





Google Tasks API

Andreas Signer, David Tattersall,
Fabian Schlup, Nicolas Garnier

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"Release a Tasks **API**, so that third party application developers can sync with Google Tasks"

"**An API for third party apps would be incredible...**"

"**API** to allow third party apps to integrate and sync with Google Tasks. Integration with services like Nozbe, Toodledo, etc. would ROCK"

"PLEASE a good **API**. I'm not a developer but I'm smart enough to know that app developers would eat it up!"

"Tasks needs an **API** so badly it hurts"

"Release a Tasks **API**, so that third party application developers can sync with Google Tasks"

"An **API** for third party apps would be incredible..."

"**API** to allow third party apps to integrate and sync with Google Tasks. Integration with services like Nozbe, Toodledo, etc. would ROCK"

"PLEASE a good **API**. I'm not a developer but I'm smart enough to know that app developers would eat it up!"

"**Tasks needs an API so badly it hurts**"

Google tasks api

Introduction

David Tattersall

Tasks API Basics

Fabian Schlup

Using the Tasks API

Andreas Signer

Writing Tasks Applications

Nicolas Garnier

Demos

Roger Neel (Founder, VP Products & Platform, Mavenlink)

Naveen Venkat (Tech Lead, Zoho)

Ilan Abehassera (Founder and CEO, Producteev)

Q & A

<http://code.google.com/apis/tasks>

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Q & A

<https://www.googleapis.com/tasks/v1>

HTTPS

REST

JSON

- Integrated with the API Console
code.google.com/apis/console

Tasks API ▾

Project Home

APIs (1)

Traffic Reports

Traffic Controls

Traffic Reports for Tasks API

Tasks API

Apr 9, 2011 – May 6, 2011

Total requests

1.07k

Requests/day

101 peak **38.04** average

Top referrers

0 requests. (0.00%)

Zoom: [1d](#) [5d](#) [1m](#) [3m](#) [6m](#) [1y](#) [Max](#)

• # of requests 0 | April 15, 2011



No data reported this period.

<https://www.googleapis.com/tasks/v1>

HTTPS




REST

JSON

- Integrated with the API Console
code.google.com/apis/console
- Available in the APIs Explorer
code.google.com/apis/explorer
- Client libraries for Java, Python and others
code.google.com/apis/tasks

Tasks: Google I/O



- Introduction
- Tasks API Basics
- Using the Tasks API
- Writing a Tasks Applications
 - Libraries
 - Synchronization
- Q/A

Actions   


Tasks: Google I/O

[Back to list](#)




- Tasks API Basics

May 11, 2011  

- HTTPS
- REST
- JSON

Move to list 

[Back to list](#)

Actions   

List

```
id: "123"  
title: "I/O Talk"
```

Task

```
id: "42"  
title: "Talk about REST"  
status: "needsAction"  
parent: "23"  
position: "0A1B2C"  
...
```

List

```
id: "123"  
title: "I/O Talk"
```

Task

```
id: "42"  
title: "Talk about REST"  
status: "needsAction"  
parent: "23"  
position: "0A1B2C"  
...
```

```
.../users/@me/lists
```

All my Lists

List

```
id: "123"  
title: "I/O Talk"
```

```
.../users/@me/lists
```

All my Lists

Task

```
id: "42"  
title: "Talk about REST"  
status: "needsAction"  
parent: "23"  
position: "0A1B2C"  
...
```

```
.../lists/123/tasks
```

All Tasks on a List

<https://www.googleapis.com/tasks/v1/users/@me/lists>

<https://www.googleapis.com/tasks/v1/lists/123/tasks>

	POST	GET	PUT	DELETE
Collections	Insert	List	✗	✗

<https://www.googleapis.com/tasks/v1/users/@me/lists/123>

<https://www.googleapis.com/tasks/v1/lists/123/tasks/42>

	POST	GET	PUT	DELETE
Collections	Insert	List	✗	✗
Resources	✗	Read	Update	Delete

position

1	05000
2	20000
3	30000
4	08000
5	10000

position

1

05000

2

20000

3

30000

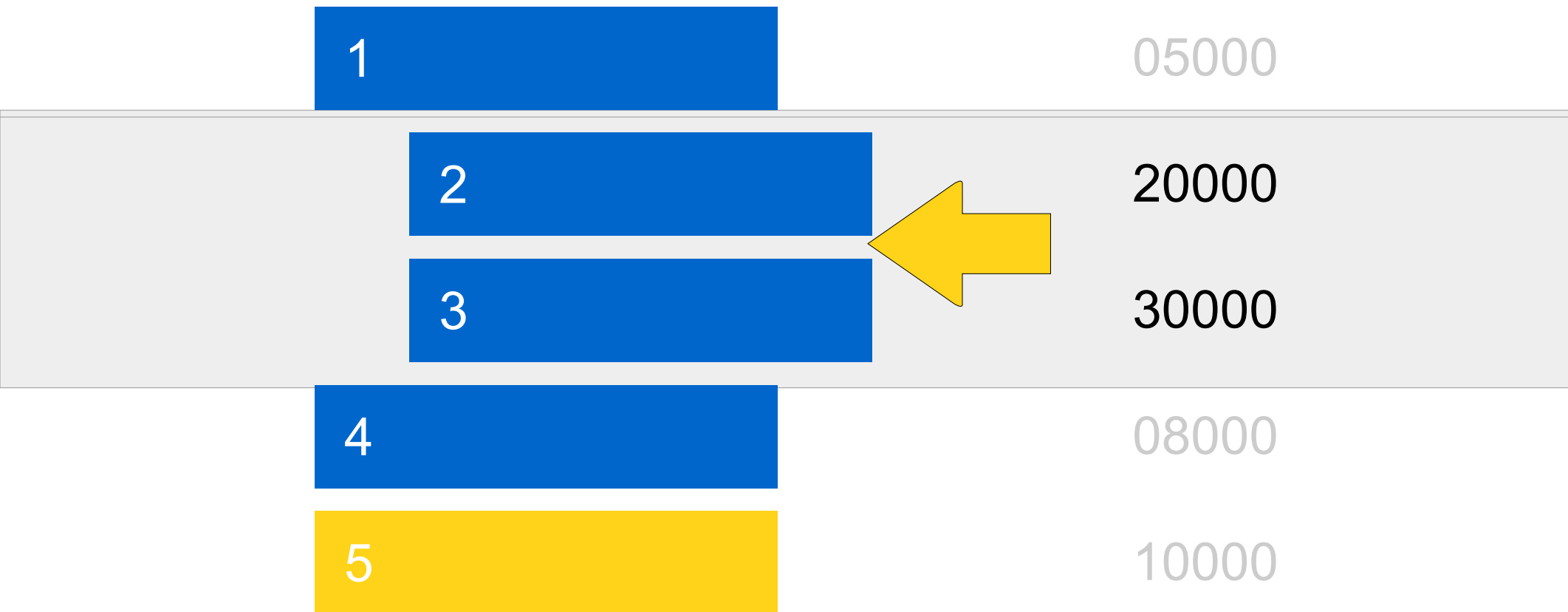
4

08000

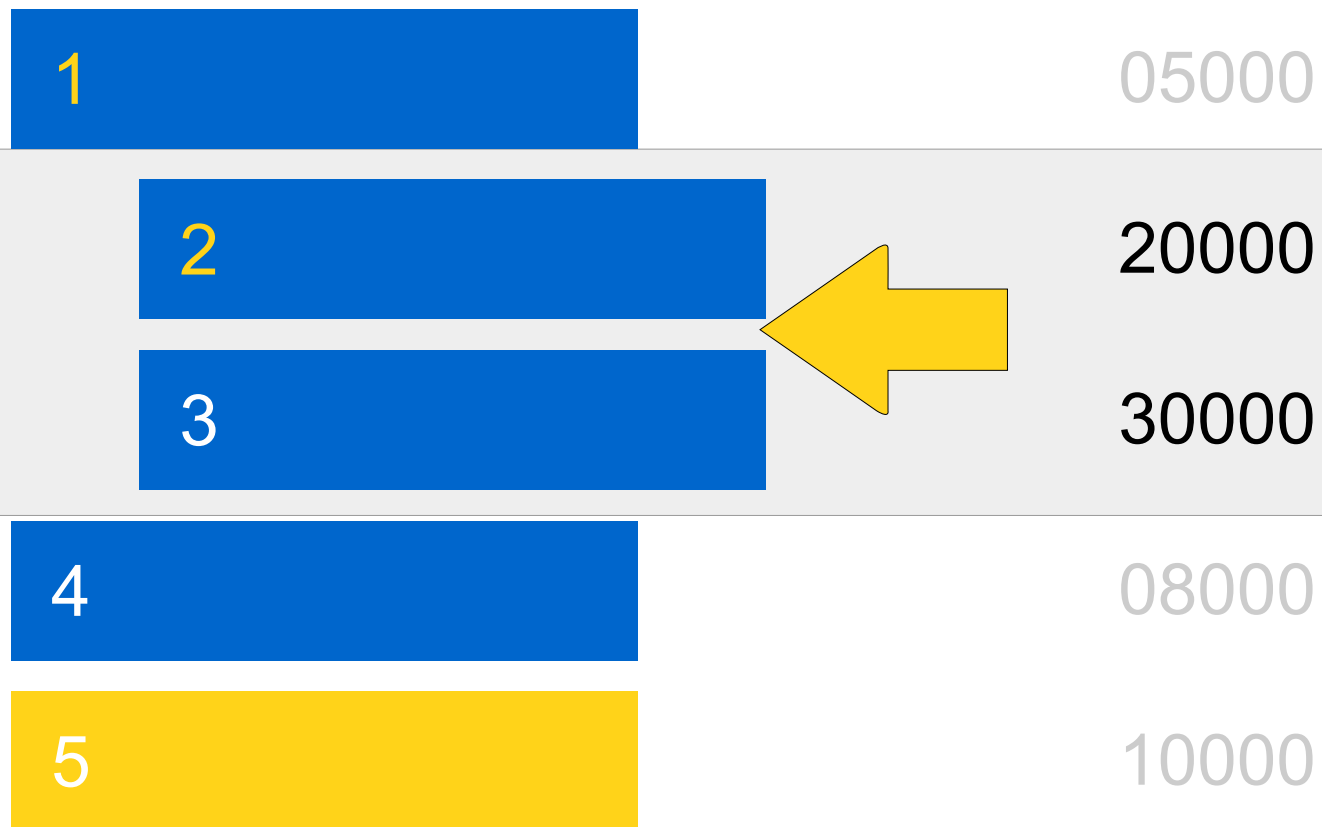
5

10000

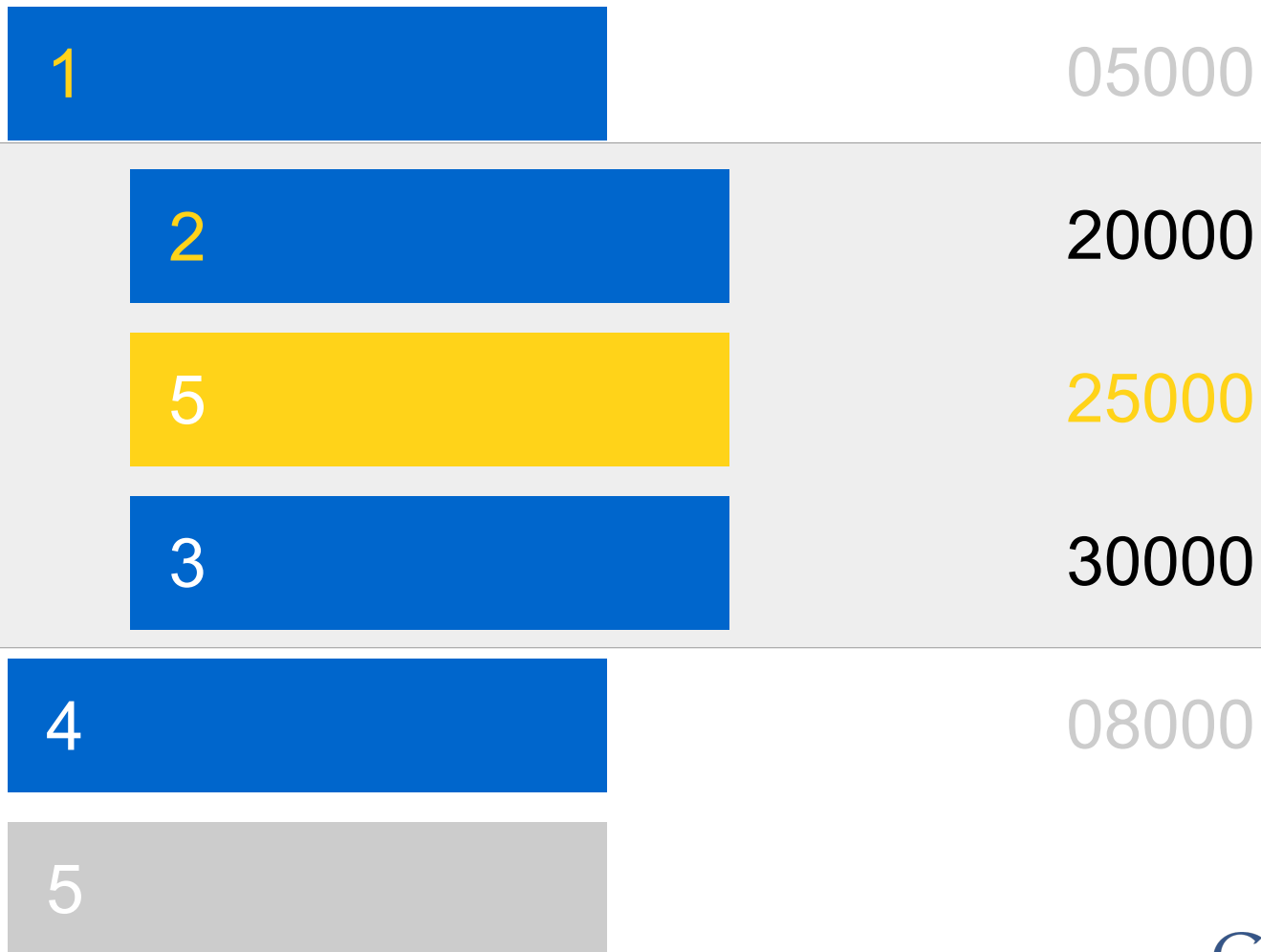
position



POST .../lists/123/tasks/5/move?parent=1&previous=2



POST .../lists/123/tasks/5/move?parent=1&previous=2



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Q & A

APIs Explorer

- Easy-to-use UI
- Ideal for experiments
- Lets you explore and discover features easily
- <http://code.google.com/apis/explorer>

(Demo)

As easy as that!

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Q & A

Client libraries

Available languages

- Strongly-typed client libraries
 - [Java](#)
 - [.NET](#)
- Dynamic languages using discovery
 - [Python](#)
 - [PHP](#)
 - [Ruby](#)

Client libraries

Provides an easy-to-use abstraction layer

Get the default tasks list...

Protocol

```
> GET /tasks/v1/lists/@default/tasks
> Host: www.googleapis.com

< HTTP /1.1 200 OK
<
< {
<   kind: "tasks#tasks",
<   nextPageToken: "nextToken",
<   items: [
<     ...
```

Java

```
Tasks tasks = service.tasks
    .list("@default").execute();

for (Task task : tasks.items) {
    System.out.println(task.title);
}
```

Python

```
tasks = service.tasks().list(
    tasklist='@default').execute()

for task in tasks['items']:
    print task['title']
```

Synchronization

Synchronization on our Android app

Synchronization

Synchronization on our Android app

A common scenario:

- Action: User modifies tasks at any moment
- Periodic job:
 - Send local modifications to the API
 - Get modifications from the API

Synchronization

Synchronization on our Android app

Useful APIs features:

- Conditional modification / Versioning
 - **If-Match** header with **etags** (Version number)
- Polling
 - The **updatedMin** URL parameter

Synchronization



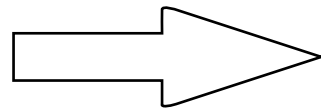
Not a Java developer?

Synchronization

Action: The user modifies a task



User modifies tasks



- Save modifications on local database
- Mark entry as modified
- Save modified date

Synchronization

Periodic job: to push modifications to the API

Synchronization

Periodic job: to push modifications to the API

Get the tasks marked as updated from local database

For each updated tasks:

- Do a conditional update of the task
PUT using the **If-Match** header
- Remove modified marker

If conflict (412 Precondition Failed)
Then use merge logic

Synchronization

Periodic job: to push modifications to the API

```
// Get the tasks marked as updated from local database  
List<Task> toUpdate = getTasksToUpdate();
```

For each updated tasks:

- Do a conditional update of the task
PUT using the **If-Match** header
- Remove modified marker

If conflict (412 Precondition Failed)
Then use merge logic

Synchronization

Periodic job: to push modifications to the API

```
// Get the tasks marked as updated from local database  
List<Task> toUpdate = getTasksToUpdate();
```

```
for (Task task : toUpdate) { // For each updated tasks  
  // Do a conditional update  
  Update update = service.tasks.update("@default", task.id, task);  
  update.executeWithInitializer(new IfMatch(task.etag));  
  update.execute();  
  markAsUpdated(task); // Remove modified marker  
}
```

If conflict (412 Precondition Failed)
Then use merge logic

Synchronization

Periodic job: to push modifications to the API

```
// Get the tasks marked as updated from local database  
List<Task> toUpdate = getTasksToUpdate();
```

```
for (Task task : toUpdate) { // For each updated tasks  
    // Do a conditional update  
    Update update = service.tasks.update("@default", task.id, task);  
    update.executeWithInitializer(new IfMatch(task.etag));  
    try {  
        update.execute();  
    } catch (HttpResponseException e) { // Thrown when not 2XX response  
        if(e.getResponse().getStatusCode() == 412) { // If conflict  
            handleConflict(task); // Use merge logic  
        }  
    }  
    markAsUpdated(task); // Remove modified marker  
}
```


Synchronization

Periodic job: to push modifications to the API

Possible strategies for merge:

- Keep the last modified
- Yours always win
- Prompt the user
- Data per-field (need to keep last-modified on each field)

Synchronization

Periodic job: to push modifications to the API

Possible strategies for merge:

- **Keep the last modified**
- Yours always win
- Prompt the user
- Data per-field (need to keep last-modified on each field)

Synchronization

Periodic job: to push modifications to the API

```
// Keep last updated merge logic
void handleConflict(Task localTask) {
    Task remoteTask = service.tasks.get("@default", localTask.id).execute();
    long localTimeStamp = DateTime.parseRfc3339(localTask.updated).value;
    long remoteTimeStamp = DateTime.parseRfc3339(remoteTask.updated).value;

    if (localTimeStamp > remoteTimeStamp) {
        service.tasks.update("@default", localTask.id, localTask).execute();
    } else {
        saveToLocalDatabase(remoteTask);
    }
}
```

Synchronization

Periodic job: to push modifications to the API

```
// Keep last updated merge logic
void handleConflict(Task localTask) {
    Task remoteTask = service.tasks.get("@default", localTask.id).execute();
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    if (localTimeStamp > remoteTimeStamp) {
        service.tasks.update("@default", localTask.id, localTask).execute();
    } else {
        saveToLocalDatabase(remoteTask);
    }
}
```

Synchronization

Periodic job: get modified tasks from the API

Synchronization

Periodic job: get modified tasks from the API

Get the updated tasks since last sync using the "updatedMin" URL parameter.

For each task retrieved, update your local database.

Save new lastUpdated date.
(latest updated task)

Synchronization

Periodic job: get modified tasks from the API

```
// Retrieve previous last updated date
DateTime lastUpdated = getLastUpdated();
// Get updated tasks since last sync
List getTasksOperation = client.tasks.list("@default");
getTasksOperation.updatedMin = lastUpdated.toStringRfc3339();
getTasksOperation.showDeleted = "true";
Tasks tasksResult = getTasksOperation.execute();
```

For each task retrieved, update your local database.

Save new lastUpdated date.
(latest updated task)

Synchronization

Periodic job: get modified tasks from the API

```
// Retrieve previous last updated date
DateTime lastUpdated = getLastUpdated();
// Get updated tasks since last sync
List getTasksOperation = client.tasks.list("@default");
getTasksOperation.updatedMin = lastUpdated.toStringRfc3339();
getTasksOperation.showDeleted = "true";
Tasks tasksResult = getTasksOperation.execute();
```

```
for (Task task : tasks.items) { // For each tasks
    saveToLocalDatabase(task); // Update local database
}
```

Save new lastUpdated date.
(latest updated task)

Synchronization

Periodic job: get modified tasks from the API

```
// Retrieve previous last updated date
DateTime lastUpdated = getLastUpdated();
// Get updated tasks since last sync
List getTasksOperation = client.tasks.list("@default");
getTasksOperation.updatedMin = lastUpdated.toStringRfc3339();
getTasksOperation.showDeleted = "true";
Tasks tasksResult = getTasksOperation.execute();
```

```
for (Task task : tasks.items) { // For each tasks
    saveToLocalDatabase(task); // Update local database
    // Find latest updated task's date
    DateTime updated = DateTime.parseRfc3339(task.updated);
    if (lastUpdated.value < updated.value) {
        lastUpdated = updated;
    }
}
saveLastUpdated(lastUpdated); // Save new sync date
```

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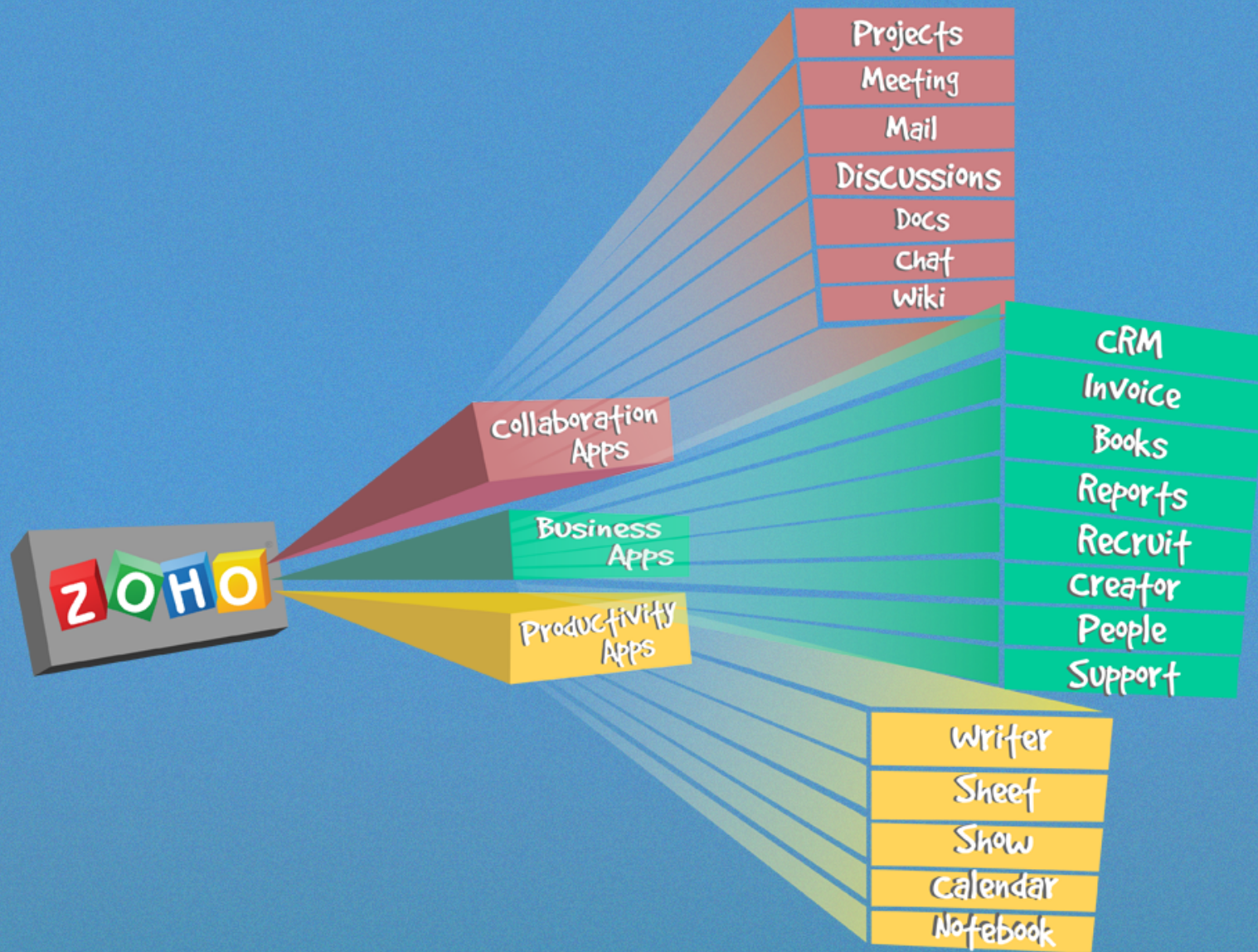
Q & A

Mavenlink

Roger Neel, Founder, VP Products & Platform

Zoho

Naveen Venkat, Tech Lead





in



CRM
Project Management
Invoicing
helpdesk
Book keeping
App builder

Business Intelligence & reporting
Applicant tracking system
Desktop sharing
Discussions forum
Group collaboration

ALL

WE UNDERSTAND YOUR BUSINESS NEEDS

General

- Personal Settings
- Admin Settings
- Tab Settings
- Developer Space

Apps & Add-ons

- Collaboration
- Mail Merge
- Accounting
- Business App

Advanced

- Workflow Settings
- Templates
- Subscription Manager
- Data Administration Tools

CRM Modules

- Lead Settings
- Account Settings
- Contact Settings
- Potential Settings
- Campaign Settings
- Task Settings
- Event Settings
- Call Settings
- Solution Settings
- Case Settings

Zoho CRM for Google Apps

Help



Zoho CRM for Google Apps links your Zoho CRM account with your Google Apps account. Adding users, Importing your Google contacts, Sync up with your Gmail and more can be achieved through this integration.

Disable

GApps wizard is enabled for you. If you want to disengage this integration between Gapps and Zoho CRM, Please click "Disable".

- Add Users
- Import Contacts
- Configure Google Email
- Embed CRM Gadgets
- How to attach Google Docs
- How to export to Google Calendar?
- Google Sites
- Google Tasks **New**



Export to Google Tasks

You can export tasks from Zoho CRM to Google Tasks. After exporting, you can view those in google Tasks. Export of tasks can be done from Create and List View of Tasks from Zoho CRM.

Select a Default Tasks List

Tasks from Zoho CRM will be exported into the selected Task list

Google Tasks List :

- My Wish List
- Naveen's Todo
- Release Tasks
- UI Revamp

Save

[New Lead](#) | [New Account](#) | [New Contact](#) | [New Potential](#) | [New Campaign](#) | [New Task](#) | [New Event](#) | [New Call](#)[Recycle Bin](#)**Activities: All Tasks**[Print View](#)All [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

Displaying 1 to 4 Total Count

View: [All Tasks](#) [Edit](#) | [Delete](#) | [Clone View](#) | [Create View](#)Find Activities: [Go](#)

<input type="checkbox"/>	Subject	Due Date	Status	Priority	Activity Type
<input type="checkbox"/>	Followup - Big Deal with Dell	05/06/2011	In Progress	High	Tasks
<input type="checkbox"/>	Send marketing mail - New 2.0 Release	05/24/2011	Not Started	High	Tasks
<input type="checkbox"/>	Call with John	05/04/2011	Deferred	Highest	Tasks
<input type="checkbox"/>	Meet chat engine market analyst	05/27/2011	Waiting on someone else	Normal	Tasks

[Delete](#)[More Actions](#)Records per page [10](#)[Mass Update](#)[Change Owner](#)[Export to Google Tasks](#)[→ Tasks and Events Report](#)[→ Todays Calls](#)[Other Reports »](#)

Search

All [Go](#)

Search Layout Show my records only

Recent Items

- Followup - Big Deal with Dell
- Meet chat engine market anal
- Call with John
- Send marketing mail - New 2.
- Ram Kumar

Quick Create

Quick Create..

Others

Calendar

[Tell a Friend](#)



Export to Google Tasks

You can export tasks assigned to you in Zoho Projects to your Google Tasks.

In Zoho Projects all the tasks are added under tasklists, the same tasklist-task hierarchy will be maintained in Google Tasks.

- Batch Setup** (2 Tasks)
- Accounts Receivable** (4 Tasks)
- Client side implementation** (1 Tasks)
- Finance** (3 Tasks)

Export

Cancel

Help

Mail Calendar Documents Sites Groups more | Manage this domain | Settings | Help | Sign out

Gmail
by Google

Search Mail Search the Web Show search options Create a filter

Compose Mail

Inbox (40)
Starred
Sent Mail
Drafts (1)

Divers (1)
Priorité
Suivi
4 more

Contacts
Tasks

Zoho Projects

MS in Project Management - Construction Sector-focused Masters in Pr

Archive Report spam Delete Move to Labels More actions

Select: All, None, Read, Unread, Starred, Unstarred

Chat
Search, add, or invite
vijay ps
Set status here
Options Add contact

Tasks under the imported task lists from Zoho Projects

Tasks: Batch Setup
 Audit Report

Tasks: Account Receivabl...
 Credit Checks
 Reports for Finance Team Meeting

Actions + - ☰

zoho.com/google-apps



Producteev

Ilan Abehassera, Founder and CEO



producteev



Your to-dos Everywhere



Google Docs

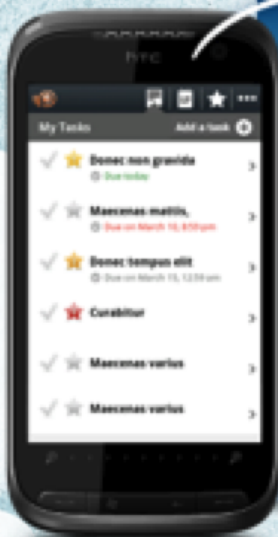
PRODUCTEEV WEB APP



Chrome Web App



Gtalk



Android App



Google Calendar



Chrome Extension

Google Tasks



DEMO

Technical Implementation

VERY COMPLETE TECHNICAL DOCUMENTATION

With examples in 3 languages (Java, Python and PHP)

WELL STRUCTURED API

“The next page token” definitely helps retrieving a great amount of datas easily

LETS YOU PULL EMAILS OUT OF GMAIL

That lets us turn emails into tasks seamlessly and retrieve them on Producteev



Thanks!
@ilan
ia@producteev.com



Come see us in the
Sandbox!

<http://code.google.com/apis/tasks>

.

Follow us: @googletasks

Hashtags: #io2011 #googleapps

Submit feedback: <http://goo.gl/CbVVB>