

Google
app engine



App Engine

Cloud Endpoints

[@d danailov](#)

Google App Engine



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[Slideshare.net](#)

[Github](#)

[YouTube](#)

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**SOFTWARE
UNIVERSITY**

Beehive

Varna Co-working space

Topics Today

- Overview
- Architecture
- Software
- Java JDO support
- Commands
- Google API Explorer
- CustomizeREST Interface

Overview



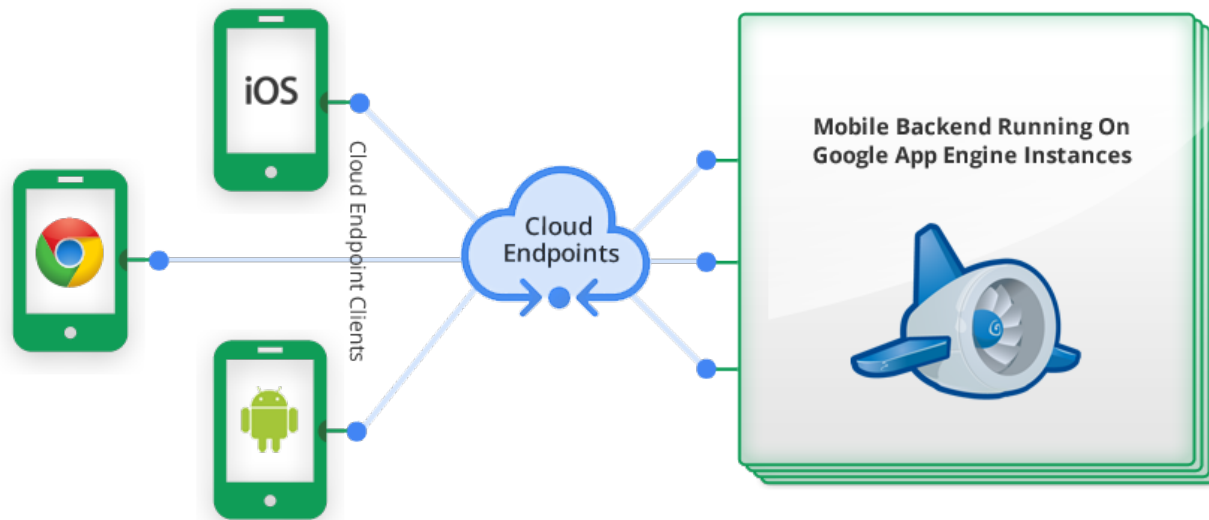
Google Cloud Endpoints consists of tools, libraries and capabilities that allow you to generate APIs and client libraries from an App Engine application, referred to as an *API backend*, to simplify client access to data from other applications. Endpoints makes it easier to create a web backend for web clients and mobile clients such as Android or Apple's iOS.



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Web, Apps & Software

Basic Endpoints Architecture

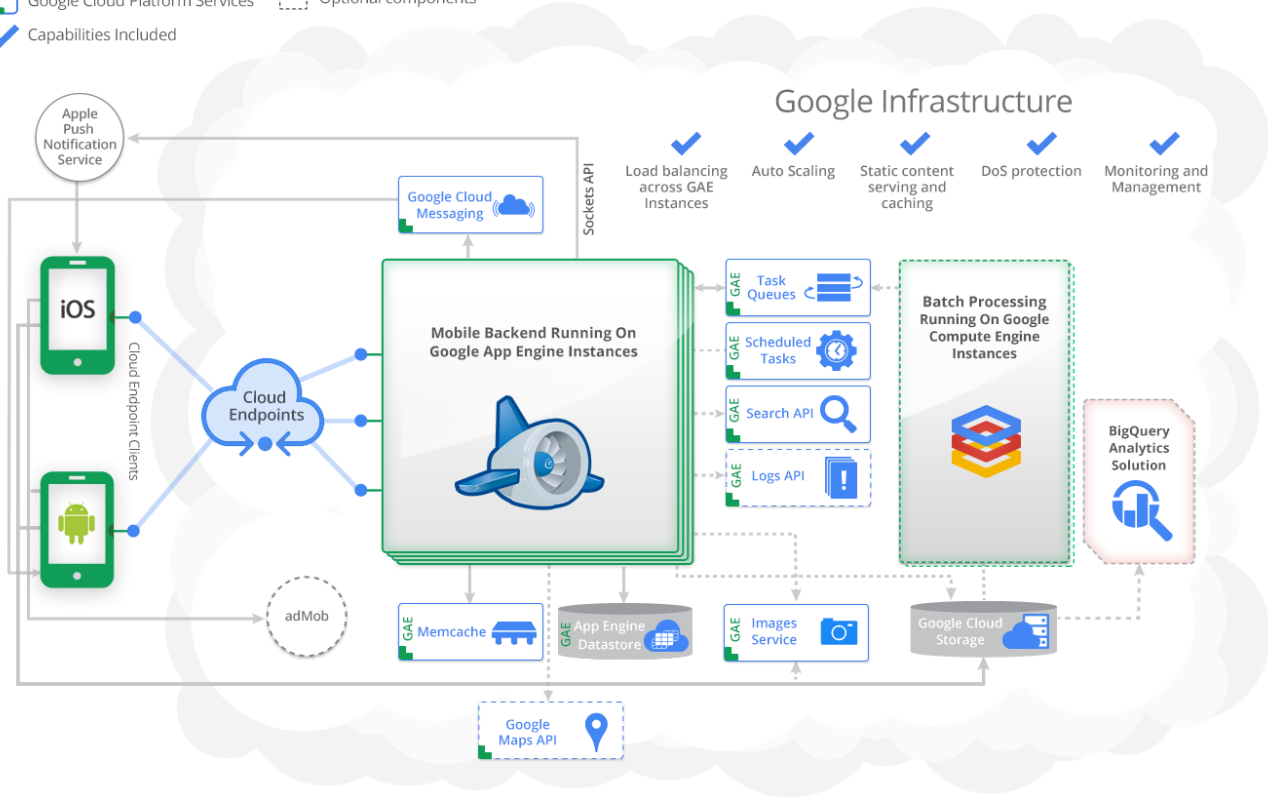


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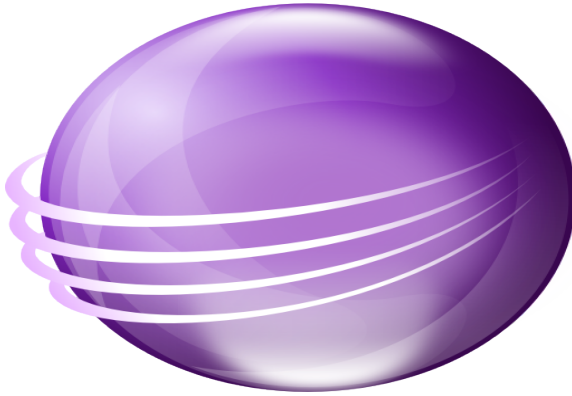
Web, Apps & Software

Mobile Solutions on the Google Cloud Platform

- Your Application Code running on Google App Engine (GAE), Google Compute Engine (GCE), and Client Devices
- Google Cloud Platform Services Optional components
- ✓ Capabilities Included



Software



Demo Project

New Web Application Project

Create a Web Application Project



Create a Web Application project in the workspace or in an external location

Project name:

Package: (e.g. com.example.myproject)

Location

Create new project in workspace

Create new project in:

Directory:

[Browse...](#)

Google SDKs

Use Google Web Toolkit

Use default SDK (GWT - 2.5.1)

[Configure SDKs...](#)

Use specific SDK:

Use Google App Engine

Use default SDK (App Engine - 1.8.0)

[Configure SDKs...](#)



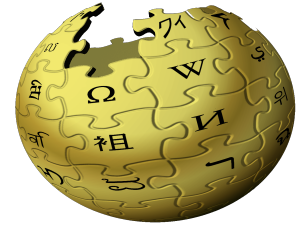
Cancel

Finish

Beer Class

```
public class Beer {  
  
    private Long id ;  
    private String beerName ;  
    private String kindOfBeer ;  
    private Long score ;  
    private Long numberOfDrinks ;  
    private Text image ;  
    private String country ;  
    private String description ;  
    private Double latitude ;  
    private Double longitude ;  
  
    public Long getId () {  
        return id ;  
    }  
    public void setId ( Long id ) {  
        this . id = id ;  
    }  
  
    // Getter and Setters  
}
```

Java JDO support



Java Data Objects (JDO) is a specification of Java object persistence. One of its features is a transparency of the persistence services to the domain model. JDO persistent objects are ordinary Java programming language classes (POJOs); there is no requirement for them to implement certain interfaces or extend from special classes.

Java JDO support (2)

```
import javax.jdo.annotations.IdGeneratorStrategy ;  
import javax.jdo.annotations.IdentityType ;  
import javax.jdo.annotations.PersistenceCapable ;  
import javax.jdo.annotations.Persistent ;  
import javax.jdo.annotations.PrimaryKey ;
```

```
@PersistenceCapable ( identityType = IdentityType. APPLICATION )  
public class Beer {
```

```
    @PrimaryKey  
    @Persistent ( valueStrategy = IdGeneratorStrategy. IDENTITY )  
private Long id ;
```


File Edit Refactor

Source Shift+Alt+S >

Refactor Shift+Alt+T >

Import...

Export...

Package Explorer

- biira
 - src
 - com.samples
 - Beer.java**
 - BeerEnd
 - BiiraServ
 - Commer
 - Commer
 - PMF.java
 - META-INF
 - log4j.prop
 - App Engine S
 - JRE System I
 - cloud-endpoi

References >

Declarations >

Refresh F5

Assign Working Sets...

Copy Path

Open Shell

Open Explorer

Run As

Debug As

Profile As

Validate

Team >

Compare With >

Replace With >

Restore from Local History...

Web Services >

Google >

- Add to ClientBundle...
- Generate Cloud Endpoint Class**

Properties Alt+Enter

```
com.samples;
.google.appengine.api.datastore
ceCapable (identityType = Ident:
Class Beer {
    ryKey
    stent ( valueStrategy = IdGene
    e Long id;
    e String beerName;
    e String kindOfBeer;
    e Long score;
    e Long numberOfDrinks;
    e Text image;
    e String country;
}
```

adoc Declaration Console

oints-biira - Datanucleus Enhancement
ncer (version 3.1.1) : Enhancem
ncer completed with success for

@Api

```
@Api(name = "birra")
```

In line 1 above we use the @Api attribute.

This attribute tells App Engine to expose this class as a REST\RPC endpoints.

Be aware that all the public methods on this class will be accessible via REST endpoint.

I have also changed the name to birra to match with the rest of the application.

Commands

1. List Beers
 - a. `curl http://localhost:8888/_ah/api/birra/v1/beer`
2. Create a Bear
 - a. `curl -H 'Content-Type: application/json' -d '{"beerName": "bud"}' http://localhost:8888/_ah/api/birra/v1/beer`
3. Get a Beer
 - a. `curl http://localhost:8888/_ah/api/birra/v1/beer/1`

```
dimitar@debian:~$ curl http://localhost:8888/_ah/api/birra/v1/beer
{
  "items" : [ {
    "id" : "4",
    "beerName" : "zagorka"
  }, {
    "id" : "6",
    "beerName" : "zagorka"
  }, {
    "id" : "7",
    "beerName" : "zagorka"
  }, {
    "id" : "8",
    "beerName" : "zagorka"
  }, {
    "id" : "9",
    "beerName" : "zagorka"
  }, {
    "id" : "10",
    "beerName" : "haines"
  }, {
    "id" : "11",
    "beerName" : "haines"
  } ]
}
```

```
dimitar@debian:~$ curl -H 'Content-Type: applicati
-d '{"beerName": "ariana"}' http://localhost:8888/
birra/v1/beer
{
  "id" : "26",
  "beerName" : "ariana"
}
```

```
dimitar@debian:~$ curl http://localhost:8888/_ah/api/birra/v1/beer/27
{
  "id" : "27",
  "beerName" : "ariana",
  "description" : "Bulgarian Beer"
}
```

```
dimitar@debian:~$ curl -H 'Content-Type: applcation/json' -d '{"name": "bmw"}' http://localhost:8888/_ah/api/birra/v1/car
{
  "error" : {
    "message" : "javax.jdo.JDOFatalInternalException: The key value
passed to construct a SingleFieldIdentity of type \"class javax.jdo.
identity.LongIdentity\" for class \"class com.samples.Car\" is null.
\nNestedThrowables:\norg.datanucleus.exceptions.NucleusException: Th
e key value passed to construct a SingleFieldIdentity of type \"clas
s javax.jdo.identity.LongIdentity\" for class \"class com.samples.Ca
r\" is null."
  }
}
```



BG-MAMMA

Fix - Before

```
@ApiMethod(name = "insertBeer")
public Beer insertBeer (Beer beer) {
    PersistenceManager mgr = getPersistenceManager ();
    try {
        if (containsCar (beer)) {
            throw new EntityExistsException ("Object already exists ");
        }
        mgr.makePersistent (beer);
    } finally {
        mgr.close ();
    }
    return beer;
}
```



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Fix - After

```
@ApiMethod(name = "insertBeer")
public Beer insertBeer (Beer beer) {
    PersistenceManager mgr = getPersistenceManager ();
    try {
        if (beer.getId () != null) {
            if (containsCar (beer)) {
                throw new EntityExistsException ("Object already
exists");
            }
        }
        mgr.makePersistent (beer);
    } finally {
        mgr.close ();
    }
    return beer;
}
```

https://<appid>.appspot. com/_ah/api/discovery/v1/apis

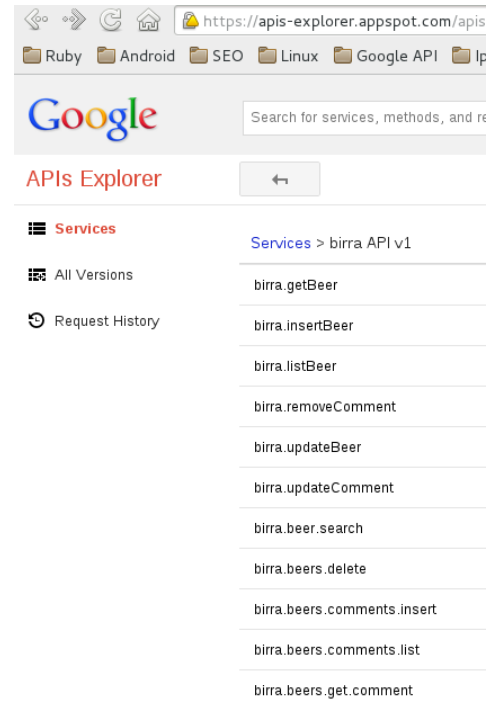


The image shows a browser window with the address bar containing the URL `https://demos-biira.appspot.com/_ah/api/birra/v1/beer`. Below the address bar, there is a navigation bar with icons for Ruby, Android, SEO, Linux, Google API, Iphone, and Social. The main content area displays a JSON response from the API, which is a list of beer resources. Each resource is represented as an object with fields for id, kind, beerName, kindOfBeer, score, country, and description.

```
{
  "items": [
    {
      "id": "1",
      "kind": "birra#resourceitem"
    },
    {
      "id": "2",
      "kind": "birra#resourceitem"
    },
    {
      "id": "3",
      "beerName": "zagorka",
      "kindOfBeer": "Light",
      "score": "5",
      "country": "Bulgaria",
      "description": "My favourite beer",
      "kind": "birra#resourceitem"
    },
    {
      "id": "1001",
      "beerName": "shumensko",
      "kindOfBeer": "Light",
      "score": "4",
      "country": "Bulgaria",
      "description": "My second favourite beer",
      "kind": "birra#resourceitem"
    },
    {
      "id": "5001",
      "beerName": "Stella",
      "country": "Italia",
      "description": "This is best Italian beer",
      "kind": "birra#resourceitem"
    },
    {
      "id": "6001",
      "beerName": "Italian Beer",
      "country": "Italia",
      "description": "This is best Italian beer",
      "kind": "birra#resourceitem"
    }
  ]
}
```

Google API Explorer

https://<appid>.
appspot.
com/_ah/api/expl
orer



Services > birra API v1 > birra.listBeer

cursor

(string)

limit

(integer)

fields

Selector specifying which fields to include in a partial response.

[Use fields editor](#)

Execute

birra.listBeer executed 5 minutes ago time to execute: 375 ms

Request

GET https://demos-biira.appspot.com/_ah/api/birra/v1/beer

X-JavaScript-User-Agent: Google APIs Explorer

Response

200 OK

[- Show headers -](#)

Comment Class

```
import com.google.appengine.api.users.User;

import javax.jdo.annotations.IdGeneratorStrategy ;
import javax.jdo.annotations.IdentityType ;
import javax.jdo.annotations.PersistenceCapable ;
import javax.jdo.annotations.Persistent ;
import javax.jdo.annotations.PrimaryKey ;

@PersistenceCapable (identityType = IdentityType.APPLICATION)
public class Comment {
    @PrimaryKey
    @Persistent ( valueStrategy = IdGeneratorStrategy.IDENTITY
)

    private Long commentId;
    private User user;
    private String date;
    private Long beerId;
    private String comment;

    // Getter and Setters
}
```

Customize REST Interface


```
@ApiMethod(name = "beers.comments.list", path =
"beers/{beerId}/comments")
public CollectionResponse < Comment > listComment(
    @Named("beerId") Long beerId,
    @Nullable@ Named("cursor") String cursorString,
    @Nullable@ Named("limit") Integer limit) {

    PersistenceManager mgr = null;
    Cursor cursor = null;
    List < Comment > execute = null;

    try {
        mgr = getPersistenceManager();
        Query query = mgr.newQuery(Comment.class,
"beerId == " + beerId);
        // ...
    }
}
```

Customize REST Interface (2)

```
@ApiMethod(name = "beers.get.comment", path =  
"beers/{beerId}/comments/{id}")  
public Comment getComment(@Named("beerId") Long  
beerId, @Named("id") Long id) {
```

```
@ApiMethod(name = "beers.comments.insert", path =  
"beers/{beerId}/comments")  
public Comment insertComment(@Named ( "beerId" )  
Long beerId, Comment comment) {
```

```
dimitar@debian:~$ curl http://localhost:8888/_ah/api/birra/v1/beers/1/comments
{
  "items" : [ {
    "commentId" : "14",
    "beerId" : "1",
    "comment" : "nice head"
  }, {
    "commentId" : "15",
    "beerId" : "1",
    "comment" : "nice head"
  }, {
    "commentId" : "16",
    "beerId" : "1",
    "comment" : "nice head"
  }, {
    "commentId" : "17",
    "beerId" : "1",
    "comment" : "nice head 2"
  } ]
}
```

```
dimitar@debian:~$ curl -H 'Content-Type: appllcation/json'
-d '{"comment": "nice beer"}' http://localhost:8888/_ah/api
/birra/v1/beers/1/comments
{
  "commentId" : "41",
  "beerId" : "1",
  "comment" : "nice beer"
```

Search

```
private static final Index INDEX = getIndex();

private static Index getIndex() {
    IndexSpec indexSpec = IndexSpec.newBuilder()
        .setName("beerindex").build();

    Index indexServiceFactory =
        SearchServiceFactory.getSearchService().getIndex
            (indexSpec);

    return indexServiceFactory;
}
```

Add Beers to that Index

```
private static void addBeerToSearchIndex(Beer beer) {
    Document.Builder docBuilder = Document.newBuilder();
    /*** Id ***/
    Long beerId = beer.getId();
        docBuilder.addField(Field.newBuilder().setName("id").setText
(Long.toString(beerId)));

    /*** Name ***/
    String beerName = beer.getBeerName();
    String docBuilderName = "";
    if (beerName != null) {
        docBuilderName = beerName;
    }
    docBuilder.addField(Field.newBuilder().setName("name").setText
(docBuilderName));
    /*** Name ***/

    /*** ... ***/
}
```

```
private static void addBeerToSearchIndex(Beer beer) {  
    /** ... ***/  
  
    /** Latitude **/  
    Double beerLatitude = beer.getLatitude();  
    Double docBulderLatitude = (double) 0;  
    if (beerLatitude != null) {  
        docBulderLatitude = beerLatitude;  
    }  
    docBuilder.addField(Field.newBuilder().setName("latitude").setNumber  
(docBulderLatitude));  
    /** Latitude **/  
}
```



```
/** Score */
Long beerScore = beer.getScore();
Long docBuilderScore = (long) 0;
if (beerScore != null) {
    docBuilderScore = beerScore;
}
docBuilder.addField(Field.newBuilder().setName("score").
setNumber(docBuilderScore));
/** Score */
```

```
docBuilder.addField(Field.newBuilder().setName("published").  
setDate(new Date()));
```

```
docBuilder.setId(Long.toString(beerId));
```

```
Document document = docBuilder.build();
```

```
INDEX.put(document);
```

```
}
```

Search

```
@ApiMethod(httpMethod = "GET", name = "beer.search")
public List < Beer > searchBeer(@Named("term") String queryString) {

    List < Beer > beerList = new ArrayList < Beer > ();
    Results < ScoredDocument > results = INDEX.search(queryString);

    for (ScoredDocument scoredDoc : results) {
        try {
            Field f = scoredDoc.getOnlyField("id");
            if (f == null || f.getText() == null) continue;

            long beerId = Long.parseLong(f.getText());
            if (beerId != -1) {
                Beer b = getBeer(beerId);
                beerList.add(b);
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
    return beerList;
}
```

Tutorials

- Overview of Google Cloud Endpoints
- Deploy the Backend
- HTML5 and App Engine: The Epic Tag Team Take on Modern Web Apps at Scale
- GDC 2013 - Connect Mobile Apps to the Cloud Without Breaking a Sweat
- Google Cloud Endpoints - Varna Lab 25.09.2013

Source

- <http://www.networkworld.com>
- <http://upload.wikimedia.org>
- <http://cdn.techinasia.com>
- <http://en.wikipedia.org>
- <https://developers.google.com/>
- <http://www.bg-mamma.com/>
- <http://stackoverflow.com/>
- <https://www.youtube.com>



Добре дошли на страницата на Конференцията за облачен софтуер "CloudConf Varna"

След приятното преживяване на CloudConf 2013 и след положителната обратна връзка, която получихме от аудиторията, съвсем логично решихме да продължим напред. Отново Ви очаква едновременно събитие, организирано с много ентузиазъм от IT специалисти, насочено към колеги, студенти и всички заинтересовани. Отворено и безплатно, носещо идеалната цел да подпомогне сформирването на IT общество във Варна. Заповядайте и бъдете критични!

Кога: 22. февруари 2014

Къде: Best Western Парк Хотел, Варна

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ПОСЛЕДНИ НОВИНИ

ALTSKALE.COM Е ОТНОВО ГЛАВЕН СПОНСОР И СЪОРГАНИЗАТОР НА КОНФЕРЕНЦИЯТА За всички посетители на конференцията компанията предлага 5 GB безплатен backup за 1 година. Както и до сега всеки от присъстващите получава и един месец безплатен достъп до инфраструктурата на ...

Публикувано от 11.02.2014 г., 5:56Коста Великов

158 LTD СЪЩО ЩЕ ПОДПОМОНЕ СЪБИТИЕТО Варненската фирма 158 Ltd изрази симпатиите си към CloudConf Varna и към всички участници като пое спонсорството на една кафе пауза. Освен това фирмата косвено подпомага събитието със знания, защото ...

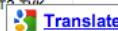
Публикувано от 11.02.2014 г., 4:18Nikolay Mitev

MORETO.NET ЗА НАС Популярният варненски онлайн всекидневник moreto.net публикува статия за нашето мероприятие

Публикувано от 6.02.2014 г., 5:04Nikolay Mitev

ICN.BG ОТНОВО ЩЕ ПОДКРЕПЯТ CLOUDCONF VARNA За пореден път ICN.Bg ще подкрепи CloudConf Varna! Регистрирайте се за конференцията

Всеки посетител ще получи ваучер на стойност 100 л.в за облачните услуги на ICN.Bg



Questions ?



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