

Quick Start Guide _____

UltraVox™ XT

Version 4.0

Noldus
Information Technology

Information in this document is subject to change without notice and does not represent a commitment on the part of Noldus Information Technology BV. The software described in this document is furnished under a license agreement. The software may be used or copied only in accordance with the terms of the agreement.

Copyright © 2025 Noldus Information Technology BV. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any other language in whole or in part, in any form or by any means, without the written permission of Noldus Information Technology BV.

UltraVox is a trademark of Noldus Information Technology BV.

For version 4.0

Noldus Information Technology BV

International headquarters

Wageningen, The Netherlands

Phone: +31-317-473300

E-mail: contact@noldus.com

For addresses of our other offices and support,
please see our web site www.noldus.com.

Install UltraVox XT

Download the installation files

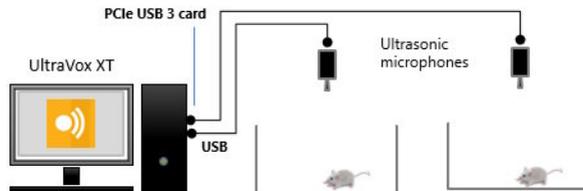
1. Browse to <https://my.noldus.com>.
2. Log in or register using the registration code on your welcome letter.
3. Click **Downloads**, then **UltraVox XT**. Under **Versions**, download the **UltraVox XT 4 - Installation Package [version number]** zip file.
4. Unzip the file and save the content to your PC.

Install UltraVox XT

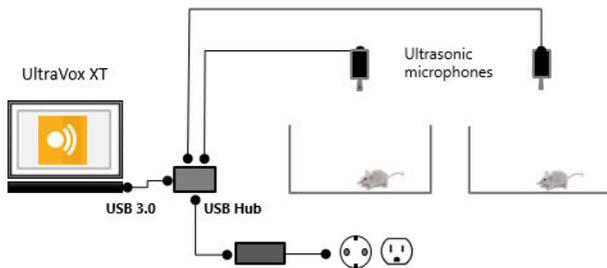
1. Double-click the file with extension **exe**.
2. Under **Installation type**, select **Standard**.
3. Select **I agree with the End-User License Agreement** and click **Install**.
4. Click **Close** to complete installation.

Connect the microphones

Please use the Noldus full-sound spectrum microphone to record ultrasound vocalizations. Connect the microphones to the PC using the USB cables that come with the microphone.



When using a laptop computer, please use a powered USB hub.



We recommend to place the subjects in sound-attenuating cubicles.

For information on the microphone position and tips on how to record ultrasound, see **UltraVox XT microphones** in the UltraVox XT Help.

Activate your license

You need to have a license activation code to be able to run the full version of UltraVox XT.

1. To start UltraVox XT, in the Apps screen, under Noldus, double-click the UltraVox XT icon.



2. Click Import License File. Select the UltraVox XT 4 license file (*.json) that you received from Noldus.
3. A message informs you that the license has been activated. You can start using UltraVox XT.

Notes

- Click Evaluate UltraVox XT to open the free evaluation version. With a free evaluation version, you can only work with the sample experiment that is stored on C:\Users\Public\Documents\Noldus\UltraVox XT\Experiments.
- If you do not have a license yet, click Request a License and fill the form to get a quotation. You'll be contacted by a Noldus representative.

Your first UltraVox XT experiment

1. Make sure that the microphones are connected (see page 3).
2. Start UltraVox XT.



3. Under **New experiment**, click **New**, or choose **File > New**.
4. In the **New experiment** window, enter the name for your experiment and click OK.
5. The **Experiment Settings** page opens.
6. To add a microphone, click **<Select>** in the first row and choose the microphone (e.g. Pettersson M500-384-1). Repeat this step to add more microphones.

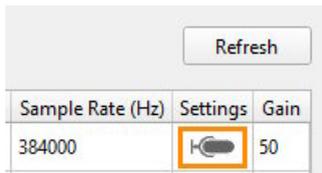
Notes

- The new experiment is saved in a folder with the same name as the experiment. This folder is by default located in
C:\Users\Public\Documents\Noldus\UltraVox XT\Experiments
- If you want to change the default experiment locations for your next experiments, choose **File > Settings** and select the new location under **Experiment location**.

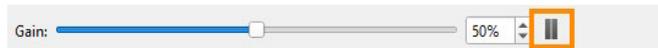
Prepare data acquisition

MICROPHONE SETTINGS

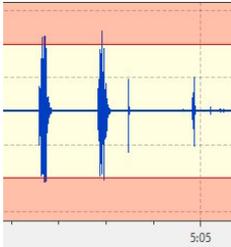
1. Make sure that the microphones you want to use are connected. If you work with a laptop, ensure that the microphones are powered through the USB hub (see page 3).
2. Position the microphones at 20-30 cm from the sound source. For tips about how to elicit vocalizations in rodents, see the UltraVox XT Help.
3. For each microphone in the Experiment Settings (see page 6):
 - Click the **Settings** button.



- In the Microphone Settings window, click the **Start monitoring** button.



- Wait that the animals produce vocalizations. Check the waveform plot and the spectrogram.
- Adjust the **Gain** until the waveforms of the vocalizations are well visible, but only rarely enter the upper and lower areas highlighted in red. This prevents that the signal is clipped during the actual tests, resulting in distortion of acoustic frequencies.
- Try to keep the gain as low as possible. Remember that gain also increases the amplitude of the background noise picked by the microphone, not only the amplitude of the actual signal.



CONTROL THE START/STOP OF DATA ACQUISITION

You can start and stop acquisition manually, or automatically using an external triggering software.

1. Choose **Setup > Trial Control Settings**.



2. Choose one of the options available under **Start acquisition** and **Stop acquisition**.

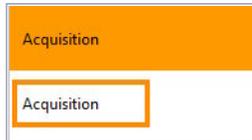
Note

Choose **External program trigger** to start and stop acquisition from another program, like *EthoVision XT*, or *The Observer XT*. For details, see **Control UltraVox XT from other software** in the *UltraVox XT Help*.

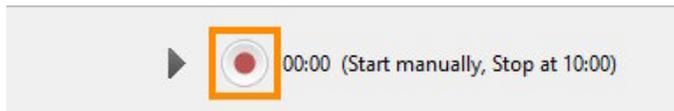
Acquire data

To record sound

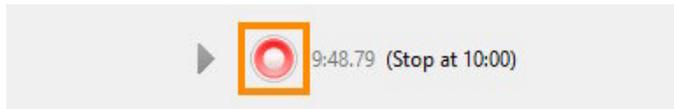
1. Choose **Acquisition** > **Open Acquisition**.



2. Release the animals in their test environments.
3. To start recording manually, click the **Start recording** button when ready.



4. To stop recording manually, click the **Stop recording** button.



See also page 8 for how to start/stop recording automatically.

Notes

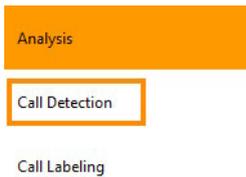
- You can also import audio files in UltraVox XT, provided that it is stored in a WAV file, 16 bit mono.
- For more information, see **Record sound** in the UltraVox XT Help.
- Choose **Acquisition** > **Recording List** for an overview of your recordings.

Detect the calls

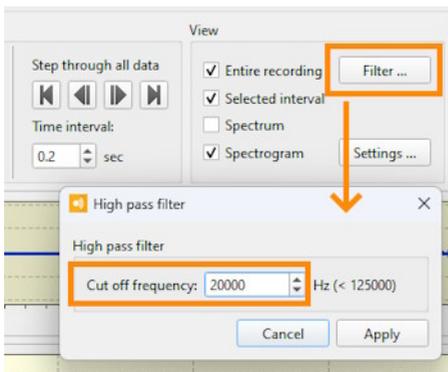
DETECT THE CALLS

In the Call Detection screen, specify the parameters that define the basic unit of vocalization (call).

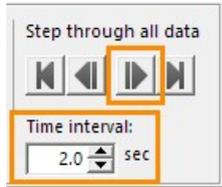
1. Choose **Analysis** > **Call Detection**.



2. In the window that appears, select a recording.
3. **TIP** Under **View**, click **Filter** and apply a high-pass filter to remove low-frequency noise.

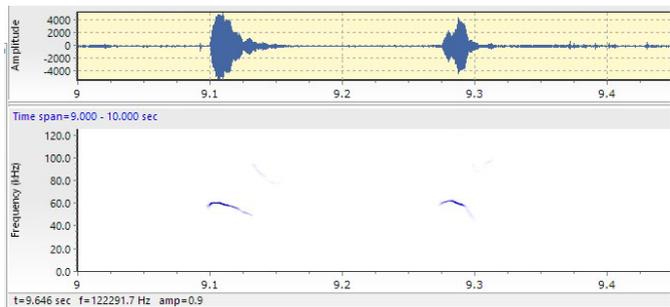


4. Under **Step through all data**, click the buttons to visualize part of the recording and locate vocalizations in the spectrogram.

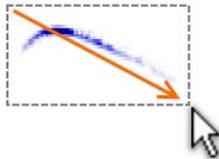


TIP Use the mouse wheel to zoom in and out the timeline in the spectrogram.

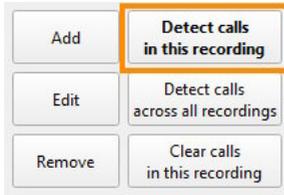
5. Locate the spectrogram of a representative vocalization.



6. Draw a rectangle around the spectrogram, as indicated in the figure below.



7. Click **OK** in the window that opens, or first adjust the values of the detection parameters, and click **OK**.
8. Click **Detect calls in this recording** to let UltraVox XT detect the calls.



9. Click **Edit** and fine-tune the frequency, amplitude and temporal parameters of the call definition to detect more calls of that type. When ready, click **Detect calls in this recording** to apply the new parameter values.

Notes

- Click **Edit** and then **Save** to save a call definition as a template, which you can copy to another experiment.
- You can also add calls that were not detected by UltraVox XT, or delete unwanted detected calls. See **Call labeling** in the UltraVox XT Help.
- For tips on how to detect more calls, see **Call detection** in the UltraVox XT Help.
- When you are confident that a call definition detects most of the calls, click **Detect calls across all recordings**.

Label the detected calls

In the Call Labeling screen, categorize the detected calls based on their pattern or any other criterion you are interested in. For example, “Flat”, “Chevron”, “Distress” or “Social”.

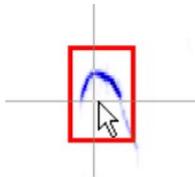
1. Choose **Analysis > Call Labeling**.



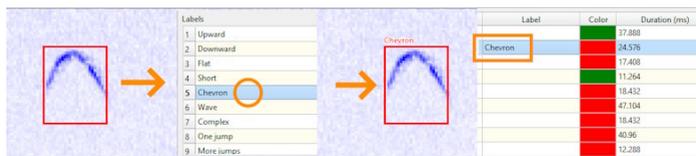
Call Detection



2. Select a recording from the list at the top.
3. Click one of the calls in the spectrogram or in the Detected calls list.



4. To label that call, double-click the label you require in the Labels list.



Notes

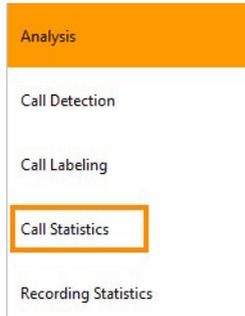
- To label multiple calls, or reassign labels, see **Labeling calls** in the UltraVox XT Help.

- To add a new label to the list, right-click a label in the Pattern labels list and select **Add label**.
- To remove a label, double-click the label in the Label column for that call and press **Delete**.

Call statistics

In the **Call Statistics** screen you can view and export statistics of individual calls.

1. Choose **Analysis > Call Statistics**.



2. Choose a recording from the **Recording** list to view the list of calls and their statistics.

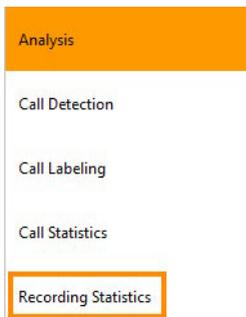
Call Name	Label	Duration (ms)	Start Time (s)	Stop Time (s)
84-99k	Downward	37.888	2.13197	2.16996
50-65k	Chevron	24.576	2.30195	2.32653
50-65k	Chevron	17.408	3.85434	3.87174
84-99k	Upward	11.264	6.68774	6.69901
50-65k	Downward	18.432	7.35642	7.37485
50-65k	Wave	47.104	7.5561	7.6032
50-65k	Chevron	18.432	8.07731	8.09574
50-65k	Chevron	40.96	8.25446	8.29542
50-65k	Chevron	12.288	8.92314	8.93542

Recording statistics

In the Recording statistics screen you can view and export per-recording statistics, for example the number of calls and the average dominant frequency.

You can group the calls according to their name, pattern label, or a combination name*pattern label.

1. Click **Recording Statistics**.



2. Under **Call grouping**, choose how to group results. Under **Statistics**, select the statistics that you want to calculate.

The image shows a configuration screen with two main sections: 'Call grouping' and 'Statistics'.
Under 'Call grouping', there are four radio button options: 'Name and label', 'Name only' (which is selected), 'Label only', and 'All calls'.
Under 'Statistics', there are six checkboxes: 'Count' (checked), 'Min duration' (unchecked), 'Mean dominant frequency' (unchecked), 'Mean duration' (checked), 'Max duration' (unchecked), and 'SDEV duration' (checked). 'Sum duration' is also present but unchecked.

3. Select the recordings that you want to include in the table.

	50-65k			84-99k		
	Count	Mean dur	SD dur	Count	Mean dur	SD dur
Imported 250412 2014-09-29 10:25:07 1:00.031 Data set with detected calls	82	0.028847	0.014716	50	0.0254363	0.0107853

For more information

UltraVox XT Help

For more details, in UltraVox XT, choose **Help** > **Help Topics** to open the Help.

Sample experiment

You can then open the experiment in UltraVox XT (**File** > **Open**).

The experiment contains two copies of the same recording. In the first copy, a number of calls have been detected. Open the second recording and define the calls, then let UltraVox XT search for calls.

The sample experiment is stored in:

C:\Users\Public\Documents\Noldus\UltraVox XT\Experiments).

Noldus Support

If you encounter problems, see my.noldus.com to search the support knowledgebase or contact Noldus Support.

For other contact information, browse to www.noldus.com and choose **About Noldus** then **Contact**.