

ANEXO 7 - Pruebas de integración de la aplicación 'lesslms'.

Este apartado contiene el resultado de las pruebas de integración que engloban todo el proceso de despliegue de la plataforma 'lesslms' a partir de las instrucciones que se encuentran disponibles en el repositorio público <https://github.com/oskrs111/lesslms>.

El archivo README.md (que se muestra por defecto) dirige al usuario al repositorio de la herramienta 'lesslms-cli'

README.md

lesslms

Server-Less based LMS (Learning Management system) application on AWS platform.

Code in this repository is intended to run as **server-less** application on Amazon Web Services.

The deployment process has been automated with 'lesslms-cli'. Full instructions on how to proceed can be found here: <https://github.com/oskrs111/lesslms-cli>

Aquí se encuentra el conjunto de instrucciones para utilizar dicha herramienta:

README.md

lesslms-cli

Node.js CLI tool for serverless LMS (Learning Management System) automated deploy on AWS platform.

This cli tool provides full automated deployment for 'lesslms' server-less LMS application on Amazon Web Services. Source for deployment is automatically fetched from 'lesslms' repository at <https://github.com/oskrs111/lesslms>

Usage

- 1 - Create a developer account at: <https://portal.aws.amazon.com/billing/signup#/start>
- 2 - Create a new user (IAM) and give to it **Programatic access**, with **AdministratorAccess** Policy. Download the **credentials.csv** file (remeber to keep it save).
- 3 - Get 'lesslms-cli' from npm:

```
$ npm install lesslms-cli -g
```

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Oscar Sanz Llopis, 2019

4 - And run:

```
$ lesslms init
```

Follow the interactive menu instructions. On finish new `./serverless/` and `serverless.json` should be created on current folder.

5 - Copy `credentials.csv` file (got in step 2) inside `./serverless/`.

6 - Launch '`lesslms`' deployment:

```
$ lesslms deploy
```

It can take some minutes to complete.

7 - When done, check your email for the administrative user password, created automatically during the deployment.

8 - Navigate to `./serverless/aws/client/` folder and run client app executable.

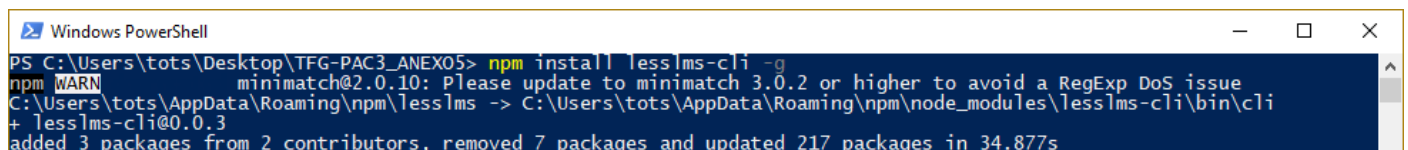
9 - When installed, run and fill login form with the provided email and received password, and get *API Gateway Uri* from `serverless.json`:

```
{
  "name": "my-lesslms",
  "email": "your@email.com",
  "region": "eu-west-1",
  "sample": false,
  "bucketName": "lesslms-000000000000",
  "bucketUri": "http://lesslms-000000000000.s3.amazonaws.com/",
  "ApiGatewayUri": "https://000000000000.execute-api.eu-west-1.amazonaws.com/less/",
  "cognitoPool": {"ClientId": "000000000000", "UserPoolId": "eu-west-1_000000000000"}
}
```

10 - After Login, you can start to build your courses.

Los puntos 1 y 2 se realizan de acuerdo con lo indicado. El resultado puede consultarse en el ANEXO_2.

Se procede con el punto 3:



```
Windows PowerShell
PS C:\Users\tots\Desktop\TFG-PAC3_ANEXO5> npm install lesslms-cli -g
npm WARN minimatch@2.0.10: Please update to minimatch 3.0.2 or higher to avoid a RegExp DoS issue
C:\Users\tots\AppData\Roaming\npm\lesslms -> C:\Users\tots\AppData\Roaming\npm\node_modules\lesslms-cli\bin\cli
+ lesslms-cli@0.0.3
added 3 packages from 2 contributors, removed 7 packages and updated 217 packages in 34.877s
```

Se procede con el punto 4:

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```

Selecció Windows PowerShell

lesslms-cli

> lesslms init...
> Check for existing C:\Users\tots\Desktop\TFG-PAC3_ANEX05\serverless folder...
> Creating C:\Users\tots\Desktop\TFG-PAC3_ANEX05\serverless folder...
> Enter a name for your lms instance: my-lesslms
> Enter a valid administrator email address: osanzl@uoc.edu
> Which is your AWS region? eu-west-1
> Is all this configuration correct? Yes
> ".serverless.json" saved to disk.

> Please copy your "credentials.csv" file into ".serverless/" folder before continue.
> Then run "lesslms deploy."

```

Se comprueba la correcta creación de la carpeta './serverless/' y el archivo './serverless.json':

Este equipo > Escritorio > TFG-PAC3_ANEX05				
Buscar en TFG-PAC3_ANEX05				
Nombre	Fecha de modifica...	Tipo	Tamaño	
serverless	18/05/2019 17:06	Carpeta de archivos		
serverless.json	18/05/2019 17:07	Archivo JSON	1 KB	

Se copia el archivo de credenciales 'credentials.csv' dentro de './serverless/' como indica el punto 5.

Se procede con el punto 6:

```

Windows PowerShell

lesslms-cli

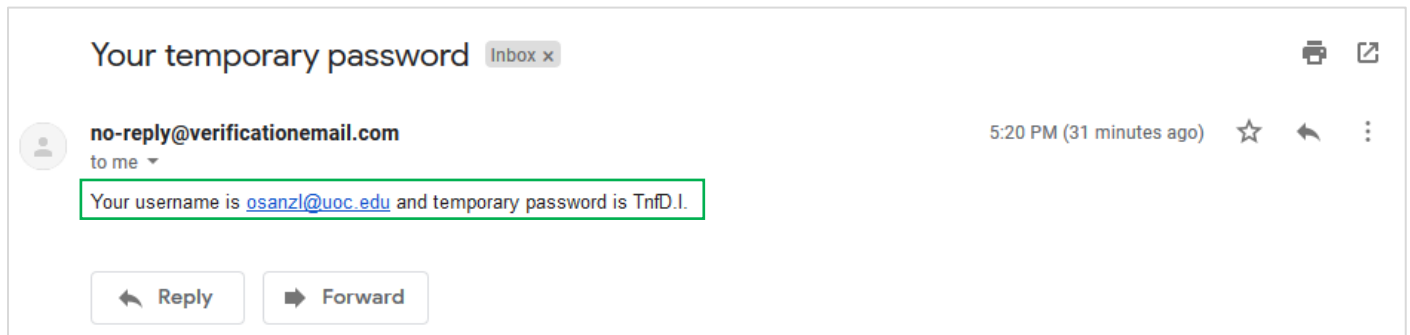
> lesslms deploy...
> Fetching last release source from: https://api.github.com/repos/oskrs111/lesslms/releases/latest
> Getting Sources from: https://github.com/oskrs111/lesslms/releases/download/v0.0.2-alpha/aws.zip
> Getting Lambdas END
> Setting up a new s3 bucket "lesslms-1558192759812"
> New bucket is located at "http://lesslms-1558192759812.s3.amazonaws.com/"
> Prepare file list for uploading...
> File added to upload queue: "C:\Users\tots\Desktop\TFG-PAC3_ANEX05\serverless\aws\client\lesslms-frontend Setup 0.0.1.exe"
> File added to upload queue: "C:\Users\tots\Desktop\TFG-PAC3_ANEX05\serverless\aws\formation\lesslms.template.json"
> File added to upload queue: "C:\Users\tots\Desktop\TFG-PAC3_ANEX05\serverless\aws\lambda\auth.zip"
> File added to upload queue: "C:\Users\tots\Desktop\TFG-PAC3_ANEX05\serverless\aws\lambda\lms.zip"
> File added to upload queue: "C:\Users\tots\Desktop\TFG-PAC3_ANEX05\serverless\aws\lambda\user.zip"
> File added to upload queue: "C:\Users\tots\Desktop\TFG-PAC3_ANEX05\serverless\aws\lambda\xapi.zip"
> File uploaded success: "lesslms-1558192759812/client/lesslms-frontend Setup 0.0.1.exe"
> File uploaded success: "lesslms-1558192759812/formation/lesslms.template.json"
> File uploaded success: "lesslms-1558192759812/lambda/auth.zip"
> File uploaded success: "lesslms-1558192759812/lambda/lms.zip"
> File uploaded success: "lesslms-1558192759812/lambda/user.zip"
> File uploaded success: "lesslms-1558192759812/lambda/xapi.zip"
> Wait for s3...
> Launching CloudFormation script...
> CloudFormation using template at: "http://lesslms-1558192759812.s3.amazonaws.com/formation/lesslms.template.json"
> CloudFormation process launched: "arn:aws:cloudformation:eu-west-1:602431222710:stack/lesslms-1558192759812/60c8add0-7980-11e9-9f48-0212c97b1f72"
> Be patient, it will take a couple of minutes...
> CloudFormation process finished with status: "CREATE_COMPLETE"
> CloudFormation process finished with output: "[
  {
    "OutputKey": "ApiGatewayUri",
    "OutputValue": "https://owtm1y7174.execute-api.eu-west-1.amazonaws.com/less/",
    "Description": "Root URL of the lesslms API gateway"
  },
  {
    "OutputKey": "cognitoPool",
    "OutputValue": "{ \"ClientId\": \"2g6912qg1dabcujjat6ipf8qes\", \"UserPoolId\": \"eu-west-1_9aczwf3E\" }",
    "Description": "Cognito Pool lesslms reference"
  }
]"
PS C:\Users\tots\Desktop\TFG-PAC3_ANEX05>

```

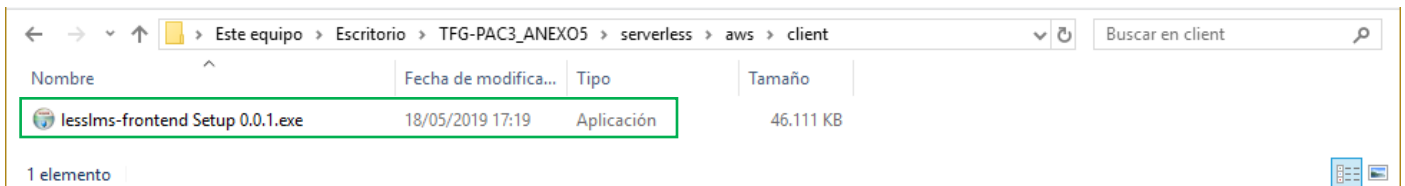
Se comprueba que el archivo './serverless.json' ha incorporado el resultado de la creación de la aplicación (líneas 7 y 8):

```
1. {
2.   "name": "my-lesslms",
3.   "email": "osanzl@uoc.edu",
4.   "region": "eu-west-1",
5.   "bucketName": "lesslms-1558192759812",
6.   "bucketUri": "http://lesslms-1558192759812.s3.amazonaws.com/",
7.   "ApiGatewayUri": "https://owtm1y7174.execute-api.eu-west-1.amazonaws.com/less/",
8.   "cognitoPool": "{ \"ClientId\": \"2g6912qg1dabcujjat6ipf8qes\", \"UserPoolId\": \"eu-west-1_9acZwfF3E\" }"
9. }
```

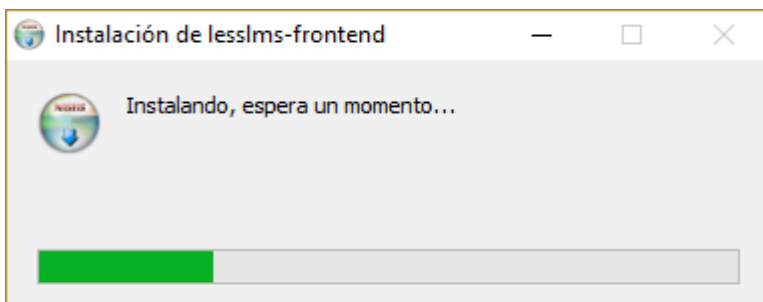
Se comprueba la recepción de la contraseña de acceso a la plataforma:



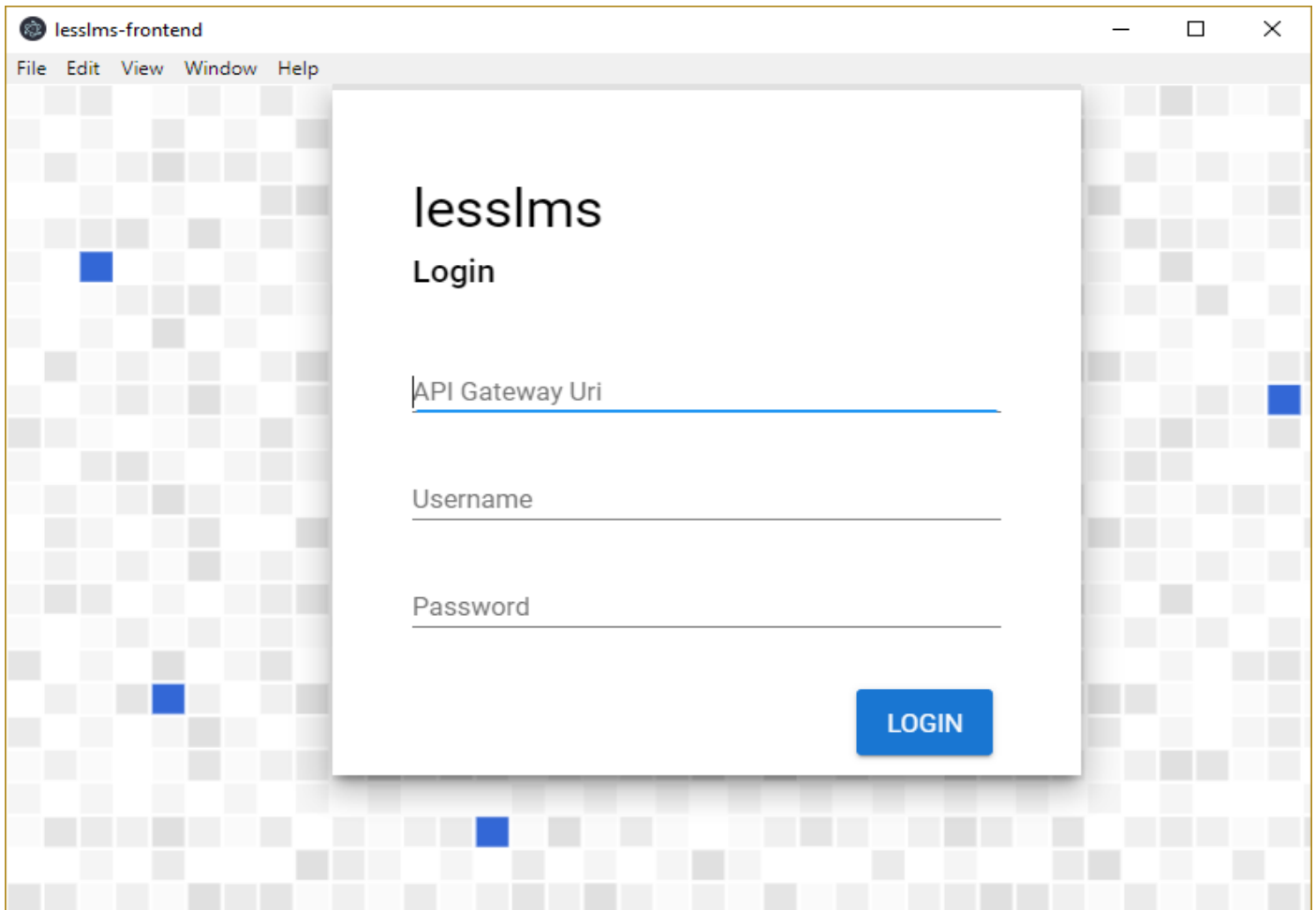
Se comprueba la presencia del instalador de la aplicación cliente dentro de './serverless/aws/client/'



Se ejecuta el instalador:



Al finalizar la instalación la aplicación se inicia de forma automática:



Configuramos el formulario de acuerdo con las instrucciones:

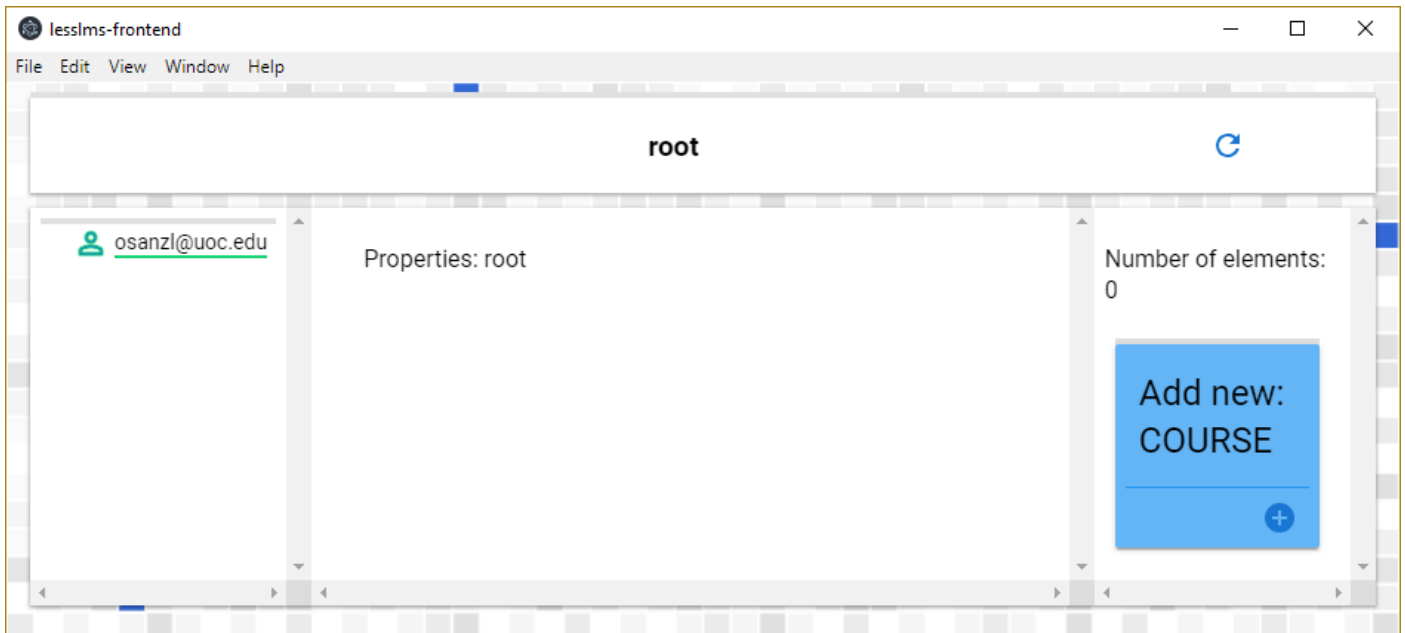
lesslms
Login

API Gateway Uri
<https://owtmly7174.execute-api.eu-west-1.amazonaws.com>

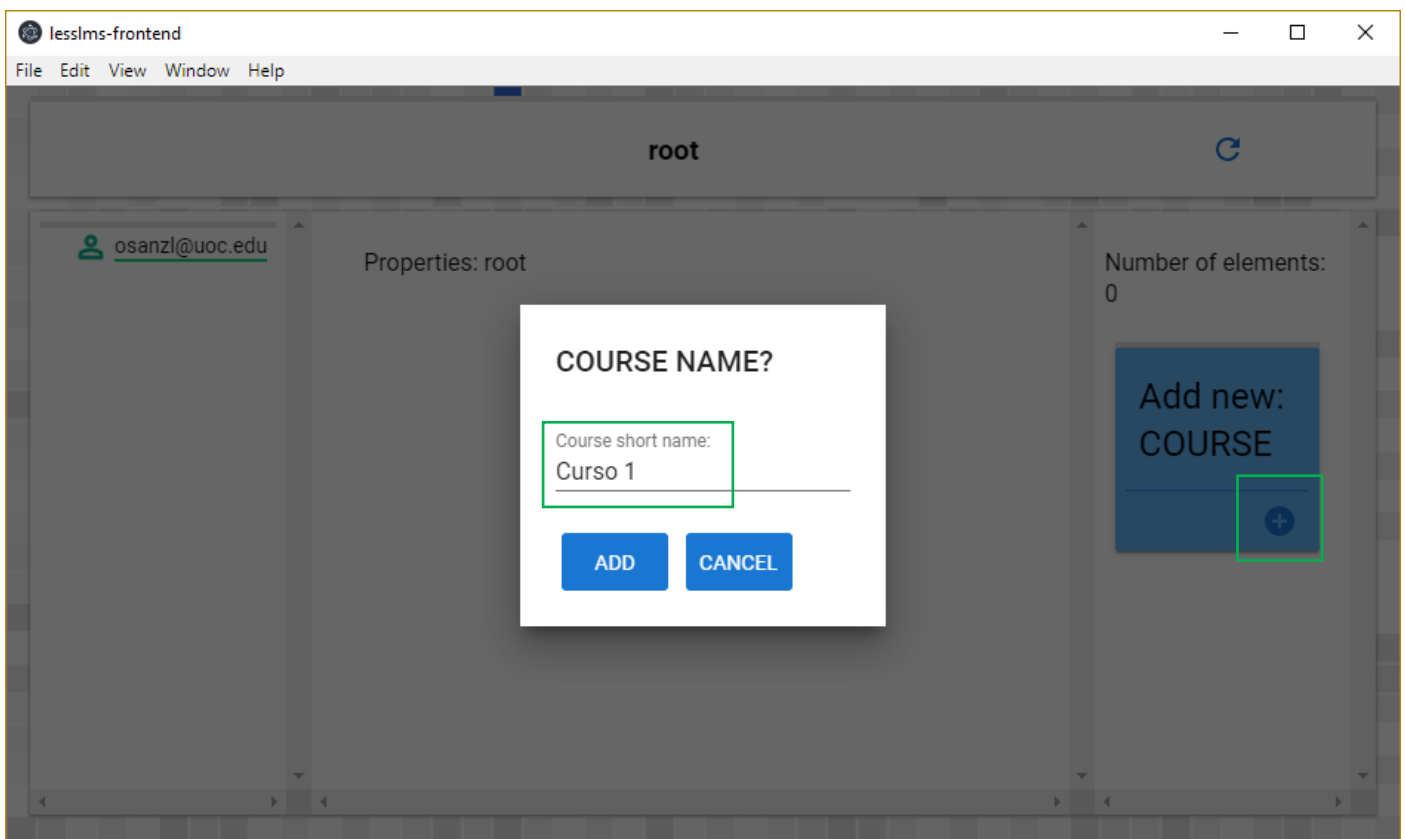
Username
osanzl@uoc.edu

Password
.....

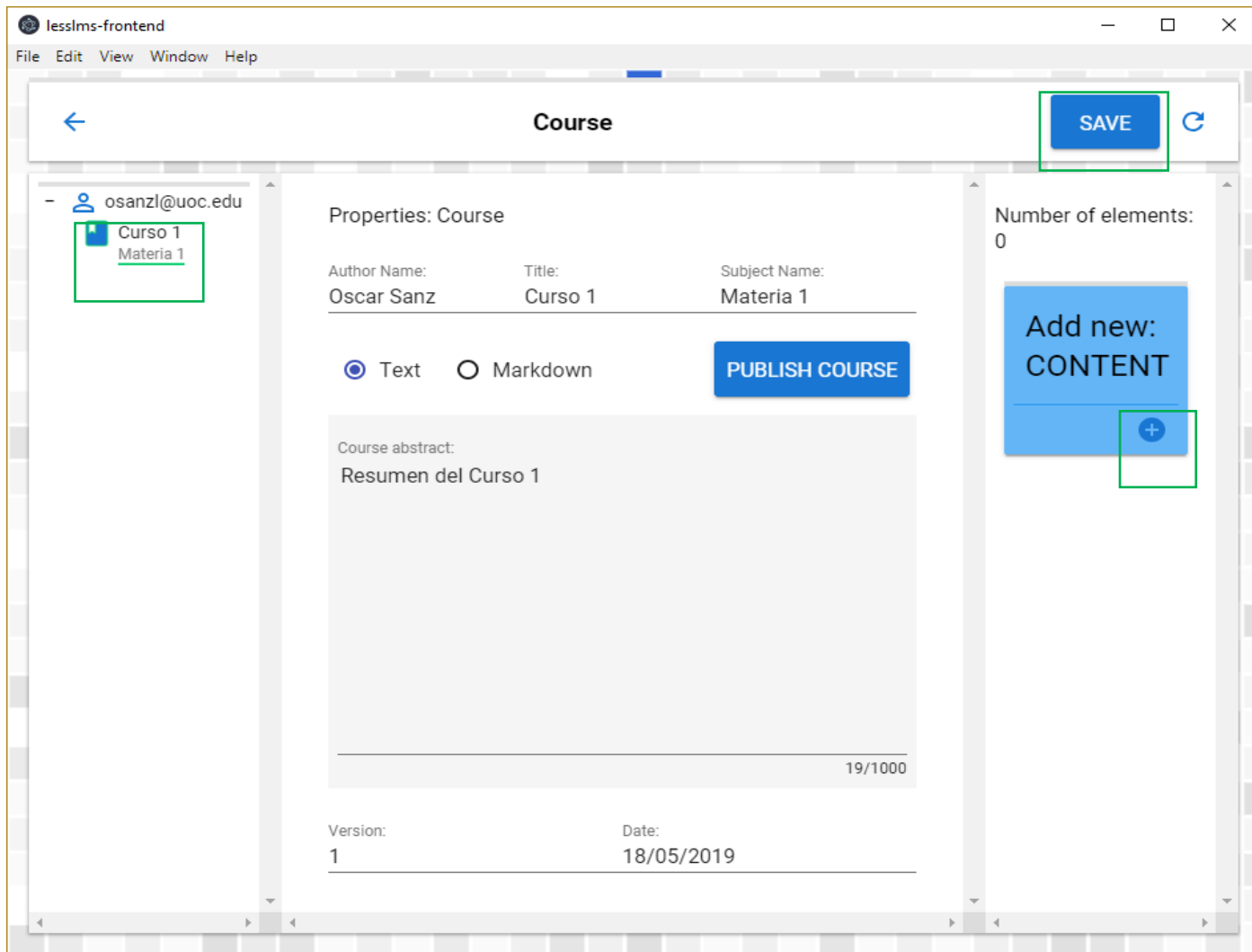
Se obtiene acceso a la aplicación, que muestra la interfaz vacía.



Se añade un nuevo curso 'Curso 1' mediante la tarjeta azul COURSE del panel derecho:

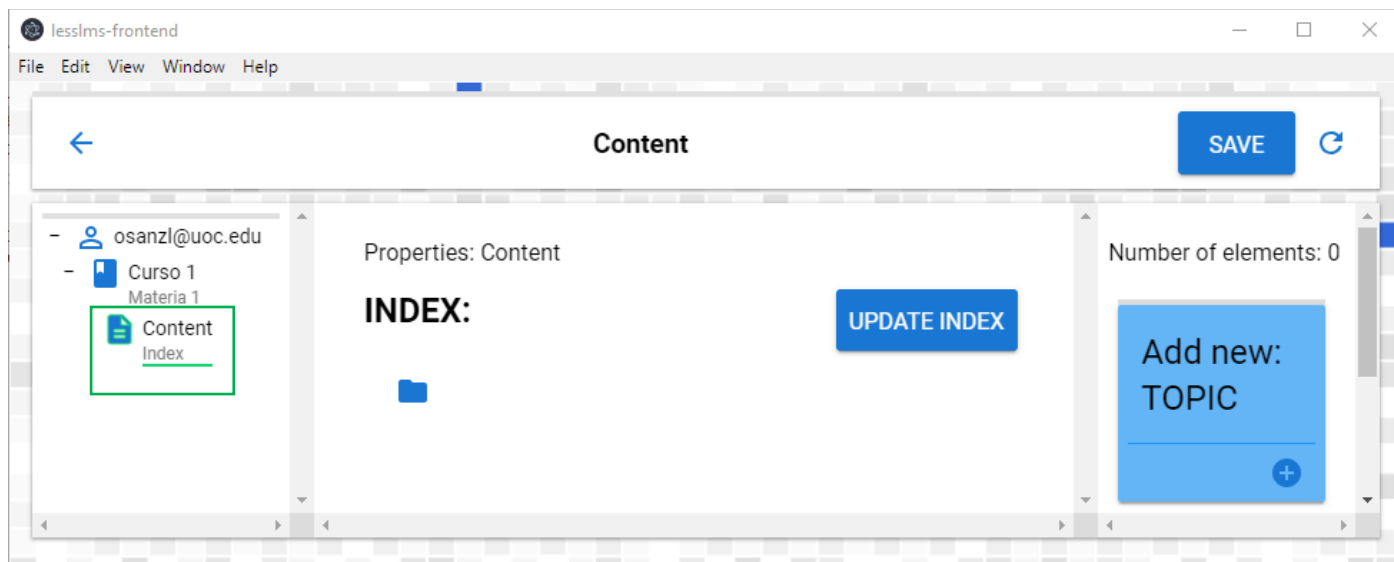


Se selecciona el curso en el icono del panel izquierdo, configuramos su formulario, y se guardan los cambios mediante el botón 'SAVE':

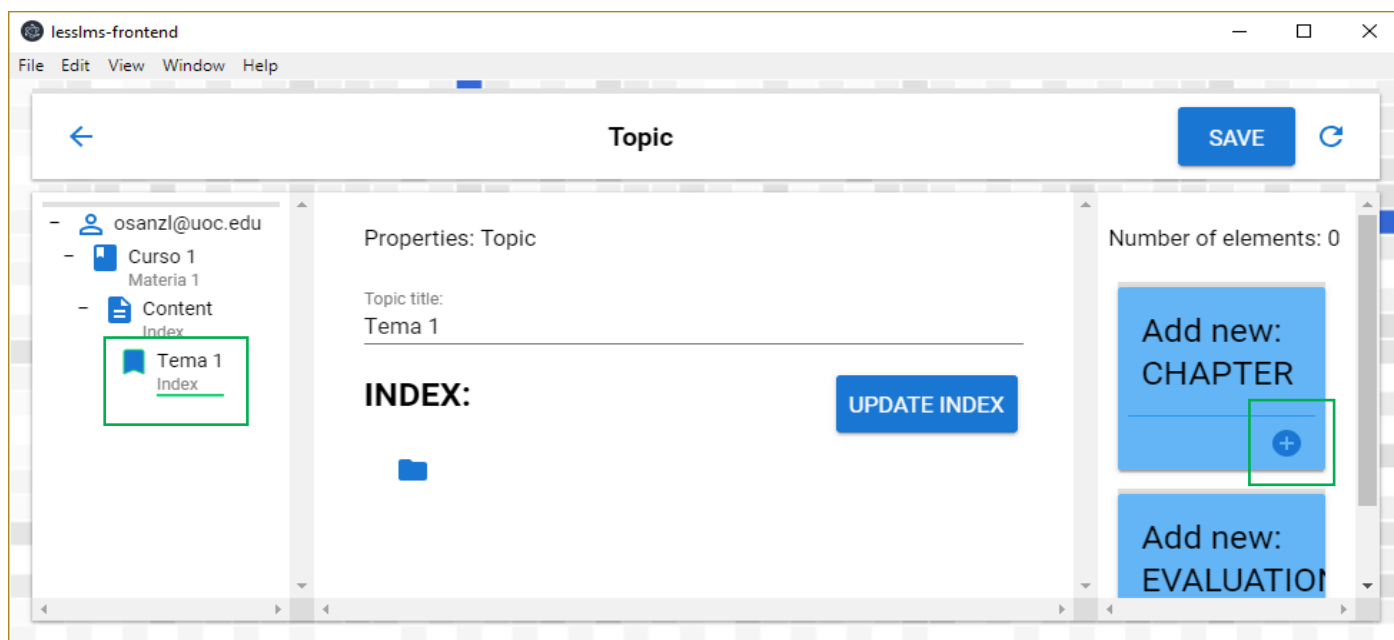


The screenshot shows the 'lesslms-frontend' application window. The main interface is titled 'Course'. On the left, a sidebar shows the user 'osanzl@uoc.edu' and a list of courses, with 'Curso 1' and 'Materia 1' selected. The main area is divided into two sections. The top section, 'Properties: Course', contains fields for 'Author Name' (Oscar Sanz), 'Title' (Curso 1), and 'Subject Name' (Materia 1). Below these are radio buttons for 'Text' (selected) and 'Markdown', and a 'PUBLISH COURSE' button. The bottom section, 'Course abstract:', contains a text area with the content 'Resumen del Curso 1' and a character count '19/1000'. At the bottom of the main area, there are fields for 'Version' (1) and 'Date' (18/05/2019). On the right side, a panel shows 'Number of elements: 0' and a blue box labeled 'Add new: CONTENT' with a '+' button. A 'SAVE' button is located in the top right corner of the main area.

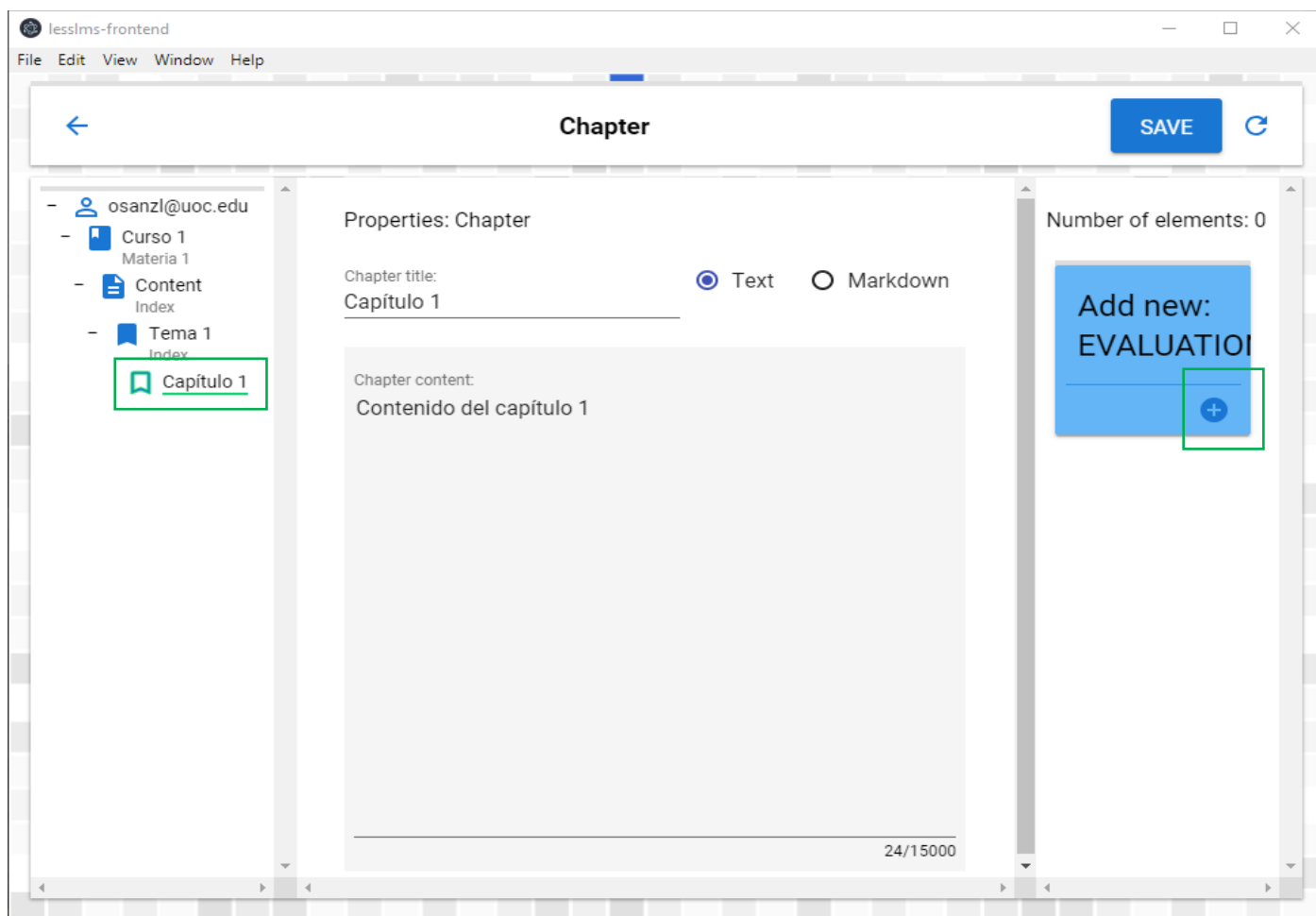
Se añade contenido al curso mediante la tarjeta azul CONTENT del panel derecho, se configura su formulario, y se guardan los cambios mediante el botón 'SAVE':



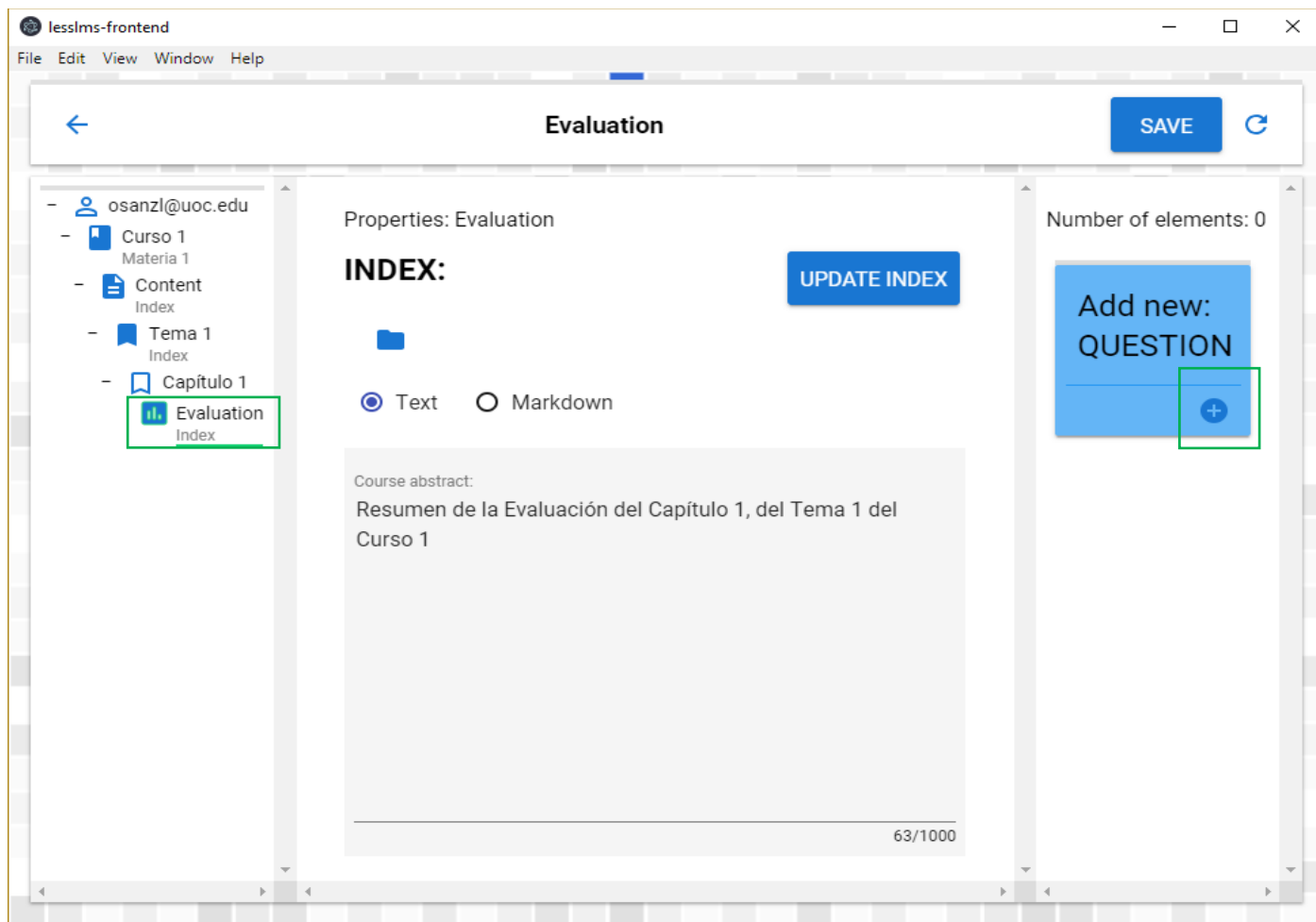
Se añade un tema al contenido mediante la tarjeta azul TOPIC del panel derecho, se configura su formulario, y se guardan los cambios mediante el botón 'SAVE':



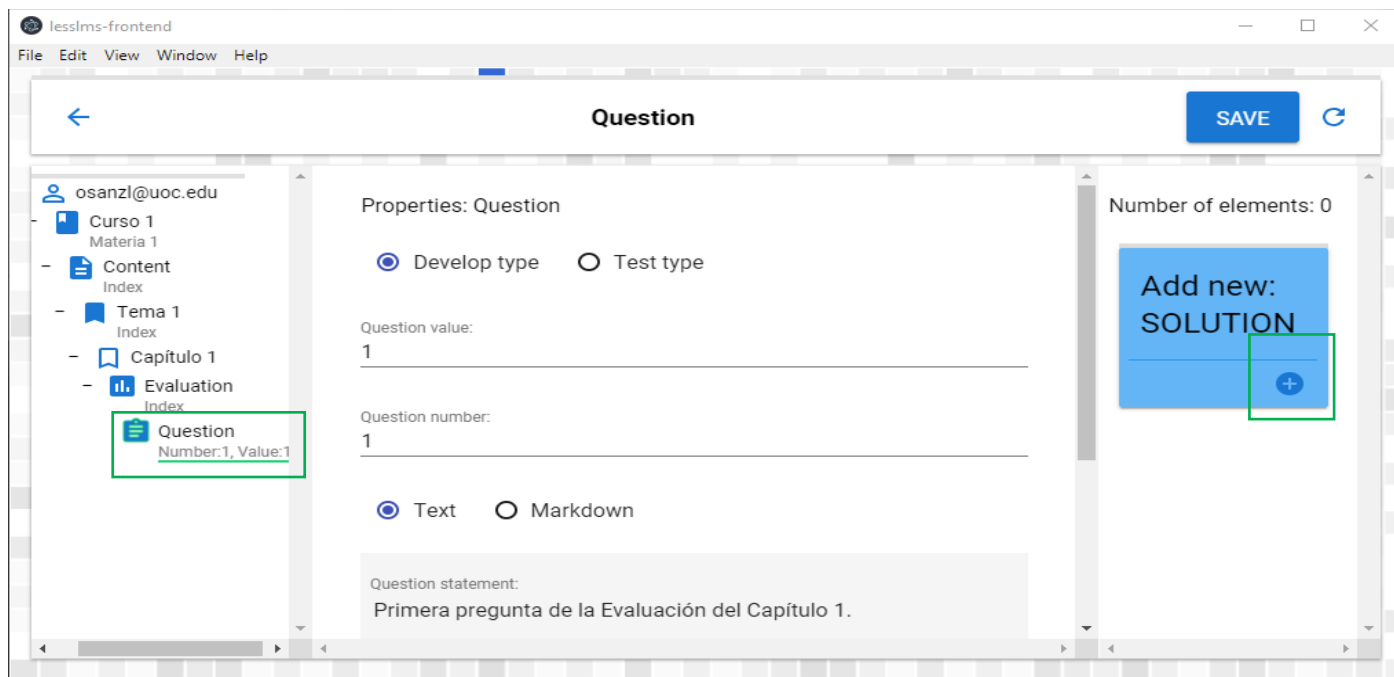
Se añade un capítulo al tema mediante la tarjeta azul CHAPTER del panel derecho, se configura su formulario, y se guardan los cambios mediante el botón 'SAVE':



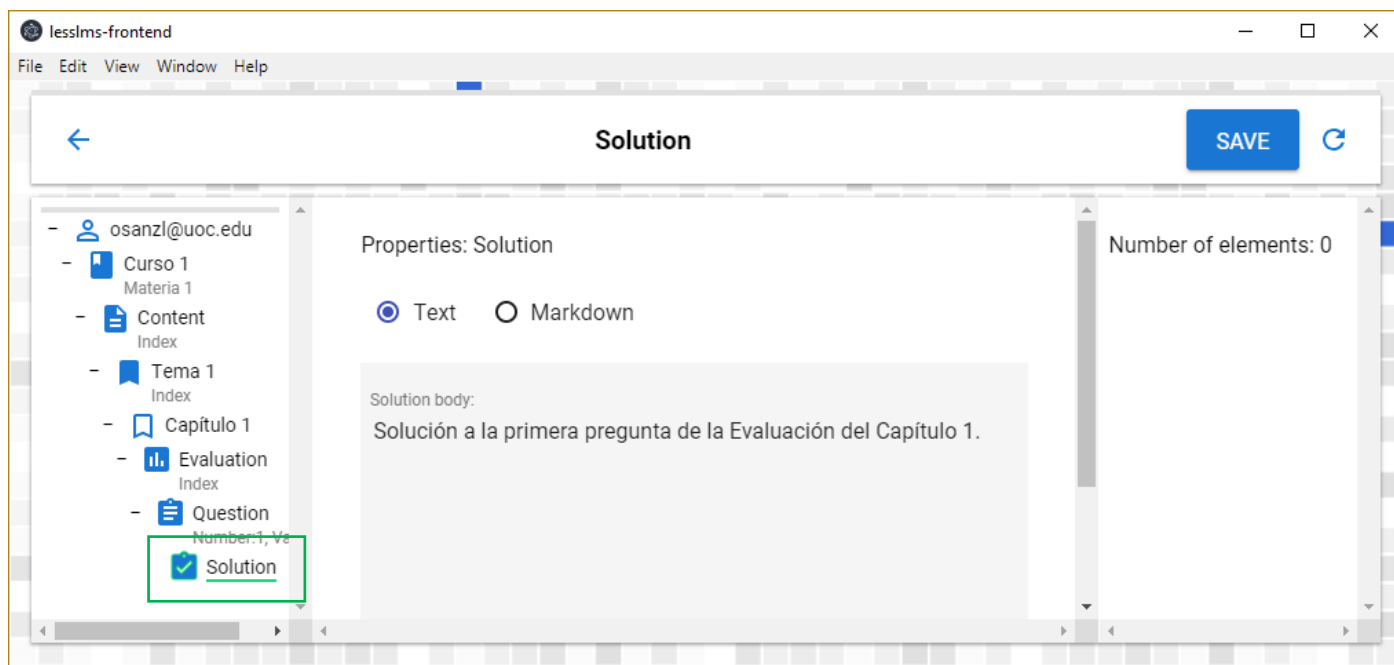
Se añade una evaluación al tema mediante la tarjeta azul EVALUATION del panel derecho, se configura su formulario, y se guardan los cambios mediante el botón 'SAVE':



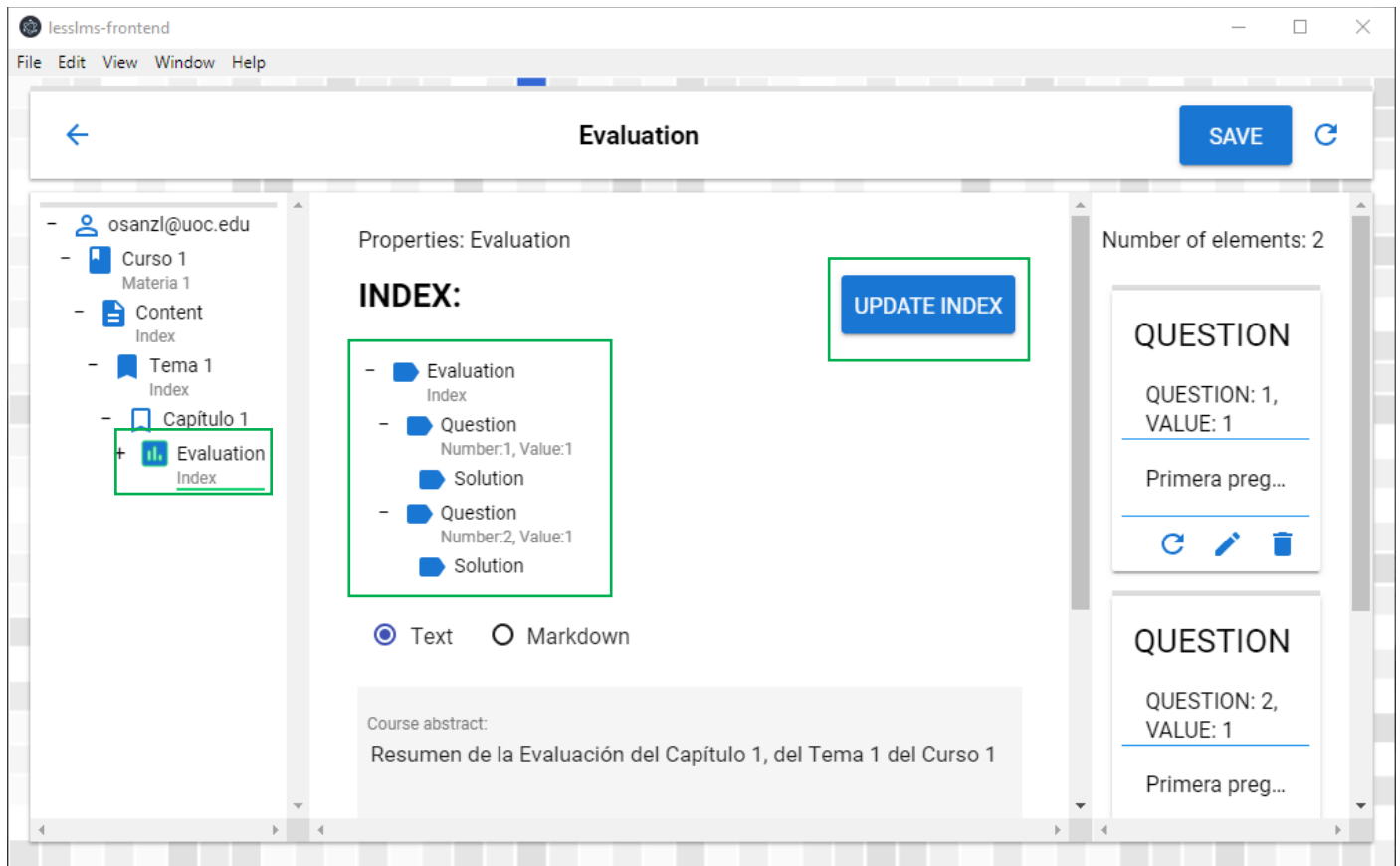
Se añaden una pregunta al tema mediante la tarjeta azul QUESTION del panel derecho, se configura su formulario, y se guardan los cambios mediante el botón 'SAVE':



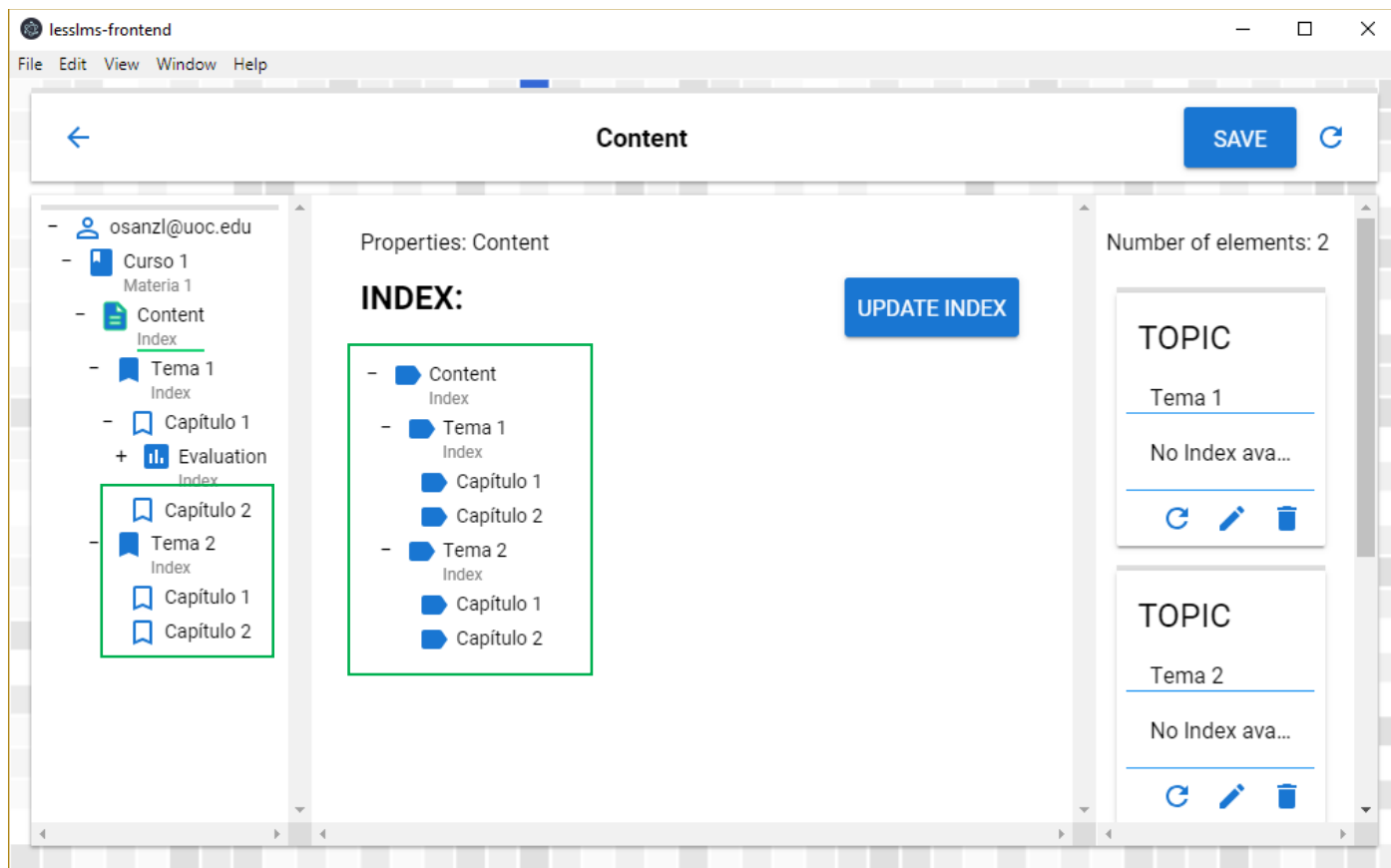
Se añaden una solución a la pregunta mediante la tarjeta azul SOLUTION del panel derecho, se configura su formulario, y se guardan los cambios mediante el botón 'SAVE':



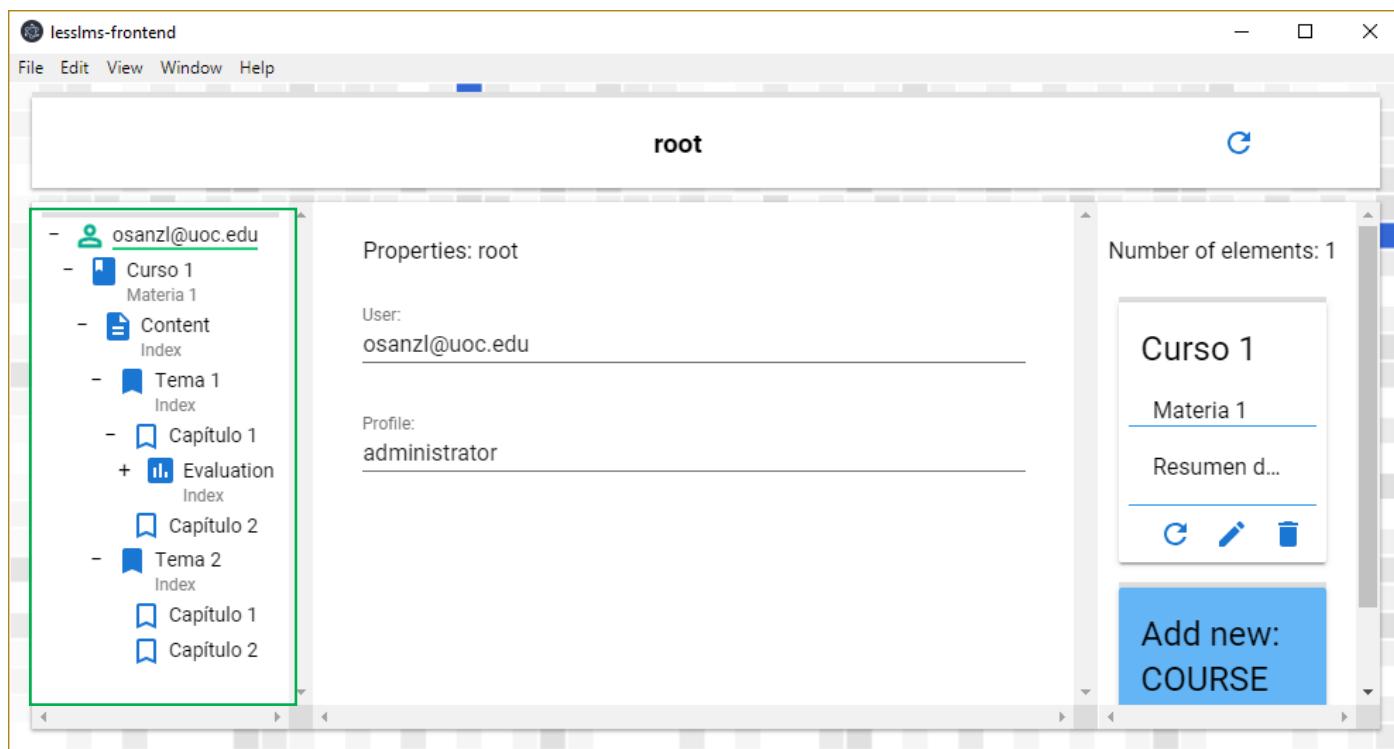
Se repite el proceso para añadir una segunda pregunta con su solución a la Evaluación del Capítulo 1, luego se selecciona la Evaluación en el panel izquierdo y se actualiza su índice mediante el botón 'UPDATE INDEX' y se guardan los cambios mediante el botón 'SAVE':



Se añade el Capítulo 2 del Tema 1, y Un nuevo Tema 2 con dos capítulos, se actualiza el índice del Contenido:



Finalmente se cierra la aplicación y se vuelve a ejecutar, se verifica que el contenido se recupera de forma íntegra:

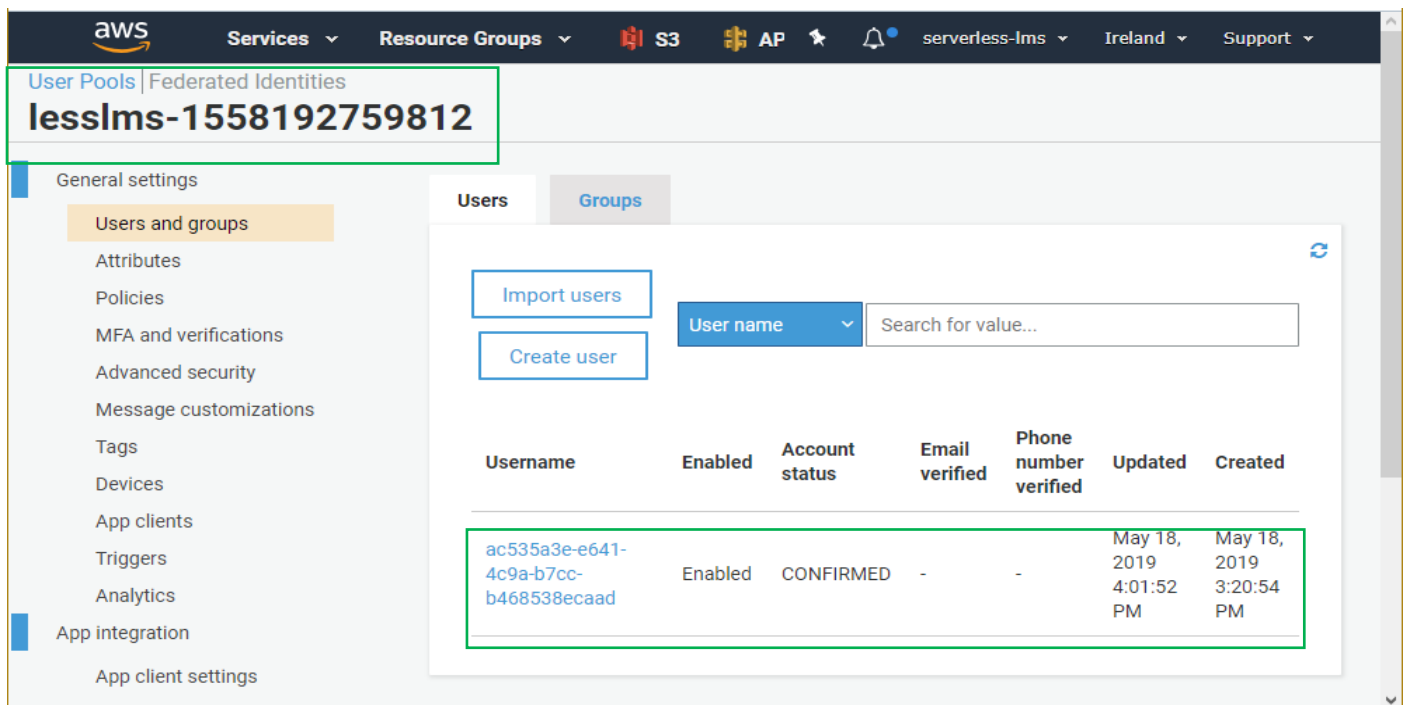


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A continuación, se muestra el resultado de la creación de la aplicación en los distintos servicios de AWS, así como el contenido de las tablas 'user' y 'courses' en DynamoDB, una vez finalizada la creación y edición del Curso 1.

AWS Cognito:



General settings

- Users and groups
- Attributes
- Policies
- MFA and verifications
- Advanced security
- Message customizations
- Tags
- Devices
- App clients
- Triggers
- Analytics

App integration

- App client settings

Users

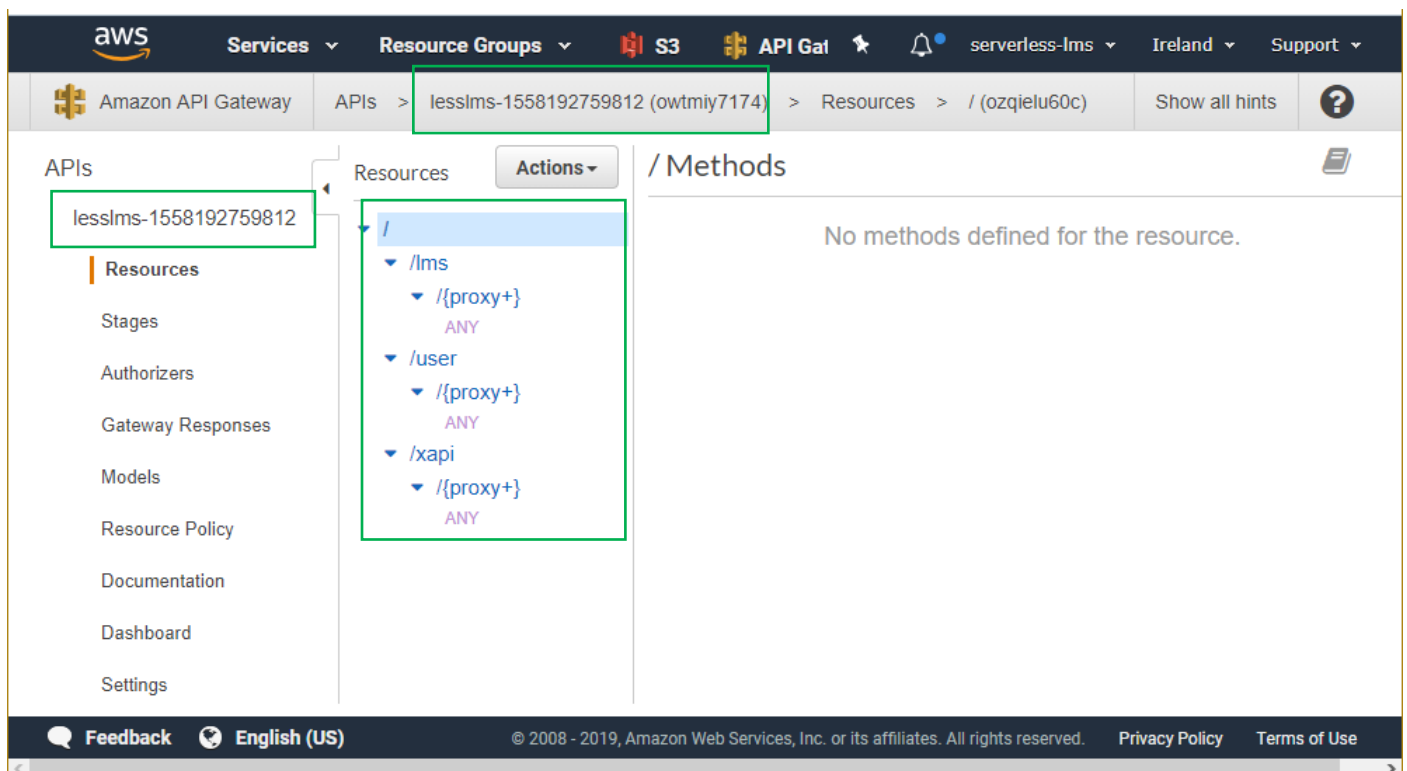
Import users

Create user

User name

Username	Enabled	Account status	Email verified	Phone number verified	Updated	Created
ac535a3e-e641-4c9a-b7cc-b468538ecaad	Enabled	CONFIRMED	-	-	May 18, 2019 4:01:52 PM	May 18, 2019 3:20:54 PM

Api Gateway:



Amazon API Gateway

APIs > lesslms-1558192759812 (owtmj7174) > Resources > / (ozqielu60c)

Show all hints

APIs

lesslms-1558192759812

Resources

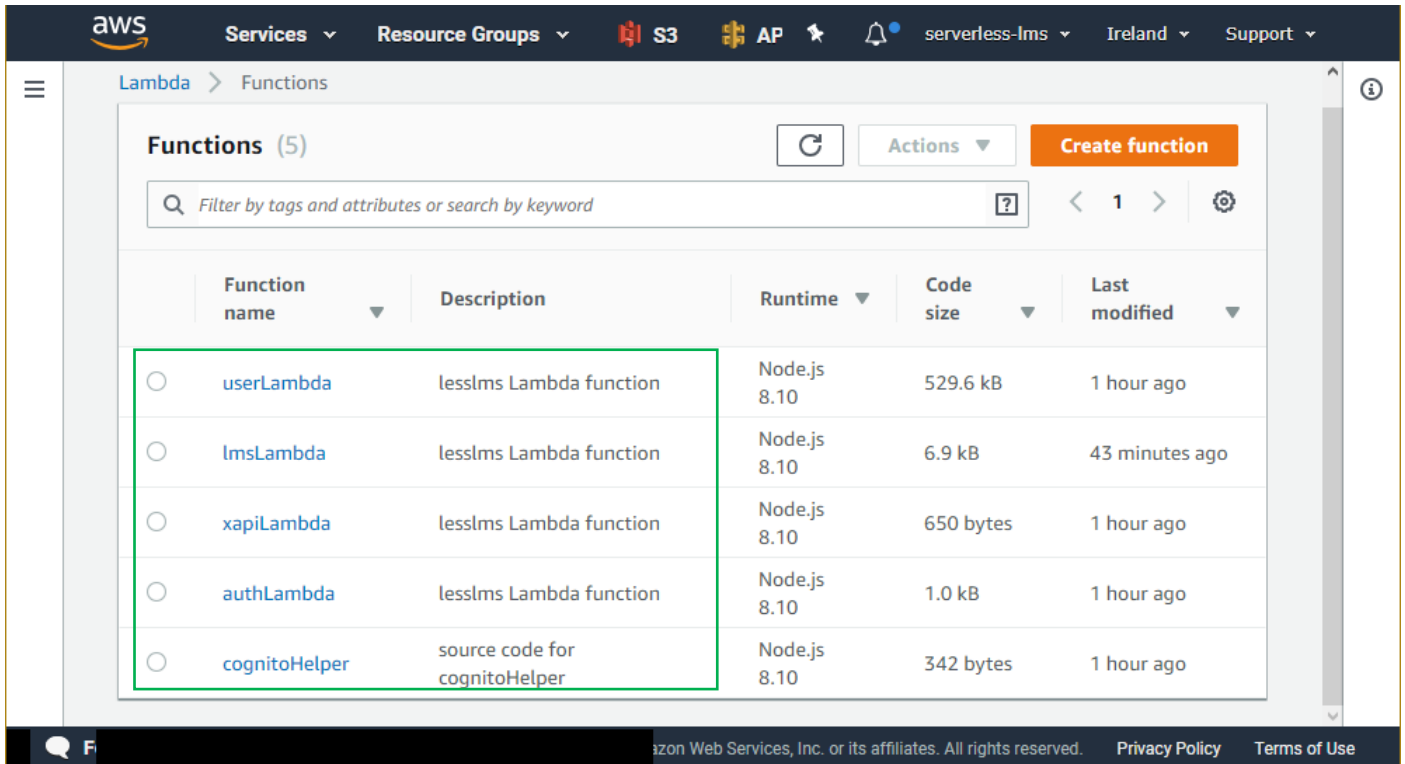
- /
- /lms
- /user
- /xapi

/ Methods

No methods defined for the resource.

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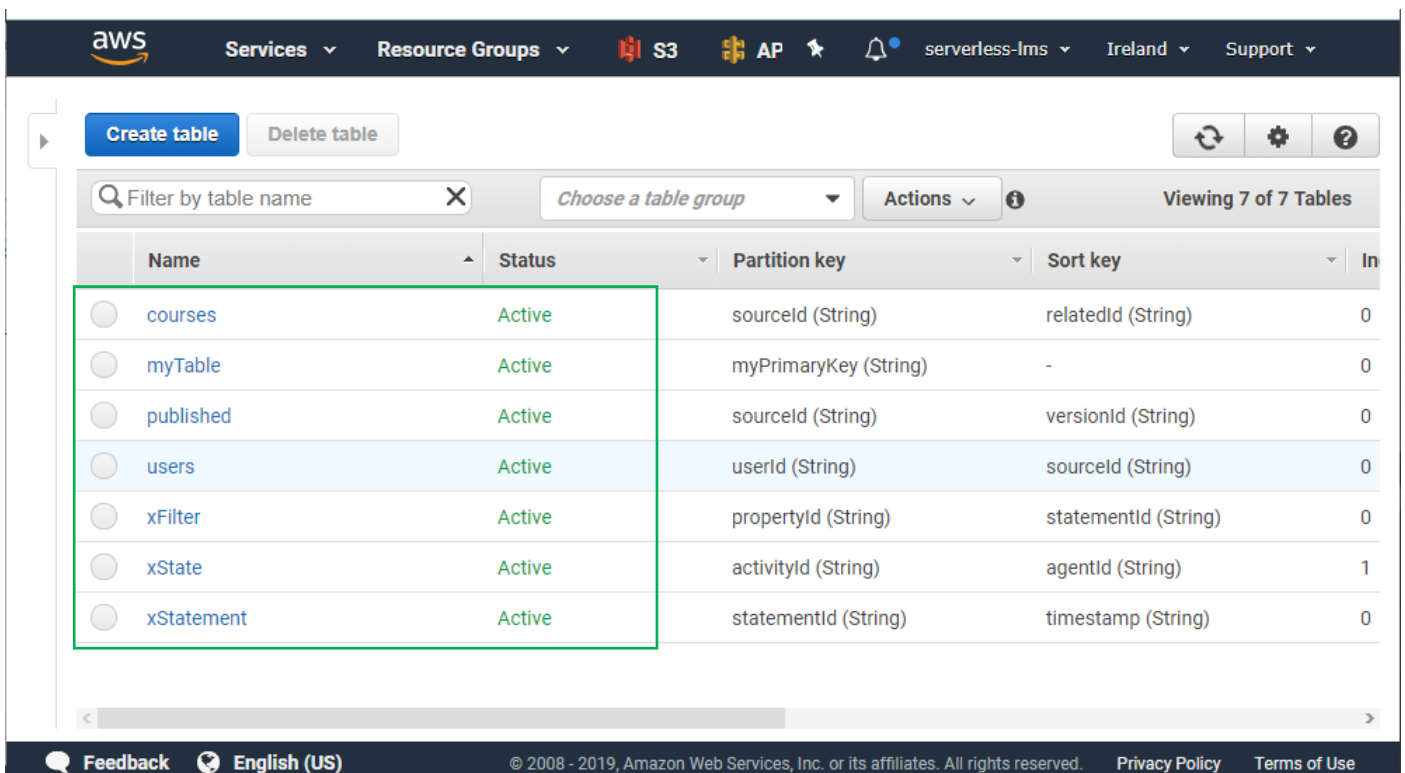
Funciones Lambda:



The screenshot shows the AWS Lambda console with a list of 5 functions. The functions are highlighted with a green border. The table below represents the data shown in the screenshot:

Function name	Description	Runtime	Code size	Last modified
userLambda	lesslms Lambda function	Node.js 8.10	529.6 kB	1 hour ago
lmsLambda	lesslms Lambda function	Node.js 8.10	6.9 kB	43 minutes ago
xapiLambda	lesslms Lambda function	Node.js 8.10	650 bytes	1 hour ago
authLambda	lesslms Lambda function	Node.js 8.10	1.0 kB	1 hour ago
cognitoHelper	source code for cognitoHelper	Node.js 8.10	342 bytes	1 hour ago

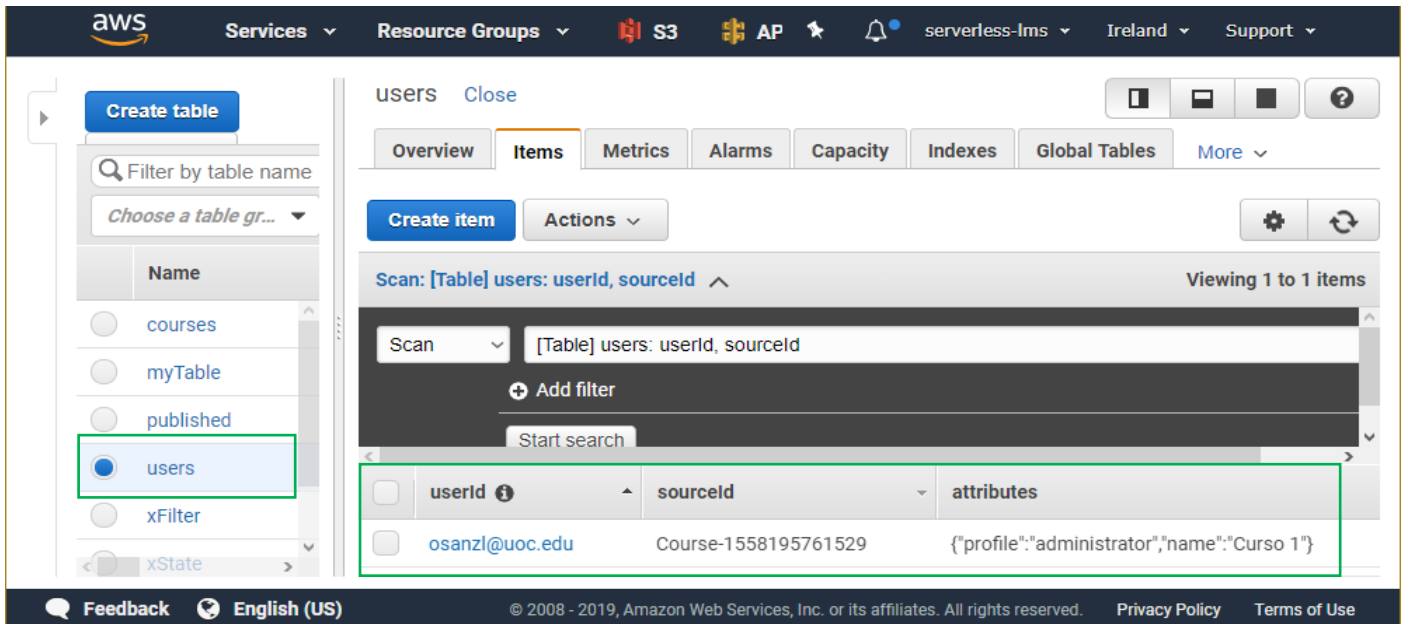
Tablas en DynamoDB:



The screenshot shows the AWS DynamoDB console with a list of 7 tables. The tables are highlighted with a green border. The table below represents the data shown in the screenshot:

Name	Status	Partition key	Sort key	In
courses	Active	sourceId (String)	relatedId (String)	0
myTable	Active	myPrimaryKey (String)	-	0
published	Active	sourceId (String)	versionId (String)	0
users	Active	userId (String)	sourceId (String)	0
xFilter	Active	propertyId (String)	statementId (String)	0
xState	Active	activityId (String)	agentId (String)	1
xStatement	Active	statementId (String)	timestamp (String)	0

Contenido de la tabla 'users' en DynamoDB:



users Close

Overview **Items** Metrics Alarms Capacity Indexes Global Tables More

Create item Actions

Scan: [Table] users: userId, sourceId Viewing 1 to 1 items

Scan [Table] users: userId, sourceId

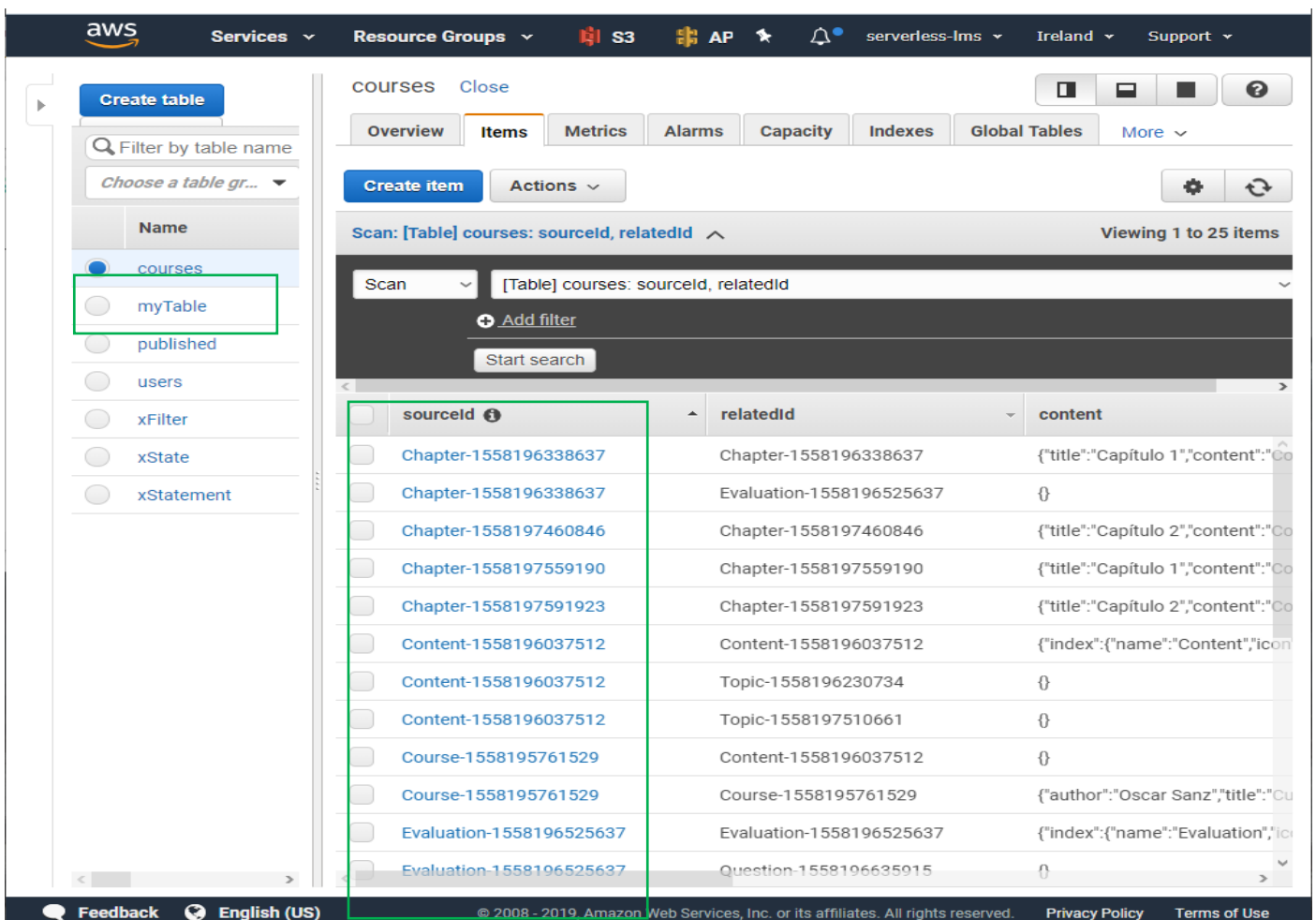
Add filter

Start search

userId	sourceId	attributes
osanzl@uoc.edu	Course-1558195761529	{"profile": "administrator", "name": "Curso 1"}

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Contenido de la tabla 'courses' en DynamoDB:



courses Close

Overview **Items** Metrics Alarms Capacity Indexes Global Tables More

Create item Actions

Scan: [Table] courses: sourceId, relatedId Viewing 1 to 25 items

Scan [Table] courses: sourceId, relatedId

Add filter

Start search

sourceId	relatedId	content
Chapter-1558196338637	Chapter-1558196338637	{"title": "Capítulo 1", "content": "Co"}
Chapter-1558196338637	Evaluation-1558196525637	{}
Chapter-1558197460846	Chapter-1558197460846	{"title": "Capítulo 2", "content": "Co"}
Chapter-1558197559190	Chapter-1558197559190	{"title": "Capítulo 1", "content": "Co"}
Chapter-1558197591923	Chapter-1558197591923	{"title": "Capítulo 2", "content": "Co"}
Content-1558196037512	Content-1558196037512	{"index": {"name": "Content", "icon"}}
Content-1558196037512	Topic-1558196230734	{}
Content-1558196037512	Topic-1558197510661	{}
Course-1558195761529	Content-1558196037512	{}
Course-1558195761529	Course-1558195761529	{"author": "Oscar Sanz", "title": "Cu"}
Evaluation-1558196525637	Evaluation-1558196525637	{"index": {"name": "Evaluation", "icon"}}
Evaluation-1558196525637	Question-1558196635915	{}

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