

# Google Code-in Task API Specification

Version 1.4 / 2018-09-26

<https://developers.google.com/open-source/gci/api/>

*A simple API for accessing Task and Task Instance data for your Organization.*

A Python API client and example code is available at  
<https://code.google.com/codein/api>.

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# Common

## URLs

The hostname for the API is <https://codein.withgoogle.com>

⇒ Trailing slashes are important in URLs.

## Authentication

Accepted Organization Administrators will see an API token on their [user profile page](#).

This token should be included in the **Authorization** header with every request to the API. The header should be of the form:

**Authorization: Bearer <your API token>**

**WARNING:** Anyone with this token will have access to add/update/delete tasks for your organization on your behalf. Keep it safe.

## Tasks

### URLs

List endpoint

**/api/program/current/tasks/**

Pagination query string parameters can be passed to the list endpoint:

- **page\_size**: the number of results to return
- **page**: the page number of **page\_size** to return

Detail endpoint

**/api/program/current/tasks/:id/** where **:id** is the numeric ID for a task

## Supported Operations

- **GET** the list endpoint to get a page of 50 tasks along with pagination metadata. The response body will be a list of JSON-serialized tasks.

- **GET** the detail endpoint for a task to see that individual task's details. The response body will be a single JSON-serialized task.
- **POST** to the list endpoint to create a task. The request body must be a JSON-serialized task.
- **PUT** to the detail endpoint for a task to update that task (you should include the full entity body each time). The request body must be a JSON-serialized task.
- **DELETE** to the detail endpoint for a task to delete that task. The request body should be empty.

## Response Codes

- **200**: OK
- **201**: The entity has been created
- **204**: No content. Used only in the response to successful **DELETE** requests
- **400**: The JSON supplied with the request was badly formatted, or field validation failed. In the case that one or more fields don't pass validation, error messages will be returned in the response.
- **401**: The request is not authorized (i.e. there was no API token)
- **403**: The client doesn't have permission to create/update/delete/read the entity
- **404**: The entity couldn't be found
- **500**: An unexpected server error occurred

## Task Content

All task request and response data should/will be JSON.

An example of the JSON request format for a task:

```
{
  "name": "A task",
  "description": "A longer description of the task with links, etc.",
  "status": 2,
  "max_instances": 35,
  "tags": ["programming", "short"],
  "mentors": ["mentor@org.com", "mentor2@org.com", "admin@org.com"],
  "is_beginner": false,
  "categories": [1, 5],
  "time_to_complete_in_days": 4
}
```

## Fields

Field name	Description	Validation
<b>id</b>	The database ID of the task.	Read only

<b>name</b>	The name of the task.	Required String 200 chars max length
<b>description</b>	Long description of the task. Supports a limited subset of Markdown syntax.	Required to publish String 500 chars max length (post markdown)
<b>status</b>	An integer that represents the status of the task.	Choices:  <b>1:</b> Draft <b>2:</b> Published  Can only be set to published if there are assigned mentors and the following fields are filled out with valid values:  <b>name,</b> <b>description,</b> <b>max_instances,</b> <b>categories,</b> <b>time_to_complete_in_days,</b> <b>mentors</b>
<b>max_instances</b>	The maximum number of students that can be working on their own copy of this task at the same time.	Integer > 0, <= 100 Defaults to 1
<b>mentors</b>	The email addresses of the mentors in your organization that are assigned to this task. PUT-ing this will overwrite the previous list.	Required to publish 30 emails max
<b>tags</b>	A list of free-text tags that apply to this task.	
<b>is_beginner</b>	Whether or not this task is aimed at beginners.	Defaults to false
<b>categories</b>	A list of integer IDs corresponding to categories that should be applied to this task.	Required to publish Choices:  <b>1:</b> Coding <b>2:</b> Design <b>3:</b> Documentation & Training <b>4:</b> Quality Assurance <b>5:</b> Outreach & Research
<b>time_to_complete_in_days</b>	The number of days that a student gets to complete this task.	Required to publish Integer >=3, <=7

		Defaults to 3
<b>external_url</b>	Link to external bugtracker or wiki for this task.	URL
<b>private_metadata</b>	Arbitrary metadata that the Org can use to link the task to an org-internal identifier.	String 80 chars max length
<b>last_modified</b>	A datetime in ISO8601 format indicating when the task was last saved.	Read only
<b>claimed_count</b>	Number of task instances currently claimed for this task	Read only
<b>available_count</b>	Number of task instances currently available for this task	Read only
<b>completed_count</b>	Number of task instances completed for this task.	Read only

## Limited Markdown

- Links
- Heading (one level of)
- Paragraphs and Line Breaks
- Automatic Escaping
- Emphasis
- Lists
- Code (span) and Code Blocks

Markdown is documented at <https://daringfireball.net/projects/markdown/syntax>

## Task Instances

A task instance is a linkage between a Task and a particular student.

### URLs

List endpoint

**`/api/program/current/instances/`**

Pagination query string parameters can be passed to the list endpoint:

- **page\_size**: the number of results to return
- **page**: the page number of **page\_size** to return

## Detail endpoint

`/api/program/current/instances/:id/` where `:id` is the numeric ID for a task instance

## Supported Operations

- **GET** the list endpoint to get a page of task instances along with pagination metadata. The response body will be a list of JSON-serialized task instances.
- **GET** the detail endpoint for a task to see that individual task instance's details. The response body will be a single JSON-serialized task instance.

## Response Codes

- **200**: OK
- **401**: The request is not authorized (i.e. there was no API token)
- **403**: The client doesn't have permission to create/update/delete/read the entity
- **404**: The entity couldn't be found
- **500**: An unexpected server error occurred

## Task Instance Content

All task instance response data will be JSON.

An example of the JSON request format for a task instance:

```
{
  "status": "COMPLETED",
  "student_display_name": "George01",
  "program_year": 2016,
  "task_definition_id": 5726253101350912,
  "student_id": 5096715048714240,
  "modified": "2016-11-03 01:51:51",
  "task_definition_name": "Write a test case.",
  "organization_name": "Some Organization",
  "completion_date": "2016-11-03 01:44:04",
  "deadline": "2016-11-09 01:01:48",
  "organization_id": 5640347044544512,
  "id": 5724255673122816
}
```

## Fields

Field name	Description	Validation
<b>id</b>	The database ID of the task instance.	
<b>task_definition_name</b>	The name of the task this instance is for.	
<b>task_definition_id</b>	The id of the task this instance is for.	
<b>status</b>	An integer that represents the status of the task instance.	CLAIMED ABANDONED UNASSIGNED_BY_MENT OR SUBMITTED NEEDS_WORK OUT_OF_TIME COMPLETED PENDING_PARENTAL_C ONSENT
<b>student_display_name</b>	The display name of the student this instance is for.	
<b>student_id</b>	Unique id for the student.	
<b>completion_date</b>	Timestamp for when task instance was completed.	
<b>deadline</b>	Timestamp for task instance deadline.	
<b>modified</b>	Timestamp for last modification of task instance or task instance comments.	

## Webhooks

Google Code-in Webhook Notifications are experimental and may be changed or discontinued at any time.

## Usage

Google Code-in Webhook Notifications are intended to let your organization learn about events that happen on your tasks in real-time. We envision this being useful for sending messages to chat systems or tracking things on an internal database or using automation to analyze tasks.

If you need more information about a task or task instance, please use the Task or Task Instance APIs described above.

The information in the notifications is intentionally restrictive and conservative for privacy reasons. If there's a useful field that's missing, let us know, and we'll consider adding it in the future.

Please be conservative, cautious, and considerate about which parts of this information you share in a location visible to student participants. (For example, you probably don't want to share that other students are abandoning tasks or every time a student comments on a task. Imagine how a student would feel if all the other students knew that their task kept being sent for more work over and over again.)

## Configuration

If your organization wishes to receive webhook notifications, please provide [gci-support@google.com](mailto:gci-support@google.com) with the URL of your endpoint. `https://` is required.

## Notification Handling and Format

Messages will be POSTed to your endpoint as a JSON blob containing the fields described below.

Example "Task Abandoned By Student" message:

```
{
  "author_is_student": true,
  "task_definition_name": "Sails unspread it stopped at kearney",
  "event_type": "abandon",
  "task_instance": 6296903092273152,
  "task_claimed_by": "student-yqqtag",
  "time": 1506475323.256627,
  "uuid": "1f4bab4d1820400f9b50ed8bf2bb03b3",
  "author": "student-yqqtag",
  "task_instance_url":
  "https://codein.withgoogle.com/dashboard/task-instances/6694926301528064/",
  "task_definition_url":
  "https://codein.withgoogle.com/dashboard/tasks/6694926301528064/"
}
```

(All other task types are nearly identical.)

You must return a 200 response code, or we will consider it an error.

On error, notifications are attempted up to 5 times with exponential backoff (0 sec, 60 sec, 120 sec, 240 sec, 480 sec).

## Event Type

Type	Description
comment	Comment on task instance by student or mentor.
submit	Task instance submitted by student.
needswork	Task instance set to needs more work by mentor.
abandon	Task instance abandoned by student.
claim	Task instance claimed by student.
approve	Task instance approved by mentor.
approve-pending-pc	Task instance approved by mentor, but student needs parental consent approved.
extend	Task instance deadline extended.
unassign	Task instance unassigned by mentor.

## Fields

Field	Description
id	Unique uuid for this event.
time	Floating point seconds since the epoch.
event_type	Type of this event. (See Event kinds table.)
organization	Name of organization the task is from.
author	Display name of the user who triggered this event.

author_is_student	true if the author is a student, otherwise false.
task_claimed_by	Display name of the student who owns this task instance.
task_instance	ID of this task instance
task_definition_name	The title of the task.
task_instance_url	URL to the task instance for task_claimed_by. .../dashboard/task-instances/NNNNN/ (login required)
task_definition_url	URL to the definition for this task. .../dashboard/tasks/MMMMM/ (login required)
extension_days	Number of days (fractional) deadline has been extended by. (Only for event type "extend")

## Sample Data

```
{ "task_definition_url":
  "https://codein.withgoogle.com/dashboard/tasks/6051711999279104/",
  "task_claimed_by": "George", "event_type": "claim", "author": "George",
  "task_instance_url":
  "https://codein.withgoogle.com/dashboard/task-instances/6051711999279104/",
  "task_definition_name": "Red Task", "time": 1509575957.073637, "id":
  "31e212215a8b468fa75c1f1430a451f0", "task_instance": 4996180836614144,
  "author_is_student": true }
```

```
{ "task_definition_url":
  "https://codein.withgoogle.com/dashboard/tasks/6051711999279104/",
  "task_claimed_by": "Paul", "event_type": "needswork", "author": "Cynthia",
  "task_instance_url":
  "https://codein.withgoogle.com/dashboard/task-instances/6051711999279104/",
  "task_definition_name": "Blue Task", "time": 1509576007.257213, "id":
  "19f30988c86045bfbc6aacd789cd3a92", "task_instance": 5136918324969472,
  "author_is_student": false }
```

```
{ "task_definition_url":
  "https://codein.withgoogle.com/dashboard/tasks/6051711999279104/",
  "task_claimed_by": "Paul", "event_type": "approve", "author": "Cynthia",
```

```
"task_instance_url":  
"https://codein.withgoogle.com/dashboard/task-instances/6051711999279104/",  
"task_definition_name": "Green Task", "time": 1509576007.555963, "id":  
"82585c56a14945908a21d17401a700af", "task_instance": 5136918324969472,  
"author_is_student": false}
```

```
{"task_definition_url":  
"https://codein.withgoogle.com/dashboard/tasks/6051711999279104/",  
"task_claimed_by": "Ringo", "event_type": "submit", "author": "Ringo",  
"task_instance_url":  
"https://codein.withgoogle.com/dashboard/task-instances/6051711999279104/",  
"task_definition_name": "Teal Task", "time": 1509576027.971414, "id":  
"f3ca6ef6d2744ff7994a5aa52f8b86fa", "task_instance": 5136918324969472,  
"author_is_student": true}
```

```
{"task_definition_url":  
"https://codein.withgoogle.com/dashboard/tasks/6051711999279104/",  
"task_claimed_by": "Ringo", "event_type": "approve", "author": "Cynthia",  
"task_instance_url":  
"https://codein.withgoogle.com/dashboard/task-instances/6051711999279104/",  
"task_definition_name": "Teal Task", "time": 1509576028.59059, "id":  
"e1939807e35c47ff833adeba68ef7216", "task_instance": 5136918324969472,  
"author_is_student": false}
```

```
{"task_definition_url":  
"https://codein.withgoogle.com/dashboard/tasks/5559130790035456/",  
"task_claimed_by": "Stuart", "event_type": "comment", "author": "Pete",  
"task_instance_url":  
"https://codein.withgoogle.com/dashboard/task-instances/5559130790035456/",  
"task_definition_name": "Orange Task", "time": 1509576084.825651, "id":  
"0b1fe22ee0214bebb8587008c8975a83", "task_instance": 4538783999459328,  
"author_is_student": false}
```

```
{"task_definition_url":  
"https://codein.withgoogle.com/dashboard/tasks/5559130790035456/",  
"task_claimed_by": "Stuart", "event_type": "comment", "author": "Stuart",  
"task_instance_url":  
"https://codein.withgoogle.com/dashboard/task-instances/5559130790035456/",  
"task_definition_name": "Orange Task", "time": 1509576094.791589, "id":  
"2dd2b45d87c644ec884ac0fb9b20ad49", "task_instance": 4538783999459328,  
"author_is_student": true}
```

# Changelog

- 1.0 - initial release
- 1.01 - clarify location of auth token
- 1.02 - fix incorrect categories enumeration
- 1.1 - add task instances
- 1.2 - add experimental webhooks information, other minor updates
- 1.21 - tweaks and cleanups, add sample data
- 1.23 - webhook improvements
- 1.3 - ??
- 1.4 - user interface -> design