in a *Locomotion* group. The other behaviors are analyzed separately.
- **Head dips** – This data profile defines intervals based on the behavior Head dips. You can use this profile to visualize the time when Head dips was scored in the observation *Rat in Open Field_1*. This data profile was used to create the Episode selection *Head dips*.
- **Sniffing > 5 s** – This data profile contains a filter on observation *Rat in Open Field_1* (first Filter box) and a filter on the behavior *Sniffing* (second Filter box). A **By duration** filter (third Filter box) is added, to only analyze the events in which *Sniffing* lasted longer than 5 s. This is an example of how you can refine your data selection by taking only events whose duration is significant for your study.

Episode selection

Choose **Analyze > Episode Selection > Open**.

The episode selection **Head dips** opens. This is based on the data profile with the same name. Play the episode selection to view all video fragments in which head dips took place.

Analysis results

The project contains archived analysis results. To open these analysis results, choose **Analyze > [analysis type] > Open Archive**, and open an *.arx file.

- **Behavior analysis result *Locomotion behaviors merged*.** This result is based on the data profile with the same name (see above). It shows statistics of duration (mean duration of instances, and total duration) and frequency (total number of occurrences and rate per minute) of the behaviors scored. Locomotory behaviors that have been scored (*Walk* and *Run*) being merged in one result row for clarity.
- **Behavior analysis result *Locomotion behaviors not merged*.** This result is based on the default data profile. It shows statistics of duration (mean duration of instances, and total duration) and frequency (total number of occurrences and rate per minute) of the behaviors scored. Note that locomotory behaviors scored in the observation *Walk* and *Run* are shown in separate rows.
- **Sniffing longer than 5 s.** This is based on the data profile with the same name. It shows the same statistics as above, but only for *Sniff*, and only for the events that lasted longer than 5 s.
- **Lag sequential analysis result.** This result show how many times the behavior listed on the first column is followed by the behaviors indicated in the other columns. For example, *Head dip* is followed by *Sniff* four times. This result is based on the default data profile.
- **Reliability analysis result.** This quantifies how similar the two observations are. Click **Comparison List** to see where the mismatches in the scores occur.

Note

The spatial displacement and behaviors like grooming and rearing can also be tracked automatically with **EthoVision XT**, which is able to acquire data from digital media files or from a live camera image.

