# CES (Central Encoding System) and the CERN Video Player

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6/21/21

# CES

# (Central Encoder System)

1/2

# What is CES and why do we need it?

- **At CERN, we have more than 40 encoders in webcast adapted rooms.**
- **All these encoders need to be managed, either individually or from a Central place.**
- **CES (Central encoder System) allows us and the operators to handle all these devices from a single place.**
- **We use Indico as a single source of truth to keep track of the event’s information.**
- **This is an application for operators**

# What was CES doing until now?

1. Fetch events from Indico
2. Assign these events to rooms where encoders are configured
3. Start/stop the webcasts and recordings on these rooms
4. Show preview of the running webcasts/recordings
5. Store the recordings in DFS

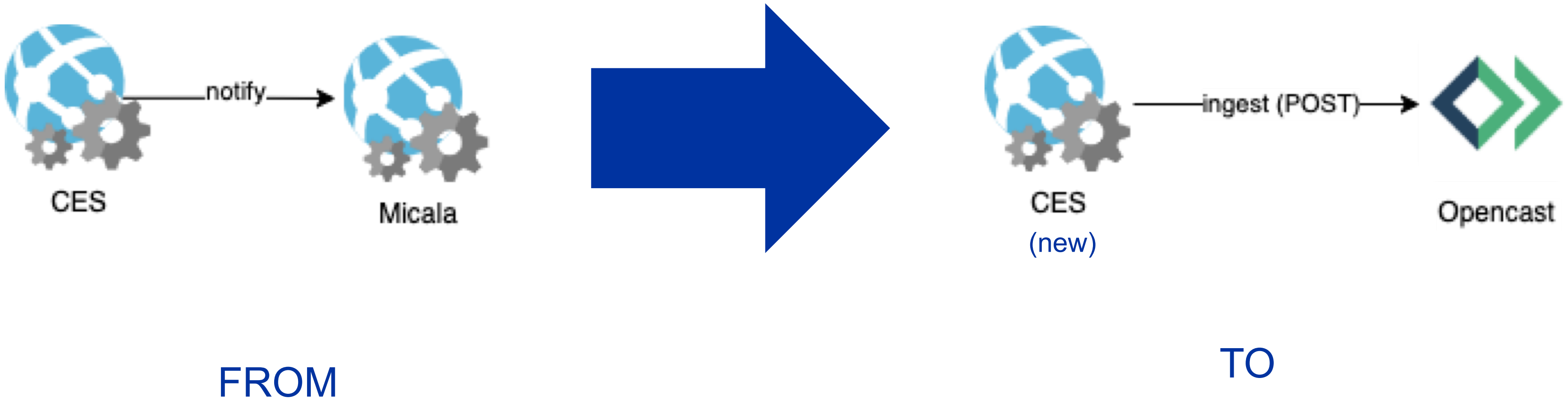
# What can CES do now?

- **All the tasks mentioned on the previous slide +**

1. Keep track of the processing status of an event and its contributions (**Prev. Micala**)
2. Ingest into Opencast the recordings and their metadata for the postprocessing tasks (**New**)
3. Publish to Indico and CDS the videos generated by Opencast (**Prev. Micala**)
4. Import videos from a URL and from the Zoom Cloud Recordings (handy when there is a pandemic and all the recordings come from outside CERN) (**New**)

# Why the change?

- **Taking some features from Micala (legacy postprocessing system) and moving the transcoding tasks to Opencast**



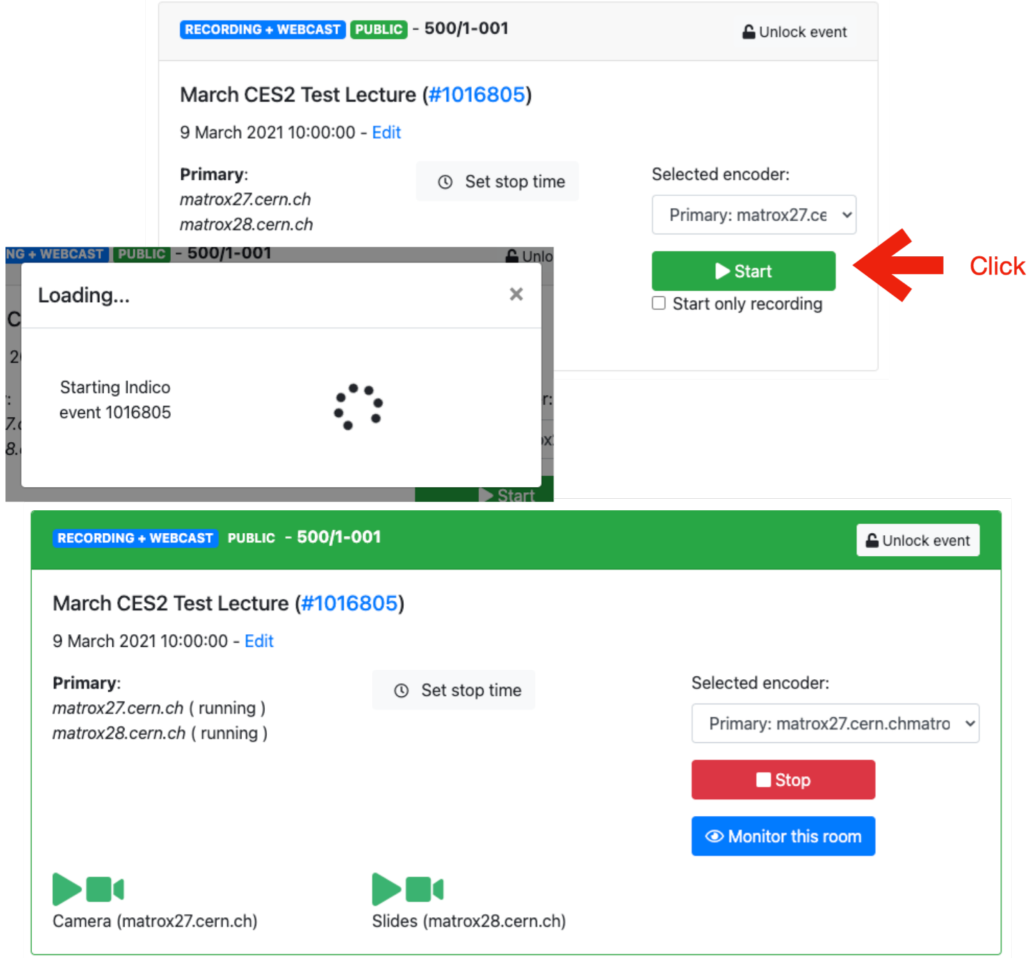
# Technologies comparison

- **Standardizing technologies across section applications**

| | New CES | CES | Micala |
|---|---|---|---|
| **OS** | Centos 7/8 | Windows 2012 | Windows 2016 |
| **Python** | 3.X | 2.7.4 | 2.7.10 |
| **Deployment** | Openshift | VM | VM |
| **Framework** | Flask 1.2 | Django 1.8.6 | Pure python + Angular 1 |
| **Library for the tasks** | Celery | Celery | - |
| **Transcoding software** | Opencast | - | FFmpeg, Sorenson, Handbrake |
| **Authentication** | OpenID | Shibboleth | Shibboleth |
| **Monitoring** | Central Monitoring | - | - |

# Features (1/3): Start/Stop events and monitor

1. **Select the encoders to use**
2. **Clicking start will start all the encoders selected in one go**
3. **Monitor the events and stop the encoders**



RECORDING + WEBCAST PUBLIC - 500/1-001

March CES2 Test Lecture (#1016805)

9 March 2021 10:00:00 - Edit

Primary:
matrox27.cern.ch
matrox28.cern.ch

Selected encoder: Primary: matrox27.ce

□ Start only recording

Loading...

Starting Indico event 1016805

RECORDING + WEBCAST PUBLIC - 500/1-001

March CES2 Test Lecture (#1016805)

9 March 2021 10:00:00 - Edit

Primary:
matrox27.cern.ch ( running )
matrox28.cern.ch ( running )

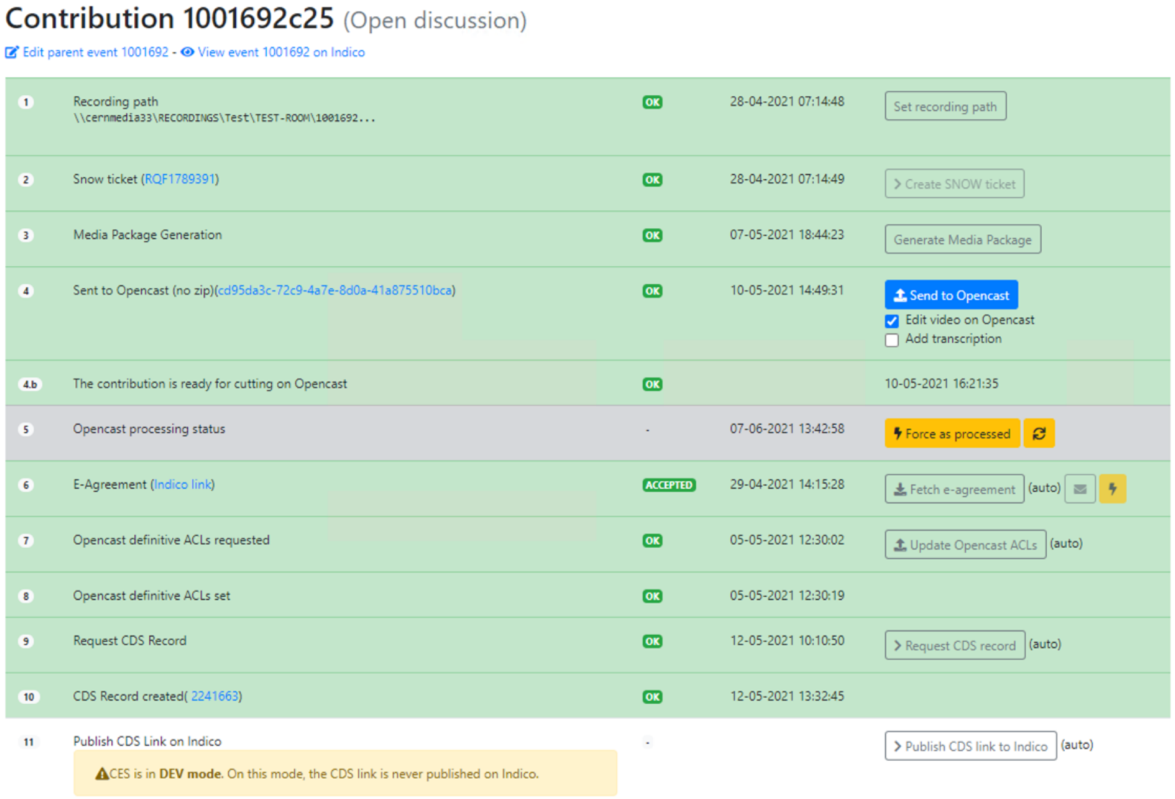
Selected encoder: Primary: matrox27.cern.chmatro

Camera (matrox27.cern.ch)

Slides (matrox28.cern.ch)

# Features (2/3): Track processing and publishing status

- **Several steps for all the postprocessing and publishing tasks**
- **Example:**
  - Ingest media package into Opencast
  - Update contribution's ACL's
  - Handle agreements
  - Publish to Indico and CDS



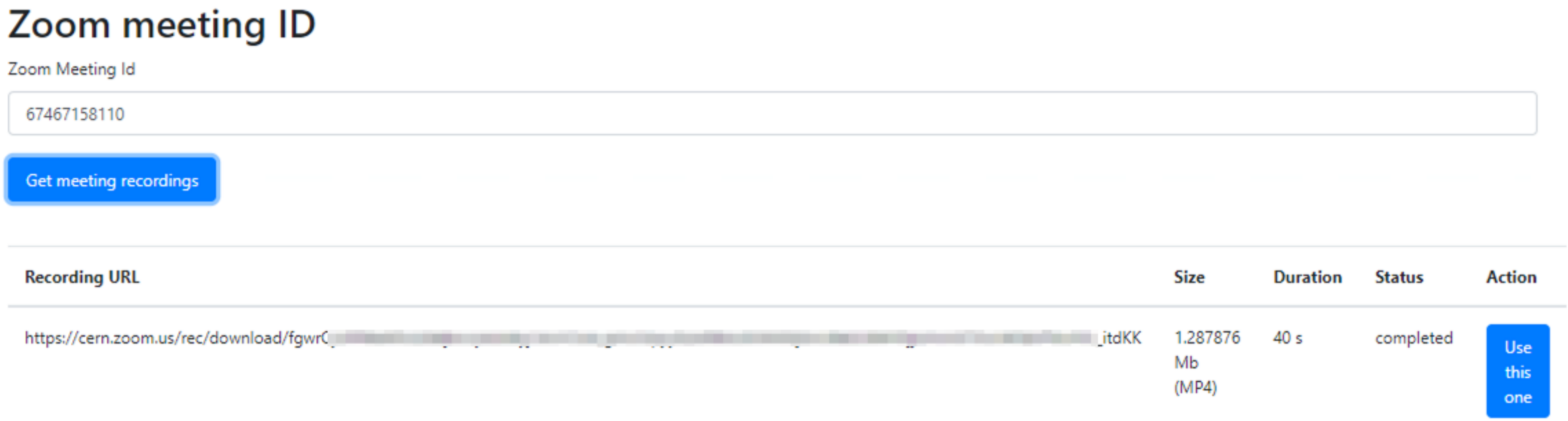
## Contribution 1001692c25 (Open discussion)

Edit parent event 1001692 - View event 1001692 on Indico

| | | | | |
|---|---|---|---|---|
| 1 | Recording path<br>`\\cernmedia33\RECORDINGS\Test\TEST-ROOM\1001692...` | OK | 28-04-2021 07:14:48 | Set recording path |
| 2 | Snow ticket (RQF1789391) | OK | 28-04-2021 07:14:49 | > Create SNOW ticket |
| 3 | Media Package Generation | OK | 07-05-2021 18:44:23 | Generate Media Package |
| 4 | Sent to Opencast (no zip)(cd95da3c-72c9-4a7e-8d0a-41a875510bca) | OK | 10-05-2021 14:49:31 | Send to Opencast<br>☑ Edit video on Opencast<br>☐ Add transcription |
| 4.b | The contribution is ready for cutting on Opencast | OK | | 10-05-2021 16:21:35 |
| 5 | Opencast processing status | - | 07-06-2021 13:42:58 | Force as processed |
| 6 | E-Agreement (Indico link) | ACCEPTED | 29-04-2021 14:15:28 | Fetch e-agreement (auto) |
| 7 | Opencast definitive ACLs requested | OK | 05-05-2021 12:30:02 | Update Opencast ACLs (auto) |
| 8 | Opencast definitive ACLs set | OK | 05-05-2021 12:30:19 | |
| 9 | Request CDS Record | OK | 12-05-2021 10:10:50 | > Request CDS record (auto) |
| 10 | CDS Record created( 2241663) | OK | 12-05-2021 13:32:45 | |
| 11 | Publish CDS Link on Indico<br>⚠CES is in **DEV mode.** On this mode, the CDS link is never published on Indico. | - | | > Publish CDS link to Indico (auto) |

# Features (3/3): Zoom Cloud recording integration

- **Input the Zoom ID and download the zoom recording making it ready to ingest into Opencast. Better user experience for end users.**



## Zoom meeting ID

Zoom Meeting Id

67467158110

| Recording URL | Size | Duration | Status | Action |
|---|---|---|---|---|
| https://cern.zoom.us/rec/download/fgwrC[redacted]itdKK | 1.287876 Mb (MP4) | 40 s | completed | Use this one |

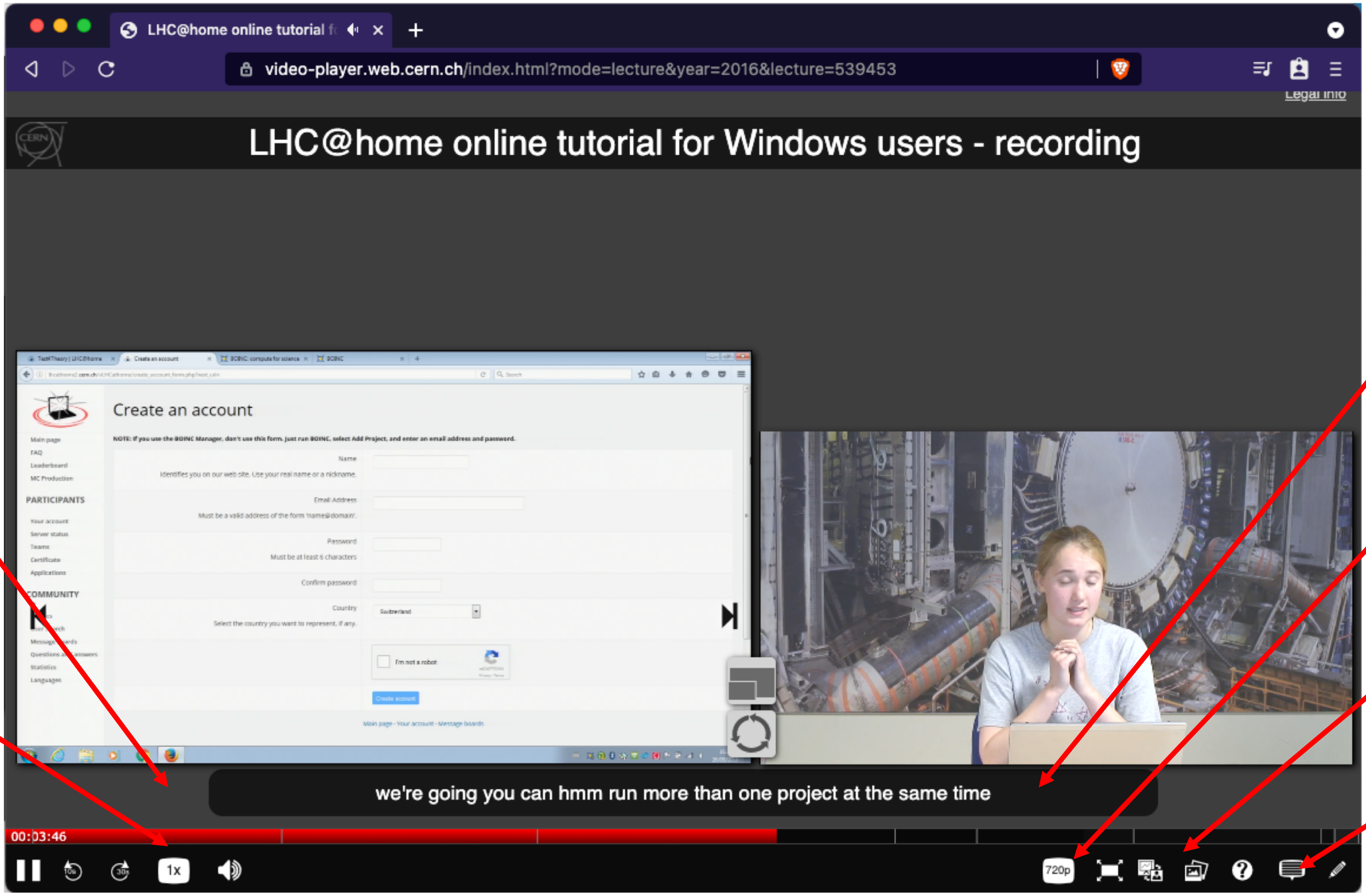
# CERN Video Player

**2/2**

# About the CERN Video Player

- **Already used on the Webcast Website**
- **Based on a Opensource software: Paella Player (Already contributed with PRs)**
- **Backwards compatible with all the lectures on the media archive**
- **Support for dual streams out of the box (and more than 2 streams)**
  - Synchronizes automatically both videos
  - Multiple view modes for camera and slides
- **Fully integrated with Opencast**
- **Support for: Thumbnails, Subtitles/Transcriptions/ HLS, WEBRTC (soon) and auto bitrate**
- **Integrated with Matomo (Webanalytics) and OpenID**

# CERN Video Player: How it looks



LHC@home online tutorial f

video-player.web.cern.ch/index.html?mode=lecture&year=2016&lecture=539453

Legal info

LHC@home online tutorial for Windows users - recording

Create an account

NOTE: If you use the BOINC Manager, don't use this form. Just run BOINC, select Add Project, and enter an email address and password.

Name: Identifies you on our web site. Use your real name or a nickname.

Email Address: Must be a valid address of the form 'name@domain'.

Password: Must be at least 6 characters

Confirm password

Country: Switzerland. Select the country you want to represent, if any.

I'm not a robot

Create account

we're going you can hmm run more than one project at the same time

00:03:46

1x

720p

Thumbnails

Speed

Play/Pause

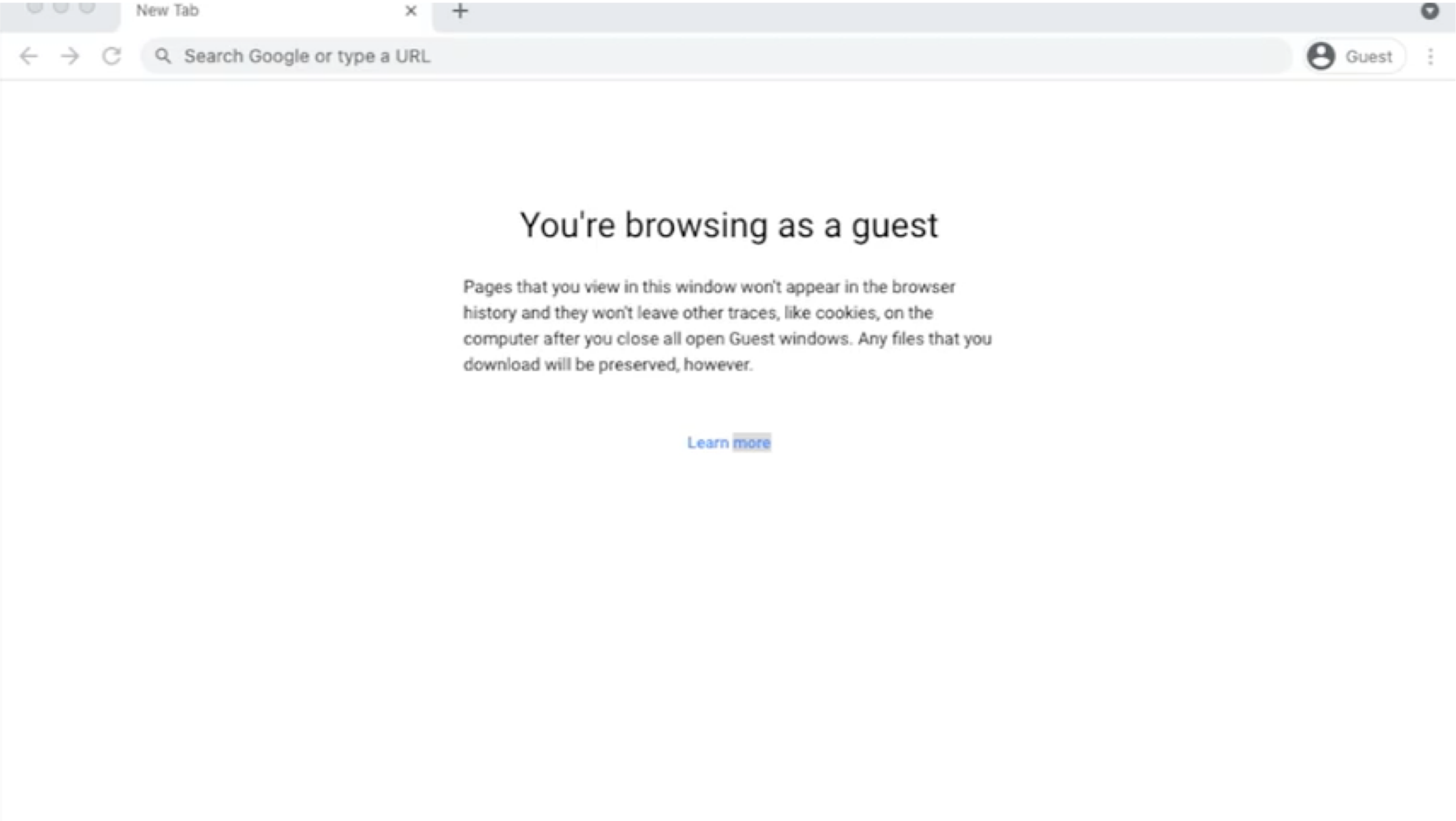
Transcriptions

Resolution

View modes

Transcription selector

# CERN Video Player: OpenID + Apache integration



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# Questions?

CERN

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