MaxforLive and the Live API

Build Max for Live devices using Ableton Live's API

Course Overview

Session 1: The Live Object Model Pt.1

Intro to the Live Object Model and Max objects

Session 2: The Live Object Model Pt.2

Max Objects (continued), building parameter control devices

Session 3: Creating a Max for Live device with the Live API

Practical examples of API use

Session 4: JavaScript

The LiveAPI Object in JS, summary of course

Session 1

The Live Object Model Pt.1

Study Topics

- Live Objects (hierarchy, properties, functions)
- Object Paths (how to navigate to and from Live Objects)
- Root Objects (starting points for our object paths)
- Max Objects (the actual Max objects we use to work with Live Objects)

Learning Outcomes

1. Understand what is possible via M4L and the LOM

2. Identify and navigate the Live Object Model hierarchy and structure

3. Construct paths to live objects

4. Retrieve information from live objects

5. Locate and apply property changes and function calls on live objects

Session Structure

Part 1:
Intro to the Live Object Model

30 min

Part 2:
Construct paths to live objects

30 min

Part 3:
Retrieve information from live objects
30 min

Part 4:
Change values of Live Object properties
30 min

Recordings

- All delivered parts of sessions will be recorded and made available via **Thinkific** after the session.

- Please make sure you are muted during delivered parts.

- If any questions come to mind during delivery/demonstrations, please pop them in the chat and we will address them as soon as possible.

Part 1

Intro to the Live Object Model

Part 1: The Live Object Model

- What are **Live Objects**?
- What are **Root Objects**?
- Hierarchy and object paths
- Children and Parents

LOM Structure

The hierarchy of the LOM and the parent-child relationships can be thought of similar to the file structure of a computer:

> This PC > OS (C:) > Users > markt > Documents > My File.txt

In this example '**This PC**' could be our root object or starting point and '**My File.txt**' is the destination object we want to operate on. '**Documents**' would be a parent of '**My File.txt**' but a child of '**markt**'.

Part 1: Max Objects

live.path

    When provided with an object path, generates an ID number for that Live Object.

live.object

    When provided with a Live Object ID, performs operations on the associated Live Object such as get information and setting values.

live.observer

    When provided with a Live Object ID, listens to changes in the values of properties of the associated Live Object.

live.remote~

    When provided with a Live Object ID, remote controls Live Device Parameter objects in real-time without filling Live's undo history.

Demo Devices:

Max_objects.amxd

Part 2

Construct paths to Live Objects

Part 2: Construct paths to live objects

1. Use the Live Object Model to navigate to a desired Object and copy its **canonical path**
2. Construct a complete path message to use with the **live.path** object
3. Note the id generated at the output of **live.path**
4. Two id outputs from **live.path** (left and middle outlet)
5. **id 0**

Demo Devices:

Mute_api.amxd

Live_path.amxd

Part 2: Practical Workshop

In this practical section, you will find Live Objects and create paths/generate id numbers for them:

1. Open the '**Pitch Control'** Ableton Live and create a new MaxforLive Audio Effect on track 1

2. Use the Live Object Model to locate objects and copy their canonical paths

3. Construct a path message in a MaxforLive device and connect it to a **live.path** object

4. Check the id generated by **live.path**, watch out for **id 0**!

5. Repeat this process for more Live Objects. You can use the same **live.path** object and should see different id numbers being generated.

Examples:

path live_set

path live_set tracks 1

path live_set tracks 1 clip_slots 0

path live_set tracks 1 clip_slots 0 clip (make sure you have a clip available in clip slot 1 on track 2)

Demo Devices:

Mute_api.amxd

Live_path.amxd

Part 3

Retrieve information from live objects

Part 3: Retrieve information from live objects

1. Using the id generate by **live.path** use **live.object** to perform operations on a Live Object.

2. Check the Live Object Model to see what properties can be accessed (we can **get** and **set** them when using **live.object**, the LOM will identify which are available).

3. We can also use **live.observer** to watch the same property if **observe** is available as a property.

Demo Devices:

Pitch_control_v1.amxd

Part 3: Practical Workshop

In this practical section, you will use live.object and live.observer to monitor the current pitch settings of an audio clip:

1. Continue with the '**Pitch Control'** Ableton Live project from before and the same MaxforLive device you are working on.

2. Create a **live.object** and **live.observer** object

3. Send IDs to these objects that point to a clip on track 1: **path live_set tracks 0 clip_slots 0 clip**

4. Use the **pitch_coarse** property from the LOM to set up the **live.object** and **live.observer** objects

5. Monitor the output of these objects to view the property information.

Demo Devices:

Pitch_control_v1.amxd

Live_view.amxd

Part 4

Change values of Live Object properties

Part 4: Change values of Live Object properties

1. Check the Live Object Model to see if the property can be **set**

2. Use **live.object** to 'set' properties

3. Use **live.object** to 'call' functions

Demo Devices:

Pitch_control_v2.amxd

Part 4: Practical Workshop

In this practical section, you will use live.object to change the pitch settings of an audio clip:

1. Continue with the same Max for Live device as before.

2. Create a message to change the pitch_coarse property: '**set pitch_coarse $1**' this message will require a number box to trigger it.

3. You can repeat this for the **pitch_fine** property to if desired.

4. Take a look at the Pitch_control_v4 MaxforLive device. Notice how this device uses more **live.object** and **live.observer** objects to update all audio clips on the same track with the new pitch settings.

Demo Devices:

Pitch_control_v2.amxd

Pitch_control_v3.amxd

Live_Transport.amxd

20 MINS

Learning Outcomes Covered

1. Understand what is possible via M4L and the LOM

2. Identify and navigate the Live Object Model hierarchy and structure

3. Construct paths to live objects

4. Retrieve information from live objects

5. Locate and apply property changes and function calls on live objects

Links

Cycling '74 online resources:

[The Live Object Model (LOM)](#)

[Live API Overview](#)

[Max for Live](#)

[Controlling Live using Max for Live](#)