

INSTRUCTURECON 2019

# COMBINING CANVAS DATA AND LIVE EVENTS TO HAVE TIMELY DATA



**Learnin' Safari**

INSTRUCTURECON 2019

July 9-11, Long Beach Convention Center

PRESENTATION BY:  
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Learn how you can easily get Canvas Live Events into a database and combine it with Canvas Data to have the most current information available to instructors! You can have an always up to date Last Activity Date and display via a custom LTI tool.



# Seminole State College

## Courses

- 6910 total sections annually, 2049 Online Sections

## Student Body

- 29,500 individual students (headcount)
- 12,700 FTE
- 47% of our students take at least one online class during the year



# Seminole State College

## Canvas

- Began use in Summer 2015
- Used for all online and many campus classes

## Canvas Data

- Local MySQL Data Warehouse
- Recently subscribed Redshift
- Data is 24-36 hours old



# Last Date of Activity

- Needed for Federal Financial Aid Reporting
- Faculty must report for withdrawn students and students with F grades
- Last date that a student submitted academic work (not last login)
- Currently use a tool developed and hosted through Instructure ProServ

# Challenges – Current Tool

- Our current tool has data updated once per day
- Any changes to tool must go through ProServ
- Hard for instructors to read
  - includes any student ever enrolled in class in one table
  - no indication of enrollment status in class and everyone is jumbled into one table



# Canvas Data

What is Canvas Data?

No additional charge

- CSV Data File Downloads

Paid Hosting

- Redshift Canvas Data – Hosted by Canvas



# Canvas Data

- Has all data needed
- Updated only once per day
- New files are approx. 36-48 hours old when available, take time to load
- Too old to make tool accurate for faculty
- Query checks to see if it's a newer LDA than already in table, if so updates.





# Canvas Data – Query for LDA

```

SELECT
  p.sis_user_id AS emplid,
  cs.sis_source_id AS sis_section_id,
  MAX(sd.submitted_at AS last_activity_date
FROM
  submission_fact sf
  JOIN submission_dim sd ON sf.submission_id = sd.id
  LEFT JOIN pseudonym_dim p ON sf.user_id = p.user_id
  LEFT JOIN enrollment_dim e ON sf.user_id = e.user_id
    AND sf.course_id = e.course_id
  LEFT JOIN course_section_dim cs ON e.course_section_id = cs.id
  LEFT JOIN course_dim c ON sf.course_id = c.id
  LEFT JOIN enrollment_term_dim t ON c.enrollment_term_id = t.id
WHERE
  sd.submitted_at IS NOT NULL
    AND sd.workflow_state IN 'graded' , 'pending_review', 'submitted'
    AND e.type = 'StudentEnrollment'
    AND e.workflow_state <> 'deleted'
    AND e.workflow_state <> 'rejected'
    AND cs.sis_source_id IS NOT NULL
    AND NOT cs.sis_source_id LIKE '%-%-%'
    AND p.workflow_state <> 'deleted'
    AND p.sis_user_id IS NOT NULL
    AND p.sis_user_id LIKE '1%'
    AND c.workflow_state <> 'deleted'
    AND cs.workflow_state <> 'deleted'
    AND (t.sis_source_id LIKE '2%-A'
      OR t.sis_source_id LIKE '2%-B'
      OR t.sis_source_id LIKE '2%-FT'
      OR t.sis_source_id LIKE '2%-OT'
      OR t.sis_source_id LIKE '2%-12W')
    AND (ISNULL(sd.url)
      OR (sd.submission_type = 'online_url'
        AND sd.url <> 'https://rollcall.instructure.com/launch'))
GROUP BY cs.sis_source_id , p.sis_user_id

```

# Live Events

- Data streams from Canvas to Amazon Web Services as an SQS Message
- Almost real-time
- Instructure
  - No Cost
- Amazon Web Services
  - Each message must be “received” and “deleted”
  - For submissions, each seems to count as 4 messages

**Price per 1 Million Requests after Free Tier  
(Monthly)**

**Standard Queue** \$0.40 (\$0.00000040 per request)



# Live Events

- Two types of SQS/Live Events:
  - Caliper
  - Canvas Raw Data
- New submission data
  - `submission_created`
  - `submission_updated`
- Updated within seconds of assignment submissions
- Data can be updated as frequently as desired
- Can be joined with other Canvas Data tables to get all information needed
- Query checks to see if it's a newer LDA than already in table, if so updates.



# Live Events – Submissions

- Each Live Events Message
  - received
  - parsed and put into database table
  - deleted

Submission Events are created when:

- assignment is submitted or resubmitted by a student
- assignment submission is graded (or grade modified) by instructor
- attendance is taken



# Live Events – Submissions

- Many events are triggered by the instructor
  - use **user\_id\_submission** field for student user information
- Many LTI tools are missing submitted\_at field
  - many publishers have refused to include it
  - submissions through LTI Tools may be missing a submitted\_at date
  - instructors using LTI tools for graded assignments must be aware
- Roll Call Assignments are not student submissions
- Identified in Live Event Message
  - context\_role = 'Instructor'
  - url = 'https://rollcall.instructure.com/launch'



# Live Events - Query

```

SELECT
  pd.sis_user_id as emplid,
  csd.sis_source_id as sis_section_id,
  max(aws.submitted_at) as aws_max_submitted_at
FROM
  canvasdata.aws_submission aws
  left outer join user_dim ud on aws.user_id_submission =
ud.global_canvas_id
  left outer join pseudonym_dim pd on ud.id = pd.user_id
  left outer join course_dim cd on cd.id = aws.context_id
  left outer join enrollment_dim ed on ud.id = ed.user_id and
aws.context_id = ed.course_id
  left outer join assignment_dim ad on ad.id = aws.assignment_id
  left outer join submission_dim sd on sd.id = aws.submission_id
  left outer join course_section_dim csd on csd.id = ed.course_section_id
  left outer join enrollment_term_dim t on t.id = cd.enrollment_term_id
WHERE
  NOT ISNULL(aws.submitted_at)
  and context_type = 'Course'
  and sd.submitted_at IS NOT NULL
  AND sd.workflow_state IN ('graded' , 'pending_review', 'submitted')
  AND ed.type = 'StudentEnrollment'
  AND ed.workflow_state <> 'rejected'

  AND csd.sis_source_id IS NOT NULL
  AND NOT (csd.sis_source_id LIKE '%-%-%')
  AND pd.workflow_state <> 'deleted'
  AND pd.sis_user_id IS NOT NULL
  AND pd.sis_user_id LIKE '1%'
  AND cd.workflow_state <> 'deleted'
  AND csd.workflow_state <> 'deleted'
  AND ((t.sis_source_id LIKE '2%-A')
  OR (t.sis_source_id LIKE '2%-B')
  OR (t.sis_source_id LIKE '2%-FT')
  OR (t.sis_source_id LIKE '2%-OT')
  OR (t.sis_source_id LIKE '2%-12W'))
  AND (ISNULL(sd.url)
  OR ((sd.submission_type = 'online_url')
  AND (sd.url <> 'https://rollcall.instructure.com/launch'))))
  AND isnull(real_user_id)
GROUP BY
  aws.submission_id;

```



# CANVAS\_LDA Database Table

| sis_user_id | sis_section_id | last_activity_date  | data_timestamp      |
|-------------|----------------|---------------------|---------------------|
| 1234567     | 2191-12345     | 2019-05-13 02:46:26 | 2019-05-14 05:23:01 |



# UCF's Python LTI Template

UCF developed a template tool for creating quick LTI tools

<https://github.com/ucfopen/lti-template-flask>

Very easy to make new simple LTI tools!

- Installed on my Linux/Apache server for LTI tools
- Set up configuration
- Modified the views.py file with code and queries
- Created a new jinja template to display the data
- Modified CSS file





# Last Activity Date Tool

- Includes instructor enrollments at top
- Students are sorted by name and separated by status in course
- Information about report is included at the bottom.

**Seminole State New LDA Tool - CanvasL**

ENC1101: English I (Online) MRG  
 Summer 2019 Full Session

**Teachers**

| Name | ID Number | User Name | Section ID |
|------|-----------|-----------|------------|
|      |           |           | 2194-40838 |
|      |           |           | 2194-40927 |
|      |           |           | 2194-40747 |

**Enrolled Students**

| Name | ID Number | User Name | Last Submission Date | Section ID |
|------|-----------|-----------|----------------------|------------|
|      |           |           | 2019-06-08           | 2194-40927 |
|      |           |           | 2019-06-09           | 2194-40927 |
|      |           |           | 2019-06-10           | 2194-40927 |
|      |           |           | 2019-06-01           | 2194-40747 |
|      |           |           | 2019-06-08           | 2194-40747 |
|      |           |           | 2019-06-08           | 2194-40838 |
|      |           |           | 2019-06-11           | 2194-40747 |
|      |           |           | 2019-06-11           | 2194-40747 |
|      |           |           | 2019-06-04           | 2194-40838 |
|      |           |           | 2019-06-08           | 2194-40747 |
|      |           |           | 2019-06-11           | 2194-40747 |
|      |           |           | 2019-06-08           | 2194-40747 |
|      |           |           | 2019-06-08           | 2194-40838 |
|      |           |           | 2019-06-11           | 2194-40838 |
|      |           |           | 2019-06-08           | 2194-40927 |

**Withdrawn Students**

| Name | ID Number | User Name | Last Submission Date | Section ID |
|------|-----------|-----------|----------------------|------------|
|      |           |           | 2019-05-18           | 2194-40838 |
|      |           |           | None                 | 2194-40927 |
|      |           |           | 2019-05-19           | 2194-40838 |

**Dropped Students**

| Name | ID Number | User Name | Last Submission Date | Section ID |
|------|-----------|-----------|----------------------|------------|
|      |           |           | None                 | 2194-40747 |
|      |           |           | None                 | 2194-40927 |
|      |           |           | 2019-06-08           | 2194-40838 |

Canvas course\_id: 66201

Logged in as: Joni Miller, Course Role: eLearning Canvas Administrator

Report Timestamp: 2019-06-25 10:53:29.555308



# Future Opportunities

## Publishers

- add submitted\_at field for submissions via LTI

## Canvas Data

- incremental/more frequent updates



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THANK YOU

THANK YOU



LONG BEACH InstructureCon CALIFORNIA

**THANK YOU**

7.9-11 Learning Safari 2019

THANK

YOU

THANK YOU