

Google Cloud Functions

* Imagine you want to execute some code when an event happens?

- A file is uploaded in Cloud Storage (OR) An error log is written to Cloud Logging (OR)
- A message arrives to Cloud Pub/Sub (OR) A http/https invocation is received.
 - Enter Cloud Functions.
 - Run code in response to events.
- Write your business logic in Node.js, Python, Go, Java, .NET, and Ruby.
- Don't worry about servers or scaling or availability (only worry about your code).
 - Pay only for what you use.
 - Number of invocations.
 - Compute time of the invocations.
 - Memory and CPU provisioned.
- Time Bound - Default 1 min and MAX 60 minutes (3600 seconds).
 - 2 product versions.
- Cloud Functions (1st gen): First version Cloud Functions.
- (2nd gen): New version built on top of Cloud Run and Eventarc.

Cloud Functions – Concepts

- * Event : Upload object to cloud storage.
- Trigger: Respond to event with a Function call
- Trigger - Which function to trigger when an event happens?
- Functions - Take event data and perform action?
 - Events are triggered from
 - Cloud Storage
 - Cloud Pub/Sub
 - HTTP POST/GET/DELETE/PUT/OPTIONS
 - Firebase
 - Cloud Firestore
 - Stack driver logging
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Example Cloud Function - HTTP - Node.js

```
const escapeHtml = require('escape-html');

/**
 * HTTP Cloud Function.
 *
 * @param {Object} req Cloud Function request context.
 *                  More info: https://expressjs.com/en/api.html#req
 * @param {Object} res Cloud Function response context.
 *                  More info: https://expressjs.com/en/api.html#res
 */
exports.helloHttp = (req, res) => {
  res.send(`Hello ${escapeHtml(req.query.name || req.body.name || 'World')}!`);
};
```

Example Cloud Function - Pub/Sub - Node.js

```
/**
 * Background Cloud Function to be triggered by Pub/Sub.
 * This function is exported by index.js, and executed when
 * the trigger topic receives a message.
 *
 * @param {object} message The Pub/Sub message.
 * @param {object} context The event metadata.
 */
exports.helloPubSub = (message, context) => {
  const name = message.data
    ? Buffer.from(message.data, 'base64').toString()
    : 'World';

  console.log(`Hello, ${name}!`);
};
```

Cloud Functions – Remember

- No Server Management: You don't need to worry about scaling or availability of your function.
- Cloud Functions automatically spin up and back down in response to events.
 - They scale horizontally!
- Cloud Functions are recommended for responding to events:
- Cloud Functions are NOT ideal for long running processes.
- Time Bound - Default 1 min and MAX 60 minutes(3600 seconds)