Job Search documentation   (https://cloud.google.com/talent-solution/job-search/)
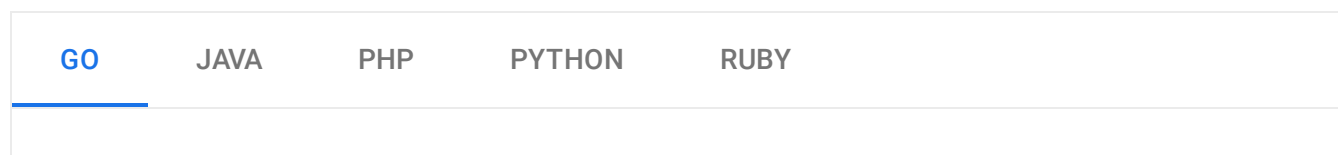
Documentation

Improve the pre-trained model with client event data

Cloud Talent Solution (https://cloud.google.com/talent-solution/job-search) is a service that brings machine learning to your job search experience, returning high quality results to job seekers far beyond the limitations of typical keyword-based methods. Right out of the box, CTS applies relevance models and job/skill ontologies to your job details. You can improve the results returned to job seekers by recording client events based on the activity of the job seeker.

Record client events using `createClientEventRequest`

When a job seeker performs a specific action, you can use Job Search to record that action. For example, the job seeker or other entity interacting with the service has had a job (or a list of jobs) rendered in their view, such as in a list of search results in a compressed or clipped format. You can send an IMPRESSION event to Cloud Talent Solution to provide data on the context of the search and the results that a job seeker can see. When the job seeker clicks on a job result to view the full job description, you can send a VIEW event that registers the job seeker's interest in the chosen position.

The following example illustrates how to send a message to Cloud Talent Solution using an API. The job seeker or other entity interacting with the service has had a job (or a list of jobs) rendered in their view, such as in a list of search results in a compressed or clipped format. This event is typically associated with a job seeker viewing a list of jobs on a single page.

GO	JAVA	PHP	PYTHON	RUBY

LECLOUDPLATFORM/GOLANG-SAMPLES/BLOB/MASTER/JOBS/V4/HOWTO/BASIC_CLIENT_EVENT.GO)

```go
import (
        "context"
        "fmt"
        "io"
        "time"

        talent "cloud.google.com/go/talent/apiv4beta1"
        "github.com/golang/protobuf/ptypes"
        talentpb "google.golang.org/genproto/googleapis/cloud/talent/v4beta1"
)

// createClientEvent creates a client event.
func createClientEvent(w io.Writer, projectID string, requestID string, eventID st
        ctx := context.Background()

        // Create an eventService client.
        c, err := talent.NewEventClient(ctx)
        if err != nil {
                return nil, fmt.Errorf("talent.NewEventClient: %v", err)
        }

        createTime, _ := ptypes.TimestampProto(time.Now())
        clientEventToCreate := &talentpb.ClientEvent{
                RequestId:  requestID,
                EventId:    eventID,
                CreateTime: createTime,
                Event: &talentpb.ClientEvent_JobEvent{
                        JobEvent: &talentpb.JobEvent{
                                Type: talentpb.JobEvent_VIEW,
                                Jobs: relatedJobNames,
                        },
                },
        }

        // Construct a createJob request.
        req := &talentpb.CreateClientEventRequest{
                Parent:      fmt.Sprintf("projects/%s", projectID),
                ClientEvent: clientEventToCreate,
        }

        resp, err := c.CreateClientEvent(ctx, req)
```

```
        if err != nil {
                return nil, fmt.Errorf("CreateClientEvent: %v", err)
        }

        fmt.Fprintf(w, "Client event created: %v\n", resp.GetEvent())

        return resp, nil
}
```

Event messages

Required fields:

- `eventId` (Customer defined): Each message sent to Cloud Talent Solution must have a unique `eventId`. As a best practice, incorporate the timestamp while defining this field to ensure non-duplicity. The maximum length of this field is 255 characters.

- `requestId`: The value of the `requestId` returned by the search response object. This value is unique to a particular `SearchJobsRequest` API call. It is used for all subsequent messages stemming from the original search IMPRESSION event. When a new `SearchJobsRequest` API call is made (for example: job seeker goes to the next page of results) the `requestId` changes.

- `createTime` The timestamp of the event (in [Timestamp](https://developers.google.com/protocol-buffers/docs/reference/google.protobuf#google.protobuf.Timestamp) (https://developers.google.com/protocol-buffers/docs/reference/google.protobuf#google.protobuf.Timestamp) format, accurate to nanoseconds. This timestamp should reflect when the event actually occurred, not when the message was sent.

- Union field `event`: Can be one of either `jobEvent` or `profileEvent`. [jobEvent](https://cloud.google.com/talent-solution/job-search/docs/reference/rest/v4beta1/ClientEvent#JobEvent) (https://cloud.google.com/talent-solution/job-search/docs/reference/rest/v4beta1/ClientEvent#JobEvent) objects are used with the Job Search feature and are issued when a job seeker interacts with the service. [profileEvent](https://cloud.google.com/talent-solution/job-search/docs/reference/rest/v4beta1/ClientEvent#ProfileEvent) (https://cloud.google.com/talent-solution/job-search/docs/reference/rest/v4beta1/ClientEvent#ProfileEvent) objects are used with the Profile Search (Beta) feature and are issued when a profile searcher interacts with the service. [Contact us](#)

(https://docs.google.com/forms/d/e/1FAIpQLSeY97ce2g7K8KcUDoqE2hXYSa6ih_zQdBKvMqhS-tssbilMgA/viewform?c=0&w=1)
if you're interested in participating in Profile Search (Beta).

Sample event message

The API call in the code sample above should generate a JSON message in the following
format:

JSON

```json
{
  "requestId": string,
  "eventId": string,
  "createTime": string,
  "eventNotes": string,



// Union field event can be only one of the following:
  "jobEvent": {
    object (JobEvent)
  },
  "profileEvent": {
    object (ProfileEvent)
  }
  // End of list of possible types for union field event.
}
```

Scenarios and workflows

The following are two example scenarios of the job seeker searching, viewing, and applying for
a job.

Workflow 1

1. Job seeker performs a search. For example: *Product mgr SF*

   Search results are returned to the job seeker.

   The job search response object sent back to the customer's server contains a unique `requestId` (for example: `8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/OoC2WAW5AA==`). Use this `requestId` for all future messages related to this particular SearchJobsRequest API call.

   Send Cloud Talent Solution an <u>IMPRESSION</u>
   (https://cloud.google.com/talent-solution/job-search/docs/client-
   event#EventType.ENUM_VALUES.IMPRESSION)
   message.

   Sample event message:

   ```
   {
     "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
     "eventId": "ID1",
     "createTime": "2018-12-19T16:39:57-08:00",
     "jobEvent":
     {"type":"IMPRESSION",
     "jobs":["jobs/4000000000", "jobs/4000000001","jobs/4000000002",
     "jobs/4000000003", "jobs/4000000004"]}
   }
   ```

2. Job seeker selects a result (a job posting) to view the full details of the job.

   Send Cloud Talent Solution a VIEW message.

   ```
   {
     "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
     "eventId": "ID2",
     "createTime": "2018-12-19T16:40:57-08:00",
     "jobEvent":
     {"type":"VIEW",
     "jobs":["jobs/4000000000"]}

   }
   ```

   ★ **Note:** A VIEW event follows an IMPRESSION event.

3. Job seeker applies to the viewed job posting.

a. If the job seeker is redirected to a page within the same domain (an internal application page), send Cloud Talent Solution an APPLICATION_START message.

```
{
  "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
  "eventId": "ID3",
  "createTime": "2018-12-19T16:41:57-08:00",
  "jobEvent":
  {"type":"APPLICATION_START",
"jobs":["jobs/4000000000"]}
}
```

b. If the job seeker is redirected to an external application page, send Cloud Talent Solution an APPLICATION_REDIRECT message.

```
{
  "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
  "eventId": "ID3",
  "createTime": "2018-12-19T16:41:57-08:00",
  "jobEvent":
  {"type":"APPLICATION_REDIRECT",
  "jobs":["jobs/4000000000"]}

}
```

4. When the job seeker completes an internal application, send Cloud Talent Solution an APPLICATION_FINISH message:

```
{
  "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
  "eventId": "ID4",
  "createTime": "2018-12-19T16:43:57-08:00",
  "jobEvent":
  {"type":"APPLICATION_FINISH",
  "jobs":["jobs/4000000000"]}

}
```

5. The job seeker goes back to the search results and continues to page 2 (or they continue to page 2 without having clicked on a job posting).

Send Cloud Talent Solution an IMPRESSION message with the next set of results from page 2. Note: There's a new `requestId` that is generated in the response of the `SearchJobsRequest` API call that generates the second page of results. (for example, `99e5b99c-f1ba-4f85-b17d-ccf878f451f9:APAb7IRESj+/Hzwa3bBd54P3qPx2yOWm5w==`).

```
{
  "requestId": "99e5b99c-f1ba-4f85-b17d-ccf878f451f9:APAb7IRESj+/Hzwa3bBd54P3qP
  "eventId": "ID5",
  "createTime": "2018-12-19T18:39:57-08:00",
  "jobEvent":
  {"type":"IMPRESSION",
  "jobs":["jobs/4000000005", "jobs/4000000006","jobs/4000000007",
  "jobs/4000000008", "jobs/4000000009"]}
}
```

6. Job seeker continues to page 3 of the search results.

   Send Cloud Talent Solution an IMPRESSION message with the next set of results. NOTE: There's a new `requestId` (for example, `e2d2b916-78c3-4c65-aecc-d8452bc0afb0:APAb7IRvCsNPiRXYkgF8PN5e8BkbFzKOyg==`).

```
{
  "requestId": "e2d2b916-78c3-4c65-aecc-d8452bc0afb0:APAb7IRvCsNPiRXYkgF8PN5e8B
  "eventId": "ID6",
  "createTime": "2018-12-19T16:41:57-08:00",
  "jobEvent":
  {"type":"IMPRESSION",
  "jobs":["jobs/4000000010", "jobs/4000000011","jobs/4000000012",
  "jobs/400000013", "jobs/4000000014"]}
}
```

Workflow 2

1. Job seeker performs a search. For example: *Product mgr SF*

   Search results are returned to the job seeker.

   The job search response object contains a unique `requestId` (for example: `a2179a9b-cf73-413e-8076-98af08b991ad`). Use this `requestId` for all future messages related to this `SearchJobsRequest` API call.

   Send Cloud Talent Solution an IMPRESSION message.

```
{
  "requestId": "a2179a9b-cf73-413e-8076-98af08b991ad",
  "eventId": "ID1",
  "createTime": "2018-12-19T16:39:57-08:00",
  "jobEvent":
  {"type":"IMPRESSION",
  "jobs":["jobs/4000000000", "jobs/4000000001","jobs/4000000002",
  "jobs/4000000003", "jobs/4000000004"]}
}
```

2. Job seeker selects a result (a job posting) to view the full details of the job.

   Send Cloud Talent Solution a VIEW message.

```
{
  "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
  "eventId": "ID2",
  "createTime": "2018-12-19T16:40:57-08:00",
  "jobEvent":
  {"type":"VIEW",
  "jobs":["jobs/4000000000"]}
}
```

★ **Note:** A VIEW event follows an IMPRESSION event.

3. Job seeker performs a single click application to a job, as outlined in
   APPLICATION_QUICK_SUBMISSION
   (https://cloud.google.com/talent-solution/job-search/docs/client-event#eventtype).

   Send Cloud Talent Solution an APPLICATION_QUICK_SUBMISSION message with the next
   set of results.

```
{
  "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
  "eventId": "ID3",
  "createTime": "2018-12-19T16:41:57-08:00",
  "jobEvent":
  {"type":"APPLICATION_QUICK_SUBMISSION",
  "jobs":["jobs/4000000000"]}
}
```

4. Job seeker performs the following actions.

a. Job seeker goes back to the search results applies for a job directly from the search results page. The application process is a longer process than defined in APPLICATION_QUICK_SUBMISSION (that is, it's a multi-step application process).

Send Cloud Talent Solution an APPLICATION_START_FROM_SERP message.

```
{
  "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
  "eventId": "ID4",
  "createTime": "2018-12-19T16:43:57-08:00",
  "jobEvent":
  {"type":"APPLICATION_START_FROM_SERP",
  "jobs":["jobs/4000000000"]}
}
```

b. Job seeker completes the application for the job. Send Cloud Talent Solution an APPLICATION_FINISH message.

```
{
  "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
  "eventId": "ID5",
  "createTime": "2018-12-19T16:44:57-08:00",
  "jobEvent":
  {"type":"APPLICATION_FINISH",
  "jobs":["jobs/4000000000"]}
}
```

5. Job seeker goes back to the search results and applies to a job directly from the search results page. The application process redirects the job seeker to another domain that is outside the tenant site (external application) from which, the progress of the applicant cannot be tracked.

Send Cloud Talent Solution an APPLICATION_REDIRECT_FROM_SERP message.

```
{
  "requestId": "8d2bdd5d-1361-42a5-a0fd-bd2b58b7d8fb:APAb7ISd4Sc5faibw2V5hTU/Oo
  "eventId": "ID6",
  "createTime": "2018-12-19T16:45:57-08:00",
  "jobEvent":
  {"type":"APPLICATION_START_FROM_SERP",
  "jobs":["jobs/4000000001"]}
}
```

This is different from APPLICATION_REDIRECT where a job seeker is on the job description page when re-routed.

Verify client event implementation

Cloud Talent Solution provides you with self service tools that you can use to verify implementation of client events. See management tools (https://cloud.google.com/talent-solution/docs/management-tools) for more information about the available self service options.