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1 Active Learning overview

Note: Active Learning is available after 9.5.370.136 and does not support Relativity classic UI.

Active Learning is an application that lets you run continuously updated queues of documents for review, based on your review strategy. The advantages of Active Learning include real-time intelligence, efficiency, flexibility, and integration with all the power of the Relativity platform.

Start your Active Learning project by creating a new classification index and choosing a single-choice field for reviewers to code relevance. Once you start the review queue, reviewers can access the queue and begin coding documents. Coding decisions are ingested by the Active Learning model where Active Learning takes place. This allows the queues to get better at serving relevant documents to reviewers. This whole process is continuous.

As reviewers code and the model updates, project admins can monitor the queue for certain metrics.

This page contains the following sections:

- Active Learning overview above

See these related pages:

- Environment and workspace setup on page 6
- Project setup on page 10
- Review statistics on page 22
1.1 Special considerations

- ARM is not compatible with classification indexes or Active Learning.
- Analytics classification indexes are copied over when a workspace is used as a template, the same behavior as a conceptual index. However, you can't copy an Active Learning project in a template.
- You need at least five documents coded with the positive designation and five coded with the negative designation to start the model's learning.
- Once the Active Learning model completes its first build, the model will build at maximum every 20 minutes after the previous build to include coding decisions not included in the most recent build. If reviewer activity has been idle for five minutes and there are coding decisions not included in the most recent build, the model will start a build.
2 Environment and workspace setup

Before creating an Active Learning project, you must first verify that your system and workspace meet the necessary standards, and then perform the required installation and configuration steps to successfully run an Active Learning project.

2.1 Installing the Active Learning application

Install the Active Learning application from the Application Library to your workspace.

2.1.1 Agent configuration

Ensure the following agents are installed and configured:

- Relativity Analytics Index Manager
- Analytics Index Progress Manager
- Analytics Categorization Manager
- Active Learning Manager (on per resource pool)
- Active Learning Synchronization Manager (one per resource pool)

2.1.2 Relevant instance setting table values

Active Learning uses the following instance settings:

- ReviewQueueRefreshThreshold
- ReviewQueueBatchSize
- ClassificationCategorizationDelay
- ClassificationCategorizationMaxDelay

2.2 Required workspace components

A new Active Learning project uses the following components, so you must create them before you can create a project. Even if these items already exist in the workspace, you may want to create a new instance of each specifically for your new project.

2.2.1 Saved search

This saved search includes the documents to be used in the Active Learning project. This set of documents is used as the searchable set when you create an Analytics index.

**Note:** The saved search must be public.
2.2.2 Analytics index
You must create an Analytics index with Classification as the Index Type. You must create a separate Analytics index for each Active Learning project.

**Note:** The Analytics index you use for your project must be active and have queries enabled for your project to function properly. Before completing a full or incremental population of your index during an ongoing project, we recommend turning off all review queues and turning them back on once the index is active. Project reporting may be incorrect during a full or incremental population but will be corrected once the index is active.

2.2.3 Review group
Create a review group to access the Active Learning project. This review group must the following security permissions:

<table>
<thead>
<tr>
<th>Object Security</th>
<th>Tab Visibility</th>
<th>Other Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document - View, Edit</td>
<td>Documents</td>
<td>Browsers - None OR Folders and/or Field Tree and/or Clusters</td>
</tr>
</tbody>
</table>

- If Browser permissions are set only to Advanced & Saved Searches, reviewers can't access the Reviewer page.

**Note:** The users in this group are not automatically added to the Active Learning project. You must grant each individual access to the Review queue. For more information, see Project setup on page 10.

2.2.4 Review field with two choices
Create a single choice field with two choices for reviewers to code on. One choice must represent the positive/responsive designation, and the other the negative/not responsive designation.

2.2.5 Review layout
You must have a layout for reviewers to make coding decisions on. You may use an existing layout, but at the minimum, this layout must include the review field you created above.

2.3 Security permissions
This page contains information on the security permissions required for creating and interacting with an Active Learning project.

2.3.1 Creating an Active Learning project
To create an Active Learning project, you need the following permissions:
### Object Security

- **Active Learning Project** - View, Edit, Add
- **Active Learning Review** - View, Edit, Add
- **Active Learning Reviewer** - View, Edit
- **Analytics Categorization Result** - View, Add
- **Analytics Categorization Set** - View, Edit, Add
- **Analytics Index** - View, Edit
- **Field** - View, Edit, Add
- **Object Rule** - View, Add
- **View** - View, Add, Edit Security
- **Workspace** - View, Secure

### Tab Visibility

- **Active Learning Project**

### 2.3.2 Viewing and editing an Active Learning project

To view and edit an Active Learning project, you need the following permissions:

**Note:** It's not possible to have "view-only" Active Learning permissions. If you have permission to view but not edit an Active Learning project, you aren’t able to view the project.

### Object Security

- **Active Learning Project** - View, Edit
- **Active Learning Review** - View, Edit, Add
- **Active Learning Reviewer** - View, Edit
- **Analytics Categorization Set** - View, Edit

### Tab Visibility

- **Active Learning Projects**

### 2.3.3 Deleting an Active Learning project

In order to delete an Active Learning project, you need workspace admin or system admin permissions as there's no other way to delete the view created by the project.

### 2.3.4 Reviewer permissions

The review group accessing the Active Learning project must have the following permissions:

<table>
<thead>
<tr>
<th>Object Security</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Document</strong></td>
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</tr>
<tr>
<td><strong>View, Edit</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
If Browser permissions are set only to Advanced & Saved Searches, reviewers can't access the Reviewer page.

**Note:** The users in this group are not automatically added to the Active Learning project. You must grant each individual access to the Review queue. For more information, see [Project setup on the next page](#).
3 Project setup

Before creating a new Active Learning project, ensure you've properly configured the environment and workspace components. For more information, see Environment and workspace setup on page 6

3.1 Creating an Active Learning project

1. From your workspace, navigate to Assisted Review > Active Learning Projects.
2. Click New Active Learning Project.
3. Complete the fields on the layout. See Fields below.
4. Click Save.

You'll then be redirected to the project home dashboard.

**Note:** If documents in the index were already coded on the review field selected for this project, the Active Learning model learns from those coding decisions.

3.1.1 Fields

The Active Learning Project layout contains the following fields:

- **Project Name** - enter a name for your Active Learning project.
- **Analytics Index (Classification)** - select your Analytics Classification index.
- **Review Field** - select the single choice field you created for review. This field must have exactly two choices and is not available for any other Active Learning project. These choices are not editable.
- **Positive Choice** - select the choice that represents the positive/responsive designation.
- **Suppress Duplicate Documents** - selecting this option stops Active Learning from serving documents that are textually similar to other coded documents to another reviewer (this does not consider word order). This option reduces the total number of documents needed to be reviewed. Since these are not exact duplicates, you will most likely need to review suppressed documents after the project is complete.
- **Reviewer Group** - select the group you want to access the Active Learning project and review queues. Relativity creates a new document list view that's tied to the Active Learning project. This view has the same name as the Active Learning project. Reviewers will use this view to access the
3.2 Post-project setup

3.2.1 Project document list view

Upon saving a new project, Relativity creates a new document list view that's tied to the Active Learning project. This view has the same name as the Active Learning project. The logged in user will use this view to access the project in the workspace. This view is automatically secured to the Reviewers and returns documents previously reviewed by the currently logged in reviewers.

3.2.1.1 Project fields

Relativity also creates new fields that can be used for custom document list reporting. These include the following:

- **Project Name Reviewers::User** - the reviewer who reviewed a document that appeared in a queue.
- **Project Name: Prioritized Review** - the 200 document interval in which the document was reviewed in the Prioritized Review queue.
3.2.1.2 Manually-selected documents

Any document in the project coded on the Project Review field - both from the Active Learning queue and outside of the queue - contributes to the project's learning. Coding decisions that occur outside of the queue are called “manually-selected” documents. Upon creating a new project, the Active Learning project will learn from any manually-selected documents if they exist. This includes documents coded via mass edit or documents imported through the RDC with values coded on the Project Review field.
4 Project home

Once you’ve created the Active Learning project, you’ll be redirected to the project home page. Here, you’ll notice a new dashboard with the following items:

- **Project Size** - the number of documents in the project. This count reflects the documents successfully indexed. Documents that were removed during the index build are excluded during this count.

- **Coded [Positive Choice]** - the number of documents coded with the positive designation on the review field. This count includes documents coded from the queue and Manually Selected documents. These documents are used to teach the model.
  - **Positive Choice Manually-selected**: the number of documents that were coded on the positive choice designation field outside of the queue.

- **Coded [Negative Choice]** - the number of documents coded with the negative designation on the review field. These documents are used in teaching the model. This count includes documents coded from the queue and Manually Selected documents.
  - **Negative Choice Manually-selected**: the number of documents that were coded on the negative choice designation field outside of the queue.

- **Skipped** - the number of documents served to a reviewer that weren’t coded by an end reviewer.

After refreshing the project home page, the data will update to reflect the current document count.
4.1 Active Learning Queues

4.1.1 Prioritized Review

The Prioritized Review queue serves documents that are most likely to be relevant with a small set of documents included for index health. Any coded document contributes to the model's learning.

From this modal, you can add reviewers to the project based on the permission you set up prior to creating the Active Learning project. On the other hand, Admins can also pause the queue at any point in the project. To do so, simply click the Pause Review button on the project queue. Once the queue is paused, the access point on the document view is disabled. You can restart the Prioritized Review queue at any time. For more information, see Project Setup.

4.1.2 Adding Reviewers

Reviewers are added from the project home page. Here, admins can grant explicit access to each queue in the project on a user-by-user basis or in bulk.

To add reviewers:

1. Click Add Reviewers in the Prioritized Review queue modal.
2. Find and select an individual reviewer, or type to enter a reviewer name. You can also click All Users to select every user in the group.
3. Click the green check mark to save your changes.
4. Click the red X to cancel reviewer changes.

![Reviewers Modal](image)
Note: We recommend no more than 20 concurrent reviewers per project. Concurrent reviewers are defined as reviewers making coding decisions in an Active Learning queue. There is no limit to how many reviewers you can add to a queue as long as the number of concurrent reviewers remains at 20 or fewer.

4.1.2.1 Starting the Review Queue
To start the Prioritized Review queue:

1. Successfully add reviewers to the queue.
2. Click Start Review.

Next time that user accesses the view, they will have access to the queue. This programatically created document view displays documents coded by the logged in user in that particular Active Learning project. The user will see a blue banner on the newly created project view since they're an active reviewer.

In the Prioritized Review queue modal, you'll see the following items after the project begins:

- **Coded** - the number of documents coded and skipped in the Prioritized Review queue.
- **Docs Remaining** - the number of documents reviewers would need to review in the prioritized review to review all documents currently ranked 75 or higher.

  Note: This number shouldn't be interpreted as an indication of the number of documents left to review as your responsive cutoff will likely be closer to 60.

- **Active Reviewers** - the number of reviewers added to the project.

4.1.3 Document Rank Distribution
This chart lays out all of the project’s documents, ranking them from 0 to 100. Documents plotted toward 0 are less likely to be considered as relevant to the reviewer, as predicted by the model. On the other hand, documents closer to 100 are more likely to be coded as relevant. For more information, see Project Monitoring.

4.1.4 Prioritized Review Progress
The Prioritized Review Progress chart measures the relevancy rate every 200 documents, as confirmed by reviewers’ coding decisions. More specifically, of the documents in that set of 200, how many were coded as relevant by the reviewer(s). Documents included in the Active Learning model for health are not included in the relevance rate calculation. For more information, see Project Monitoring.

4.1.5 Review Statistics
In the Review Statistics tab, you'll find data summarizing Prioritized Review, Manually-Selected Documents and Elusion Tests.

For more information, see Review Statistics.
4.2 Update Ranks

In the top-right corner of the Project Home, you'll see three icons. The first icon is the Update Ranks button. Here, you can manually update the document ranks and ensure the rank categorization field is up to date. Updating ranks will update the Categories – Project Name Cat. Set field and CSR-Project Name Cat. Set::Category Rank field with the most up to date rank and category.

The Positive Choice Cutoff (shown as Responsive Cutoff above) determines the minimum rank needed for a document to receive a Responsive categorization. This field defaults to 75, but Admins can edit by manually typing the new value in the space provided. Documents below the cutoff are automatically given the Negative Choice category. Updating ranks for the first time creates the Categories – Project Name Cat. Set and the CSR-Project Name Cat. Set::Category Rank fields. These fields contain the results.

4.3 Notifications

The next icon, Notifications, informs you of any notifications you may have in the project. More specifically, you'll see any project errors here. A red circle will appear in the bottom corner of the Notifications icon if a notification exists. Follow the instructions in the error message to resolve the project error. Once you've resolved the error, the error message will automatically disappear.
4.4 Project Settings

The third icon, found in the top-right corner of the Project Home, is Project Settings. This gives an overview of the settings that were selected during the initial project setup. It includes the following Project Details:

- Project Name
- Analytics Index
- Categorization Set
- Review Field
- Positive Choice
- Suppress Exact Duplicates

The Project Settings also include Review Setup and the Reviewer Group selected.
4.5 Project monitoring

Admins have a number of ways to monitor the progress of an Active Learning project. Please see below for further details.

4.5.1 Document rank distribution

The Document Rank Distribution is one of the monitoring charts in the Active Learning project homepage. This ranks each document in the model based on how it relates to the overall project. A relevance rank near zero indicates the model believes the document is more likely coded on the negative review field.
choice. On the other hand, a rank closer to 100 means the model believes a document is more likely to be coded on the positive review field choice. The review state of the documents are also overlaid on this distribution.

The dashboard reports documents reviewed from the Prioritized Review queue, as well as documents coded outside of the queue. Admins will see the following colors on the chart:

- **Blue (Coded Positive Choice)** - a document was coded on the positive choice review field.
- **Yellow (Coded Negative Choice)** - a document was coded on the negative choice review field.
- **Purple (Not Set)** - the documents are within the project's scope, but have not yet been coded and are based on Relativity's predictions.
- **Green (Skipped)** - a document was skipped.
- **Red (Suppressed Duplicate)** - the documents are suppressed because their learning is taken care of by other textually similar documents.

### 4.5.1.1 Document rank distribution chart
You can interact with the Document Rank Distribution Chart to hide the different categories of documents. This allows you to easily view particular categories of documents that remain in the chart. For example, to hide the Not Set documents, click on the purple box to the right of Not Set. Upon clicking, the bar chart will rescale for the remaining documents.

**Monitoring document rank distribution**
Use the rank distribution chart to understand the following:
- The number of predicted, relevant documents that remain for review.
- The agreement between reviewers and the Active Learning model.
- The number of documents the queue does not understand well.

As the model learns throughout the project life cycle, the Rank Distribution is expected to gravitate toward 0 or 100 depending on how documents are coded on the positive choice or negative choice. If a coding decision is updated on a Prioritized Review document, it will not change to a manually selected document. Each time an admin accesses this page - via a page refresh or from a different page - the latest data will reflect in the Project Home display.

4.5.2 Prioritized review progress

The Prioritized Review Progress chart displays the effectiveness of the prioritized review queue’s ability to locate the relevant documents by measuring the relevance rate. More specifically, the relevance rate measures the percentage of documents that were predicted to be relevant that were then confirmed as relevant by reviewers’ coding decisions.

Relevance rate is calculated every 200 documents for frequent feedback. Once 200 documents are coded in prioritized review, relevance rate data appears on the chart.

![Prioritized Review Progress Chart]

Note: This measurement is not cumulative with regard to the entire document set.

Monitoring prioritized review progress

In the beginning of the project, the Relevance Rate may be low as the model learns the meaning of responsive. However, as reviewers code documents and the model learns, this rate will improve because the model becomes better at locating relevant documents. Eventually, this Relevance Rate will plateau and decline. Declines in Relevance Rate indicate that the project is near completion since the model is serving up fewer relevant documents to reviewers.
**Note:** Documents used for Index health are not included in the Relevance Rate calculation.
5 Review statistics

In the Review Summary section, you'll see three tabs: Prioritized Review, Manually-Selected Documents.

5.1 Prioritized Review

The Prioritized Review tab shows the effectiveness of the Prioritized Review queue’s ability to locate relevant documents by reporting the review field breakdown and relevance rate each 200 documents.

In Prioritized Review, you’ll see the following categories:

- Prioritized Review
- # of Reviewers
- Coded on the Positive Choice Review Field
- Coded on the Negative Choice Review Field
- Skipped
- Relevance Rate

For every 200 documents that are coded, a new row in the Prioritized Review table will appear.

5.2 Manually-Selected Documents

Manually-Selected Documents shows the number of document coding decisions occurred outside of the project, on a daily basis.

In Manually-Selected Documents, you'll see the following categories:

- Manually-Selected Documents
- Coded on the Positive Choice Review Field
- Coded on the Negative Choice Review Field
- Date Submitted
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