



GeoPal
Mobile Workforce Management

API Documentation

ver 1.28



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Change Log

| Date | Version | Changes Made | Changes By |
|-----------|---------|--|--|
| 20/05/13 | 1 | Initial version | Sean O'Reilly, Lukasz Jajesnica, Gabor Zelei |
| 08/07/13 | 1.1 | New API functionality for Employees and Jobs | Gabor Zelei |
| 17/09/13 | 1.2 | New API's for reassigning Jobs, updating Job Statuses and listing Shifts | Gabor Zelei |
| 25/09/13 | 1.3 | Extended Job creation API, added new API for retrieving S3 files | Gabor Zelei |
| 25/09/13 | 1.4 | Updating code examples section. | Lukasz Jajesnica |
| 25/09/13 | 1.5 | Put params in the correct case | Sean O'Reilly |
| 26/09/13 | 1.6 | Added in version number 1.6 added in Job Fields section, updated php section | Sean O'Reilly |
| 30/09/13 | 1.7 | Updates to titles and s3file details, formatting | Sean O'Reilly |
| 15/10/13 | 1.8 | Added pages for employee status logs API | Gabor Zelei |
| 16/10/13 | 1.9 | Minor fixes to list of parameters for employee/create and employee/update | Gabor Zelei |
| 30/10/13 | 1.10 | Minor fixes to URLs | Gabor Zelei |
| 08/11/13 | 1.11 | Added section for assigning jobs | Gabor Zelei |
| 08/11/13 | 1.12 | Added just create api for jobs | Sean O'Reilly |
| 12/11/13 | 1.13 | Added asset management api's + minor changes to document structure | Gabor Zelei |
| 18/11/13 | 1.14 | Accepted was in as Id 1 when it should have been 6 for job status codes | Sean O'Reilly |
| 19/11/13 | 1.15 | Fixed spelling mistakes in uri's | Gabor Zelei |
| 10/12/13 | 1.16 | Added Creating And Ending Shifts | Gabor Zelei |
| 10/12/13 | 1.17 | Fixed Verb for Updating and Creating an Asset | Gabor Zelei |
| 11/12/13 | 1.18 | Fixes to asset creation / updates | Gabor Zelei |
| 16/12/13 | 1.19 | New change APIs for Jobs | Gabor Zelei |
| 17/12/13 | 1.20 | GeoPal API page description and examples | Gabor Zelei |
| 19/12/13 | 1.21 | Changes to change job person, address and customer. | Lukasz Jajesnica |
| 17/01/14 | 1.22 | Added job_template_id as optional param to job search | Sean O'Reilly |
| 21/03/14 | 1.23 | Added a list of error codes returned from the api | Sean O'Reilly |
| 3/04/2014 | 1.24 | Added in delete for job statuses | Sean O'Reilly |
| 4/04/2014 | 1.25 | Removed delete for job statuses | Sean O'Reilly |
| 6/6/2014 | 1.26 | Added in updated_on and created_on params to asset replace | Sean O'Reilly |

| | | | |
|----------|------|---|---------------|
| 30/06/14 | 1.27 | Added in example for basic HTTP authentication using cURL | Gabor Zelei |
| 16/07/14 | 1.28 | Added in asset identifier into the job create param list | Sean O'Reilly |

Contact Details

Sales Email

sales@geopal-solutions.com

Support Email

support@geopal-solutions.com

Web

<http://www.geopalsolutions.com/>

Introduction

GeoPal API provides you with the powerful ability to send and receive data from our system. Currently it supports two types of requests: Pull and Push. In this document you will find a general description of the API, along with code samples for the following programming languages:

- V C#
- V Java
- V PHP
- V Python
- V Visual Basic .NET

Syntax

The markdown syntax used in this document is as follows:

Important information

API Method Name

A **mandatory field_name** in the request you send or receive

An optional field_name in the request you send or receive

Sections

This document has been organized into two main sections:

- v **General API Description:** This section contains all the information about the GeoPal API in a language independent fashion. This includes the descriptions of the URLs and common request parameters used. Generic GET and PUT style calls will also be also discussed in this section.
- v **API Examples:** This sections contains commented API examples in all supported programming languages.

General API Description

Common Request Parameters

When making calls to GeoPal's API, you will typically need to specify the following parameters in your call: Signature, Verb, URI, Timestamp, API key and Operation. A description of these parameters can be found below.

Signature

The Signature is a specially constructed token, converted to the lowercase and then signed with SHA256. Once constructed, it must be encoded with BASE64. You can find more information about the building block parameters of the token below.

PseudoCode:

```
VAR Signature = BASE64 (
    SHA256 (
        LOWER_CASE (
            <VERB>+<URI>+<EMPLOYEEID>+<TIMESTAMP>
        )
    )
);
```

Verb

A Verb is a specific type of request. The GeoPal API currently accepts "GET" and "PUT" values for a Verb, depending on the actual method you want to call. You can find more information about the Verb you have to use for each method in their API description tables, later in this chapter.

URI

The URI parameter is the target URL you want to send your request to. Again, you can find the actual value to set for the URI parameter in the API method description tables.

Timestamp

The current timestamp. Please refer to the [RFC 2822](#), in case you need more information.

GeoPal expects the timestamp to be provided in the following format:
Thu, 25 Oct 2012 13:06:50 +0100

API Key

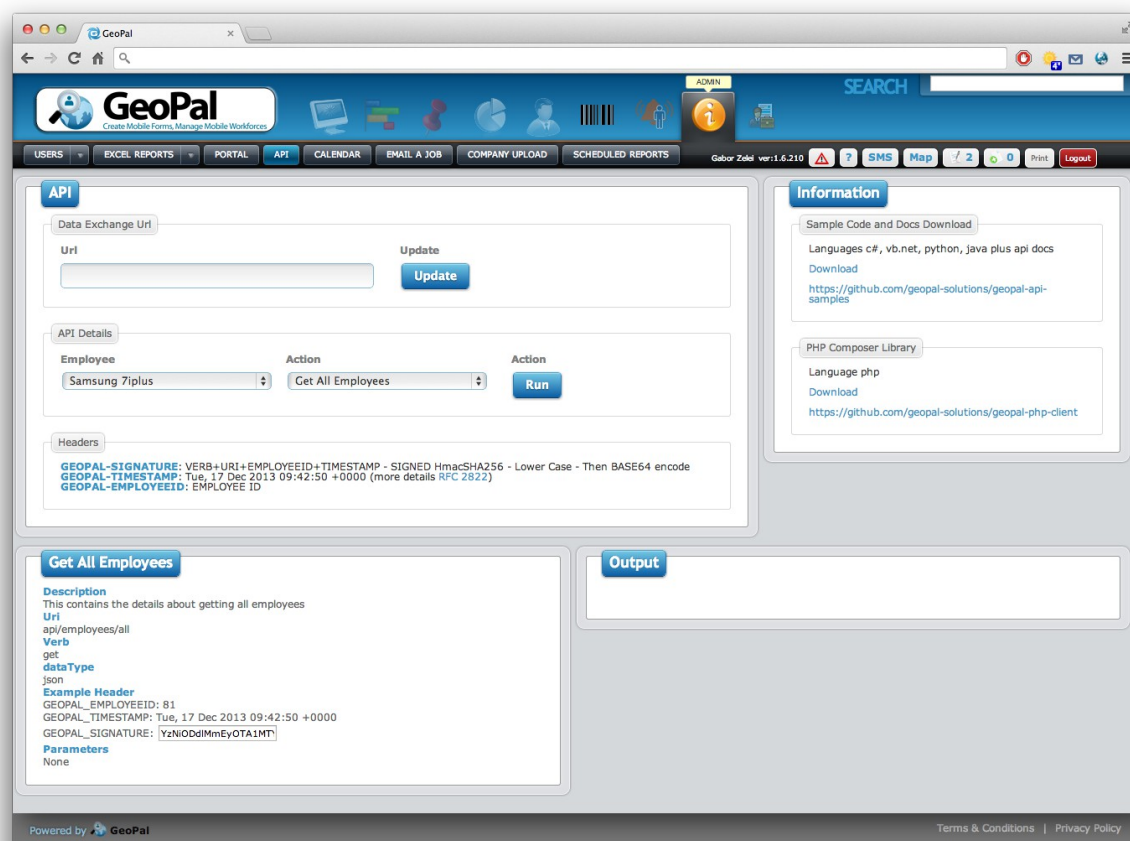
The API key is a randomly generated 128-byte string, assigned to your company by Geopal and used for the authentication of incoming API calls.

Operation

This parameter specifies the operation type, and is only used in Push requests. Valid values for this parameter are: `job`, `job_workflow`, `job_workflow_file` or `job_field`.

The API Page In GeoPal

If you want to see how an actual request is built, you can always refer to the API page in the Admin section in GeoPal. This section provides you with a convenient way to see our API at work, without having to do any coding.

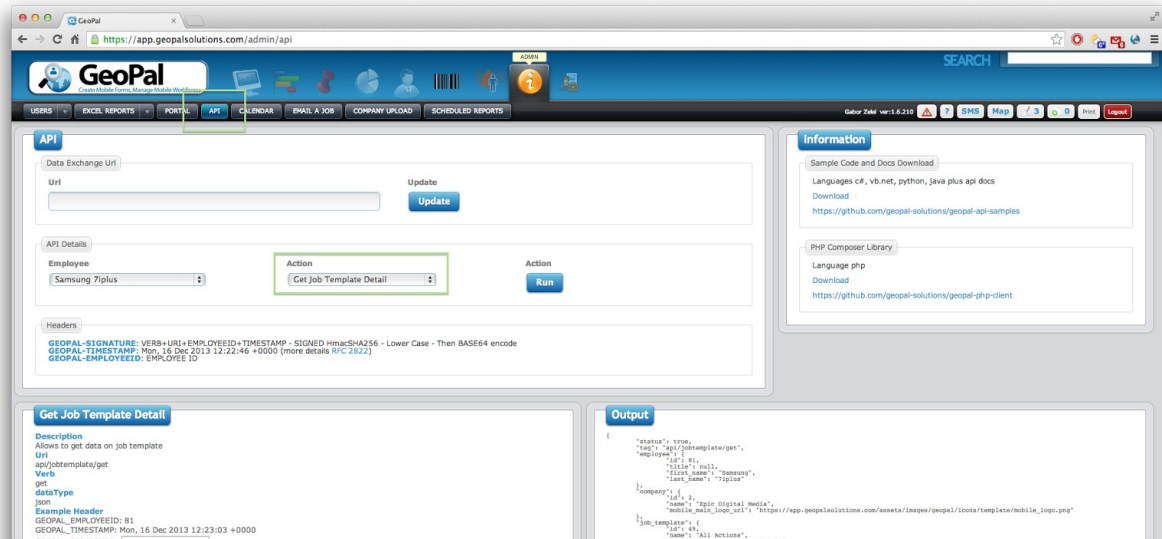


API Page Example: Finding out the EmployeeId

- 1.: On the API page, in the second block ("API Details"), select yourself from the "Employee" drop-down list. If you are not on the list, select a random person on the list.
- 2.: In the same block, make sure that the "Action" drop-down list is set to "Get All Employees", and click "Run"
- 3.: The "Output" block in the lower right corner of the page will get populated with the server response. You can find details on your account, including your EmployeeId (as "id"), in the `employees` block of the response.

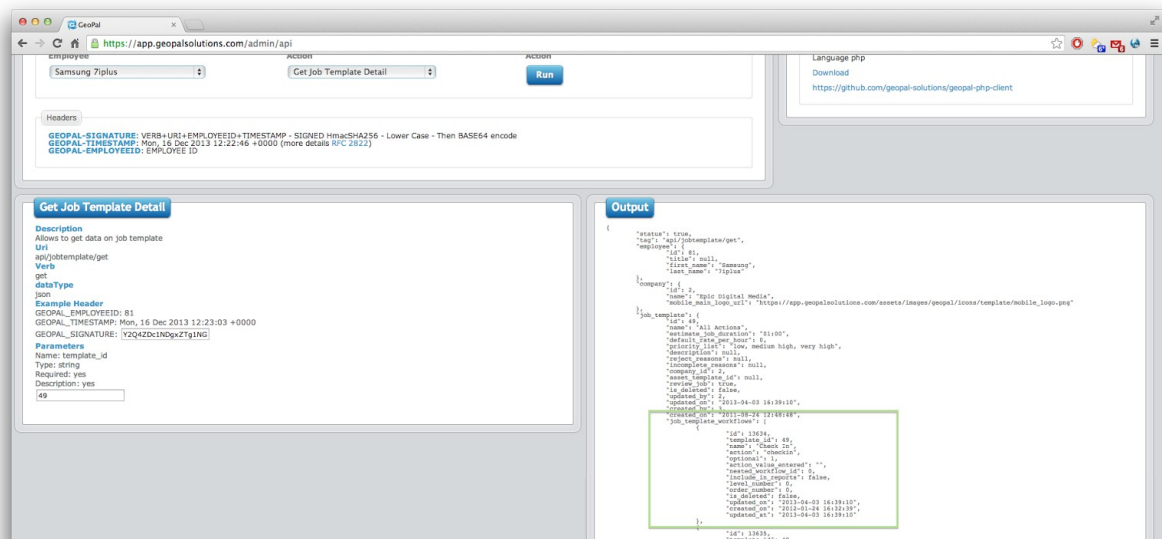
API Page Example: Identifying Job Steps Based On Template Steps

- 1.: Select the "Get Job Template Detail" action in the top left panel (see screenshot below).

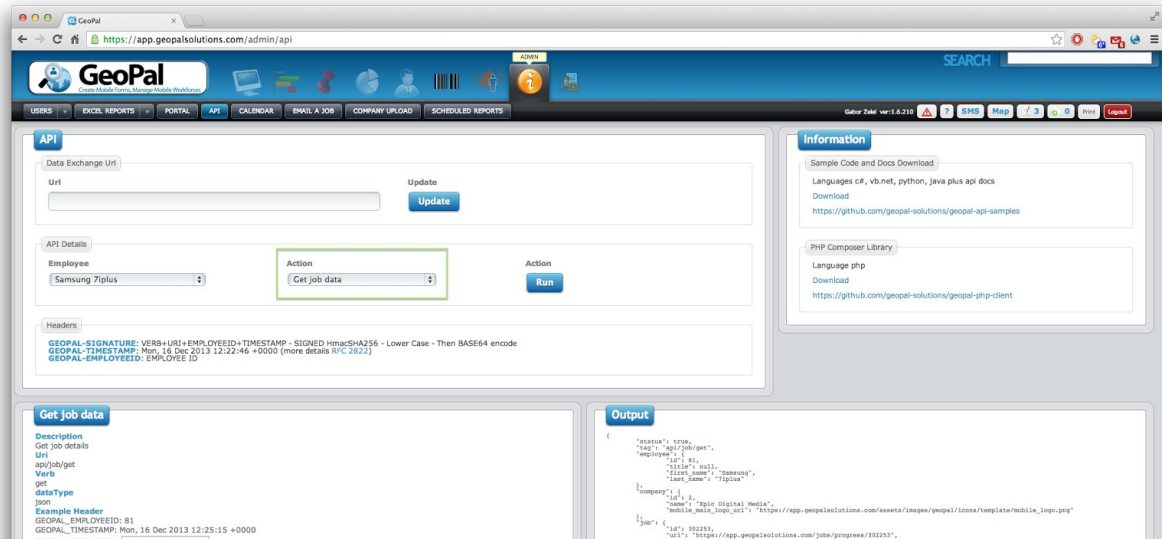


2.: Enter the Template Id in the last input field in the bottom left panel. (In this panel, you can also find detailed information on the api call that is being made to the server.) Click "Run".

3.: The bottom right panel will get populated with the response from the server. Please find the section named `job_template_workflows`. This array contains the information on all the steps in the template. GeoPal will create the steps in each job based on this template according to this data. Note that each template workflow step has both a `name` and an `id` field.



4.: Select the "Get job data" action in the top left panel, enter a job id in the corresponding input field in the bottom left panel, and click "Run".



5.: In the response in the bottom right panel, find the `job_workflows` array. This list contains all the steps in a job. Each step has a `name`, which they inherit from the template workflow step (described at point #4), and also a `template_workflow_id`, to identify the template step they were created from.



Basic HTTP Authentication

You can also access the GeoPal API using basic HTTP authentication - all you need to do is submit your username and password in the request. This is typically done using cURL or a similar tool. Doing so from a Unix/Linux command line would look like this:

```
# This will print the response as JSON string
curl --basic --user user:pass https://app.geopalsolutions.com/api/some/uri
```

The below example shows how to make a `GET` request to the API using basic HTTP authentication in PHP:

```
$curlSession = curl_init($fullUrl);

curl_setopt($curlSession, CURLOPT_HEADER, false);
curl_setopt(
    $curlSession,
    CURLOPT_USERPWD,
    implode(':', array($userName, $password))
);
curl_setopt($curlSession, CURLOPT_TIMEOUT, 30);
curl_setopt($curlSession, CURLOPT_RETURNTRANSFER, true);

$response = curl_exec($curlSession);
curl_close($process);

$responseAsAnArray = (is_null($response) || ($response === false))
    ? array()
    : json_decode($response, true)
```

This will give you the response from the server as an associative array.

Also, please note that when using basic authentication, the requestor user must have mobile user privileges in GeoPal.

Pull API

The Pull API functions allow you to retrieve data from or submit data to GeoPal by calling a URL via HTTPS, with the correct parameters and headers.

Some calls allow you to access data identified by either an "ID" or an "Identifier".

Here, the ID represents the way GeoPal identifies the resource internally. This is always a read-only integer value.

The Identifier, on the other hand, is a string of numbers and/or characters, and can freely be assigned and changed by the user. This may be identical to the primary key in your system.

Jobs API

Creating a Job

Allows creating a job in GeoPal

| Parameters | Method specific value |
|------------|--|
| URI | api/jobs/create |
| URI | api/jobs/createandassign creates and assigns the job |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|--------------------|---|
| <u>template_id</u> | The ID of the job template to create the job from |
| job_identifier | A unique identifier for the job |
| person_id | The ID of the contact person for the job |
| person_identifier | The identifier of the contact person for the job |
| person_title | The title of the contact person for the job |
| person_first_name | The first name of the contact person for the job |
| person_last_name | The last name of the contact person for the job |

| | |
|--------------------------|---|
| person_phone_number | The phone number of the contact person for the job |
| person_fax_number | The fax number of the contact person for the job |
| person_mobile_number | The mobile phone number of the contact person for the job |
| person_email | The e-mail address of the contact person for the job |
| person_address_line_1 | Address (line 1) of the contact person for the job |
| person_address_line_2 | Address (line 2) of the contact person for the job |
| person_address_line_3 | Address (line 3) of the contact person for the job |
| person_city | Address (city) of the contact person for the job |
| person_postal_code | Address (postal code) of the contact person for the job |
| address_id | ID of the address where the job should be done at |
| address_identifier | Identifier of the address where the job should be done at |
| address_line_1 | The address (line 1) where the job should be done at |
| address_line_2 | The address (line 2) where the job should be done at |
| address_line_3 | The address (line 3) where the job should be done at |
| city | The address (city) where the job should be done at |
| postal_code | The address (postal code) where the job should be done at |
| country_id | The address (country ID) where the job should be done at |
| customer_id | The ID of the customer to do the job for |
| customer_identifier | The identifier of the customer to do the job for |
| customer_name | The name of the customer to do the job for |
| customer_phone_number | The phone number of the customer to do the job for |
| customer_fax_number | The fax number of the customer to do the job for |
| customer_web_site | The web site address of the customer to do the job for |
| customer_mobile_number | The mobile number of the customer to do the job for |
| customer_email | The e-mail address of the customer to do the job for |
| customer_address_line_1 | The address (line 1) of the customer to do the job for |
| customer_address_line_2 | The address (line 2) of the customer to do the job for |
| customer_address_line_3 | The address (line 3) of the customer to do the job for |
| customer_city | The address (city) of the customer to do the job for |
| customer_postal_code | The address (postal code) of the customer to do the job for |
| asset_identifier | The identifier of the asset to do the job for |
| estimated_duration | The estimated time (HH:MI) the job will take to complete |
| rate_per_hour | The cost of the job per hour |
| prefered_start_date_time | The date and time to start the job at |
| prefered_stop_date_time | The date and time to finish the job by |

| | |
|----------------|---|
| priority_text | The textual representation of the job priority |
| priority_color | <p>The color label for the job.</p> <p>Accepted values are "green", "yellow", "orange", "red", "purple", "white", and "blue".</p> <p>Defaults to "white".</p> |
| job_notes | Submitter's notes for the job |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | <p>Details of the current company.</p> <pre>{ id: integer, name: string, mobile_main_logo_url: string }</pre> |
| job | <p>An object containing details of the new job.</p> <pre>{ id: integer, identifier: string, priority_text: string, start_date_time: dateTime / string, preferred_start_date_time: dateTime / string, created_on: dateTime / string, updated_on: dateTime / string duration: integer, priority_color: string, rate_per_hour: integer, preferred_stop_date_time: dateTime / string, job_status_id: integer, schedule_log_id: integer, start_date: dateTime / string, end_time: dateTime / string, first_to_accept: bool, assigned_at: dateTime / string, estimated_duration: integer, ob_assigned_to: string, url: string, notes: string, job_status_change_messages: string, address: { id: integer, identifier: string, is_billing: bool, is_user: bool, is_deleted: bool, created_on: dateTime / string, </pre> |

```

    updated_by: string,
    updated_on: dateTime / string,
    city: string,
    is_primary: bool,
    company_id: integer,
    country_id: integer,
    created_by: string,
    address_line_1: string,
    address_line_2: string,
    address_line_3: string,
    postal_code: string,
    lat: float,
    lng: float
  },
  preferred_start_date_time: dateTime / string,
  priority_text: string,
  job_template: {
    id: integer,
    name: string,
    is_deleted: bool,
    default_rate_per_hour: integer,
    updated_on: dateTime / string,
    priority_list: string,
    created_by: string,
    created_on: dateTime / string,
    review_job: bool,
    company_id: integer,
    description: string,
    estimate_job_duration: integer
  },
  created_by: {
    id: integer,
    title: string,
    first_name: string,
    last_name: string
  },
  employee: {
    id: integer,
    title: string,
    first_name: string,
    last_name: string
  },
  company: {
    id: integer,
    name: string
  },
  job_field_files: [],
  job_workflow_files: [],
  customer: {
    id: integer,
    company_id: integer,
    name: string,
    customer_type_id: integer,
    created_by: string,
    created_on: dateTime / string,
    identifier: string,
    industry: string,
    updated_on: dateTime / string,
    annual_revenue: integer,
    employees: string,
    ownership: string,
    phone_office: string,
    phone_alternate: string,
    phone_fax: string,
    updated_by: string,
    website: string,
    email: string,
    email_alternate: string,
    notes: string,
    assigned_user_id: integer,
    rating: integer
  },
  person: {
    id: integer,
    identifier: string,
    first_name: string,

```

| | |
|--|--|
| | <pre> last_name: string, person_type_id: integer, title: string, person_department_id: integer, created_on: dateTime / string, updated_on: dateTime / string, person_job_title_id: integer, company_id: integer, created_by: string, department: string, email: string, is_billing: bool, phone_number: string, updated_by: string, fax_number: string, home_number: string, phone_number_alternate: string, mobile_number: string, email_alternate: string, is_user: bool, is_deleted: bool, is_primary: bool, notes: string }, assigned_to: { id: integer, title: string, first_name: string, last_name: string } } </pre> |
|--|--|

Getting Job Details

Returns a list with all existing job templates.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/jobs/get |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|---------------|--------------------------|
| <u>job_id</u> | The ID of the target job |

| Response | Description |
|----------|---|
| status | [true/false] Indicates if there was an error on the server or not |

| | |
|----------|---|
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | <p>Details of the current company.</p> <pre>{ id: integer, name: string }</pre> |
| job | <p>An object containing the job details.</p> <pre>{ id: integer, identifier: string, priority_text: string, start_date_time: dateTime / string, preferred_start_date_time: dateTime / string, created_on: dateTime / string, updated_on: dateTime / string, duration: integer, priority_color: string, rate_per_hour: integer, preferred_stop_date_time: dateTime / string, job_status_id: integer, schedule_log_id: integer, start_date: dateTime / string, end_time: dateTime / string, first_to_accept: bool, assigned_at: dateTime / string, estimated_duration: integer, ob_assigned_to: string, url: string, notes: string, job_status_change_messages: string, address: { id: integer, identifier: string, is_billing: bool, is_user: bool, is_deleted: bool, created_on: dateTime / string, updated_by: string, updated_on: dateTime / string, city: string, is_primary: bool, company_id: integer, country_id: integer, created_by: string, address_line_1: string, address_line_2: string, address_line_3: string, postal_code: string, lat: float, lng: float }, preferred_start_date_time: dateTime / string, priority_text: string, job_template: { id: integer, name: string, is_deleted: bool, default_rate_per_hour: integer, updated_on: dateTime / string, </pre> |

```

priority_list: string,
created_by: string,
created_on: dateTime / string,
review_job: bool,
company_id: integer,
description: string,
estimate_job_duration: integer
},
created_by: {
  id: integer,
  title: string,
  first_name: string,
  last_name: string
},
employee: {
  id: integer,
  title: string,
  first_name: string,
  last_name: string
},
company: {
  id: integer,
  name: string
},
job_field_files: [],
job_workflow_files: [],
customer: {
  id: integer,
  company_id: integer,
  name: string,
  customer_type_id: integer,
  created_by: string,
  created_on: dateTime / string,
  identifier: string,
  industry: string,
  updated_on: dateTime / string,
  annual_revenue: integer,
  employees: string,
  ownership: string,
  phone_office: string,
  phone_alternate: string,
  phone_fax: string,
  updated_by: string,
  website: string,
  email: string,
  email_alternate: string,
  notes: string,
  assigned_user_id: integer,
  rating: integer
},
person: {
  id: integer,
  identifier: string,
  first_name: string,
  last_name: string,
  person_type_id: integer,
  title: string,
  person_department_id: integer,
  created_on: dateTime / string,
  updated_on: dateTime / string,
  person_job_title_id: integer,
  company_id: integer,
  created_by: string,
  department: string,
  email: string,
  is_billing: bool,
  phone_number: string,
  updated_by: string,
  fax_number: string,
  home_number: string,
  phone_number_alternate: string,
  mobile_number: string,
  email_alternate: string,
  is_user: bool,
  is_deleted: bool,
  is_primary: bool,

```

| | |
|--|--|
| | <pre> notes: string }, assigned_to: { id: integer, title: string, first_name: string, last_name: string } } } </pre> |
|--|--|

Changing Job Status

Allows for changing the current status of a job.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/jobs/status |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameters | Description |
|----------------------|--|
| <u>job_id</u> | The ID of the target job |
| <u>job_status_id</u> | <p>The ID of the job status to set the job to.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> - 6 for "Accepted" - 2 for "Rejected" - 3 for "Completed" - 5 for "In Progress" - 7 for "Incomplete" <p>Note: Values not listed above will cause the request to fail.</p> |
| <u>updated_on</u> | A Unix Timestamp to mark the time of the update |
| message | An optional message to include in the job notes |

| Response | Description |
|----------|---|
| status | [true/false] Indicates if there was an error on the server or not |

| | |
|----------|--|
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | <p>Details of the current company.</p> <pre>{ id: integer, name: string }</pre> |
| job | <p>An object containing the job details.</p> <pre>{ id: integer, identifier: string, priority_text: string, start_date_time: dateTime / string, preferred_start_date_time: dateTime / string, created_on: dateTime / string, updated_on: dateTime / string duration: integer, priority_color: string, rate_per_hour: integer, preferred_stop_date_time: dateTime / string, job_status_id: integer, schedule_log_id: integer, start_date: dateTime / string, end_time: dateTime / string, first_to_accept: bool, assigned_at: dateTime / string, estimated_duration: integer, ob_assigned_to: string, url: string, notes: string, job_status_change_messages: string, address: { id: integer, identifier: string, is_billing: bool, is_user: bool, is_deleted: bool, created_on: dateTime / string, updated_by: string, updated_on: dateTime / string, city: string, is_primary: bool, company_id: integer, country_id: integer, created_by: string, address_line_1: string, address_line_2: string, address_line_3: string, postal_code: string, lat: float, lng: float }, preferred_start_date_time: dateTime / string, priority_text: string, job_template: { id: integer, name: string, is_deleted: bool, default_rate_per_hour: integer, updated_on: dateTime / string, </pre> |

```

priority_list: string,
created_by: string,
created_on: dateTime / string,
review_job: bool,
company_id: integer,
description: string,
estimate_job_duration: integer
},
created_by: {
  id: integer,
  title: string,
  first_name: string,
  last_name: string
},
employee: {
  id: integer,
  title: string,
  first_name: string,
  last_name: string
},
company: {
  id: integer,
  name: string
},
job_field_files: [],
job_workflow_files: [],
customer: {
  id: integer,
  company_id: integer,
  name: string,
  customer_type_id: integer,
  created_by: string,
  created_on: dateTime / string,
  identifier: string,
  industry: string,
  updated_on: dateTime / string,
  annual_revenue: integer,
  employees: string,
  ownership: string,
  phone_office: string,
  phone_alternate: string,
  phone_fax: string,
  updated_by: string,
  website: string,
  email: string,
  email_alternate: string,
  notes: string,
  assigned_user_id: integer,
  rating: integer
},
person: {
  id: integer,
  identifier: string,
  first_name: string,
  last_name: string,
  person_type_id: integer,
  title: string,
  person_department_id: integer,
  created_on: dateTime / string,
  updated_on: dateTime / string,
  person_job_title_id: integer,
  company_id: integer,
  created_by: string,
  department: string,
  email: string,
  is_billing: bool,
  phone_number: string,
  updated_by: string,
  fax_number: string,
  home_number: string,
  phone_number_alternate: string,
  mobile_number: string,
  email_alternate: string,
  is_user: bool,
  is_deleted: bool,
  is_primary: bool,

```

| | |
|--|--|
| | <pre> notes: string }, assigned_to: { id: integer, title: string, first_name: string, last_name: string } } } </pre> |
|--|--|

Assigning A Job

Allows for assigning a job to an employee.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/jobs/assign |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameter | Description |
|------------------------|---|
| <u>job_id</u> | The ID of the target job |
| <u>employee_id</u> | The ID of the employee to assign the job to |
| <u>start_date_time</u> | Start date and time for the job (YYYY-MM-DD HH:MI:SS) |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre> { id: integer, title: string, first_name: string, last_name: string } </pre> |
| company | <p>Details of the current company.</p> <pre> { id: integer, </pre> |

| | |
|-----|---|
| | <pre> name: string } </pre> |
| job | An object containing the job details. (Output is the same as described for "Creating a Job") |

Reassigning A Job

Allows for reassigning a job to another employee.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/jobs/reassign |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameter | Description |
|----------------------------------|---|
| <u>job_id</u> | The ID of the target job |
| <u>employee_reassigned_to_id</u> | The ID of the employee to assign the job to |
| <u>start_date_time</u> | Start date and time for the job (YYYY-MM-DD HH:MI:SS) |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre> { id: integer, title: string, first_name: string, last_name: string } </pre> |
| company | Details of the current company. <pre> { id: integer, name: string } </pre> |
| job | An object containing the job details. |

```

{
  id: integer,
  identifier: string,
  priority_text: string,
  start_date_time: dateTime / string,
  preferred_start_date_time: dateTime / string,
  created_on: dateTime / string,
  updated_on: dateTime / string
  duration: integer,
  priority_color: string,
  rate_per_hour: integer,
  preferred_stop_date_time: dateTime / string,
  job_status_id: integer,
  schedule_log_id: integer,
  start_date: dateTime / string,
  end_time: dateTime / string,
  first_to_accept: bool,
  assigned_at: dateTime / string,
  estimated_duration: integer,
  ob_assigned_to: string,
  url: string,
  notes: string,
  job_status_change_messages: string,
  address: {
    id: integer,
    identifier: string,
    is_billing: bool,
    is_user: bool,
    is_deleted: bool,
    created_on: dateTime / string,
    updated_by: string,
    updated_on: dateTime / string,
    city: string,
    is_primary: bool,
    company_id: integer,
    country_id: integer,
    created_by: string,
    address_line_1: string,
    address_line_2: string,
    address_line_3: string,
    postal_code: string,
    lat: float,
    lng: float
  },
  preferred_start_date_time: dateTime / string,
  priority_text: string,
  job_template: {
    id: integer,
    name: string,
    is_deleted: bool,
    default_rate_per_hour: integer,
    updated_on: dateTime / string,
    priority_list: string,
    created_by: string,
    created_on: dateTime / string,
    review_job: bool,
    company_id: integer,
    description: string,
    estimate_job_duration: integer
  },
  created_by: {
    id: integer,
    title: string,
    first_name: string,
    last_name: string
  },
  employee: {
    id: integer,
    title: string,
    first_name: string,
    last_name: string
  },
  company: {
    id: integer,

```



```

        name: string
    },
    job_field_files: [],
    job_workflow_files: [],
    customer: {
        id: integer,
        company_id: integer,
        name: string,
        customer_type_id: integer,
        created_by: string,
        created_on: dateTime / string,
        identifier: string,
        industry: string,
        updated_on: dateTime / string,
        annual_revenue: integer,
        employees: string,
        ownership: string,
        phone_office: string,
        phone_alternate: string,
        phone_fax: string,
        updated_by: string,
        website: string,
        email: string,
        email_alternate: string,
        notes: string,
        assigned_user_id: integer,
        rating: integer
    },
    person: {
        id: integer,
        identifier: string,
        first_name: string,
        last_name: string,
        person_type_id: integer,
        title: string,
        person_department_id: integer,
        created_on: dateTime / string,
        updated_on: dateTime / string,
        person_job_title_id: integer,
        company_id: integer,
        created_by: string,
        department: string,
        email: string,
        is_billing: bool,
        phone_number: string,
        updated_by: string,
        fax_number: string,
        home_number: string,
        phone_number_alternate: string,
        mobile_number: string,
        email_alternate: string,
        is_user: bool,
        is_deleted: bool,
        is_primary: bool,
        notes: string
    },
    assigned_to: {
        id: integer,
        title: string,
        first_name: string,
        last_name: string
    }
}

```

Reading a Job Template

Returns a Job Template.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/jobtemplates/get |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|------------------------|-----------------------------------|
| <u>job_template_id</u> | The ID of the target job template |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| template | An object containing the job template details. <pre>{ id: integer, name: string, company_id: integer, description: string, created_on: dateTime / string, created_by: string, updated_on: dateTime / string, updated_by: string, review_job: bool, priority_list: string, default_rate_per_hour: integer, is_deleted: bool, job_template_runbooks: [], estimate_job_duration: integer, job_template_fields: [{ id: integer, perm_portal: bool, }] }</pre> |

| | |
|--|--|
| | <pre> is_deleted: bool, name: string, include_in_reports: bool, perm_mobile: bool, updated_at: dateTime / string, template_id: integer, created_on: dateTime / string, action: string, action_values: string, order_number: integer }}, job_template_workflows: [{ id: integer, name: string, template_id: integer, created_on: dateTime / string, action_value_entered: string, is_deleted: bool, order_number: integer, optional: bool, updated_on: dateTime / string, action: string, nested_workflow_id: integer, level_number: integer, updated_at: dateTime / string, include_in_reports: bool }] } </pre> |
|--|--|

Getting Jobs by a Specific Date Range

Returns a detailed list of Jobs created within the target date range.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/jobsearch/ids |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|------------------------|--|
| <u>date_time_from</u> | Date and time to list entries from. |
| <u>date_time_to</u> | Date and time to list entries to. |
| <u>job_status_id</u> | Optional parameter which allows to filter by job status id |
| <u>job_template_id</u> | Optional parameter which allows to filter by job template id |

| Response | Description |
|----------|-------------|
|----------|-------------|

| | |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| jobs | An array containing the details for all the job templates. Each object has: <pre>{ id: integer }</pre> |

Changing Job Address

Allows you to assign another existing Address in GeoPal to a Job. If passed doesn't exist yet it will create new one otherwise it will update contact entry using passed address arguments. Address arguments have prefix "address_".

| Parameters | Method specific value |
|------------|------------------------|
| URI | api/jobs/changeaddress |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameter | Description |
|------------------------|---|
| job_id | The id of the job. |
| address_id (*) | The id of the address entry to be assigned. |
| address_identifier (*) | The identifier of the address entry to be assigned. |

| | |
|----------------------|--|
| address_line_1 | The address line 1 |
| address_line_2 | The address line 2 |
| address_line_3 | The address line 3 |
| address_city | The address city |
| address_postal_code | The address postal code |
| address_country_code | The address country code |
| updated_on | A Unix timestamp of the date of the change |

(*) - either address_id or address_identifier are required.

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| job | An object containing the job details. (Output is the same as described for "Creating a Job") |

Changing Job Asset

Allows you to assign another existing Asset to a Job by its identifier

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/jobs/changeasset |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|---------|-----------------------|
|---------|-----------------------|

| | |
|--------------------------|--|
| GEOPAL-SIGNATURE | [reference] |
| GEOPAL-TIMESTAMP | [reference] |
| GEOPAL-EMPLOYEEID | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|------------------|--|
| job_id | The id of the job. |
| asset_identifier | The identifier of the asset to be assigned. |
| updated_on | A Unix timestamp of the date of the asset change |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| job | An object containing the job details. (Output is the same as described for "Creating a Job") |

Changing Job Person

Allows you to assign another Contact person to a Job. If person who do you assign job doesn't exist yet it will create new one, otherwise it will update contact entry using passed person arguments. Person arguments have prefix "person_".

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/jobs/changeperson |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameter | Description |
|-----------------------|--|
| job_id | The id of the job. |
| person_id (*) | The id of the person entry to be assigned. |
| person_identifier (*) | The identifier of the person entry to be assigned. |
| person_first_name | The person first name |
| person_last_name | The person last name |
| person_title | The person title |
| person_phone_number | The person phone number |
| person_email | The person email |
| person_fax_number | The person phone number/fax |
| person_mobile_number | The person mobile number |
| person_address_line_1 | The person address line 1 |
| person_address_line_2 | The person address line 2 |
| person_address_line_3 | The person address line 3 |
| person_city | The person city |
| person_postal_code | The person postal code |
| person_country_id | The person country code |
| person_address_lat | The person lat |
| person_address_lng | The person lng |
| updated_on | A Unix timestamp of the date of the change |

(*) - either person_id or person_identifier are required

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string,</pre> |

| | |
|---------|---|
| | <pre> last_name: string } </pre> |
| company | Details of the current company. <pre> { id: integer, name: string } </pre> |
| job | An object containing the job details. (Output is the same as described for "Creating a Job") |

Changing Job Customer

Allows you to assign another Customer to a Job. If customer who do you assign job doesn't exist yet it will create new one, otherwise it will update customer entry using passed person arguments. Customer arguments have prefix "customer_".

| Parameters | Method specific value |
|------------|-------------------------|
| URI | api/jobs/changecustomer |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameter | Description |
|--------------------------|--|
| job_id | The id of the job. |
| customer_id (*) | The id of the customer entry to be assigned. |
| customer_identifier (*) | The identifier of the customer entry to be assigned. |
| customer_name | The customer name |
| customer_website | The customer website |
| customer_phone_fax | The customer phone/fax |
| customer_phone_office | The customer phone |
| customer_phone_alternate | The customer phone |
| customer_email | The customer email |

| | |
|------------|--|
| updated_on | A Unix timestamp of the date of the change |
|------------|--|

(*) - either customer_id or customer_identifier are required

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| job | An object containing the job details. (Output is the same as described for "Creating a Job") |

Changing Job Status, Address, Asset, Contact and Customer at the same time

Allows you to change the Status, Address, Asset, Contact and Customer in one go.

| Parameters | Method specific value |
|------------|-------------------------|
| URI | api/jobs/changecustomer |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|---------------|-------------|
|---------------|-------------|

| | |
|----------------------|--|
| job_id | The id of the job. |
| <u>job_status_id</u> | <p>The ID of the job status to set the job to.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> - 6 for "Accepted" - 2 for "Rejected" - 3 for "Completed" - 5 for "In Progress" - 7 for "Incomplete" <p>Note: Values not listed above will cause the request to fail.</p> |
| address_id | The id of the address to be assigned. |
| asset_identifier | The identifier of the asset to be assigned. |
| person_id | The identifier of the contact person to be assigned. |
| customer_id | The identifier of the customer entry to be assigned. |
| updated_on | A Unix timestamp of the date of the change |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | <p>Details of the current company.</p> <pre>{ id: integer, name: string }</pre> |
| job | <p>An object containing the job details.</p> <p>(Output is the same as described for "Creating a Job")</p> |

Employee API

Listing Employees and Getting Employee Locations and Statuses

Returns a detailed list with all employees of the company.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/employees/all |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Response | Description |
|-----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string }</pre> |
| company | <p>Details of the current company.</p> <pre>{ id: integer, name: string }</pre> |
| employees | <p>An array containing the details for all the employees of the current company.</p> <p>Each object has:</p> <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string, mobile_number: string, status: integer [0, 1, 2], lat: float, lng: float, address: string, last_updated_on: string }</pre> <p>Statuses:</p> <ul style="list-style-type: none"> - 0 for "Ready" - 1 for "Busy" |

| | |
|--|-------------------|
| | - 2 for "Offline" |
|--|-------------------|

Create an Employee

Creates a new employee entry in the system.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/employees/create |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameters | Description |
|-------------------|--|
| <u>username</u> | A unique username that will allow the employee to log in to GeoPal. |
| <u>password</u> | A password to allow the employee to log in to GeoPal. |
| <u>email</u> | The new employee's e-mail address. |
| <u>first_name</u> | The new employee's first name. |
| <u>last_name</u> | The new employee's last name. |
| mobile_number | The new employee's mobile phone number. |
| identifier | A unique identifier for the new employee. |
| administrator | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is an administrator. |
| guest_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a guest user. |
| mobile_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a mobile app user. |
| portal_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a portal user. |
| web_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a web user. |
| timezone | The new employee's time zone. It may be provided in either of the following formats: |

| | |
|--|---|
| | 1.) Area/City – e. g.: Europe/Isle_of_Man (Preferred) 2.) Area/Zone – e.g.: US/Central 3.) Difference from GMT – e. g.: GMT+2 4.) Special formats – e. g.: CET, Zulu, etc. If not provided, the employer's time zone will be applied. |
|--|---|

Note:

At least one of the user permission parameters (administrator, web_user, etc...) has to be set, otherwise GeoPal will reject new entry with an error.

| Response | Description |
|---------------|---|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| employee_data | An object with data on the newly created user. <pre>{ id: integer, identifier: string, first_name: string, last_name: string, email: string, mobile_number: string, username: string, timezone: string }</pre> |

Update an Employee

Updates data on an existing employee, based on the employee's GeoPal ID.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/employees/update |
| Verb | PUT |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameters | Description |
|--------------------------|--|
| <u>id</u> | The target employee's GeoPal ID. |
| <u>username</u> | The employee's unique username for logging in to GeoPal. |
| <u>password</u> | The employee's password for logging in to GeoPal. |
| <u>first_name</u> | The employee's first name. |
| <u>last_name</u> | The employee's last name. |
| <u>email</u> | The employee's e-mail address. |
| identifier | The employee's unique identifier. |
| mobile_number | The employee's mobile phone number. |
| administrator | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is an administrator. |
| guest_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a guest user. |
| mobile_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a mobile app user. |
| portal_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a portal user. |
| web_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a web user. |
| timezone | The employee's time zone. It may be provided in either of the following formats: 1.) Area/City – e. g.: <code>Europe/Isle_of_Man</code> (Preferred) 2.) Area/Zone – e.g.: <code>US/Central</code> 3.) Difference from GMT – e. g.: <code>GMT+2</code> 4.) Special formats – e. g.: <code>CET</code> , <code>Zulu</code> , etc. |

Note:

At least one of the user permission parameters (administrator, web_user, etc...) has to be set, otherwise GeoPal will reject updating the entry with an error.

| Response | Description |
|---------------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| employee_data | An object with updated data on the target user. <pre>{ id: integer, identifier: string, first_name: string, last_name: string, email: string, mobile_number: string, username: string, timezone: string }</pre> |

Update an Employee By Identifier

Updates data on an existing employee, based on the employee's Identifier.

| Parameters | Method specific value |
|------------|----------------------------------|
| URI | api/employees/updatebyidentifier |
| Verb | PUT |
| Data Type | JSON |

| Headers | Method specific value |
|-------------------------|-------------------------------|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |

| | |
|---------------------------------|--|
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |
|---------------------------------|--|

| Post Parameters | Description |
|--------------------------|---|
| <u>identifier</u> | The employee's unique identifier. |
| <u>username</u> | The employee's unique username for logging in to GeoPal. |
| <u>password</u> | The employee's password for logging in to GeoPal. |
| <u>first_name</u> | The employee's first name. |
| <u>last_name</u> | The employee's last name. |
| <u>email</u> | The employee's e-mail address. |
| mobile_number | The employee's mobile phone number. |
| administrator | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is an administrator. |
| guest_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a guest user. |
| mobile_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a mobile app user. |
| portal_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a portal user. |
| web_user | A boolean value (<code>true/false</code> , 1/0) to indicate if a user is a web user. |
| timezone | The employee's time zone. It may be provided in either of the following formats: 1.) Area/City – e. g.: Europe/Isle_of_Man (Preferred) 2.) Area/Zone – e.g.: US/Central 3.) Difference from GMT – e. g.: GMT+2 4.) Special formats – e. g.: CET, Zulu, etc. |

Note:

At least one of the user permission parameters (administrator, web_user, etc...) has to be set, otherwise GeoPal will reject updating the entry with an error.

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, identifier: string, title: string,</pre> |

| | |
|---------------|---|
| | <pre> first_name: string, last_name: string } </pre> |
| company | Details of the current company. <pre> { id: integer, name: string } </pre> |
| employee_data | An object with updated data on the target user. <pre> { id: integer, identifier: string, first_name: string, last_name: string, email: string, mobile_number: string, username: string, timezone: string } </pre> |

Starting And Ending An Employee Shift

Allows starting and ending an employee shift in GeoPal

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/employees/shift |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|---------------|---|
| start_on | The Shift's start date and time as a unix timestamp |
| stop_on | The Shift's end date and time as a unix timestamp |

| Note |
|---|
| <p>If the <code>stop_on</code> parameter is not provided, GeoPal will still create the shift entry. This shift can later be ended by providing the same <code>start_on</code> value and a valid <code>stop_on</code> value in another call.</p> <p>Please note that existing shifts will be identified based on the <code>start_on</code> parameter and the</p> |

requestor employee: an employee cannot end the shifts of another employee.

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string, mobile_main_logo_url: string }</pre> |

Listing Employee Shifts

Returns a list of shifts in the target time frame.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/employees/shifts |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameters | Description |
|-----------------------|---|
| <u>date_time_from</u> | Shifts starting at or after this point will be listed. (YYYY-MM-DD HH:MI:SS) |
| <u>date_time_to</u> | Shifts ending at or before this point will be listed. (YYYY-MM-DD HH:MI:SS) |

| Response | Description |
|----------|-------------|
|----------|-------------|

| | |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string }</pre> |
| company | <p>Details of the current company.</p> <pre>{ id: integer, name: string }</pre> |
| shifts | <p>An array containing the details for all the shifts matching provided criteria.</p> <p>Each object has:</p> <pre>{ employee_id: integer, employee_name: string, start_address: string, start_on: dateTime / String, stop_address: string, stop_on: dateTime / String, duration: string }</pre> |

| Note |
|---|
| In the response, the objects for ongoing shifts will have <code>null</code> values for the <code>stop_on</code> and <code>duration</code> parameters. |

Listing Employee Status Logs

Returns a list of status log entries in the target time frame.

| Parameters | Method specific value |
|------------|-----------------------|
|------------|-----------------------|

| | |
|-----------|---------------------------|
| URI | api/employees/status_logs |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameters | Description |
|-----------------------|---|
| <u>date_time_from</u> | Shifts starting at or after this point will be listed. (YYYY-MM-DD HH:MI:SS) |
| <u>date_time_to</u> | Shifts ending at or before this point will be listed. (YYYY-MM-DD HH:MI:SS) |
| employee_identifier | If provided, only results for this employee will be shown. |
| employee_id | If provided, only results for this employee will be shown. Note: GeoPal will check for an <code>employee_identifier</code> first; if both values are valid, the <code>employee_identifier</code> takes precedence. |

| Response | Description |
|-------------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| status_logs | An array containing the details for all the employee status logs matching provided criteria. Each object has: <pre>{</pre> |

| | |
|--|---|
| | <pre> id: integer, employee_id: integer, company_id: integer, status: integer, status_update_from: integer, ip_address: string, user_agent: string, updated_on: dateTime / string } </pre> <p>Status values and the source of status update are represented as integers:</p> <p>status field:</p> <ul style="list-style-type: none"> - 0 for "Ready" - 1 for "Busy" - 2 for "Offline" <p>status_update_from field:</p> <ul style="list-style-type: none"> - 0 for "system" (e.g.: expired session) - 1 for "employee" |
|--|---|

Get Route Replay of an Employee

Get route data within a given time period, by an employee's GeoPal ID.

| Parameters | Method specific value |
|------------|---------------------------|
| URI | api/employees/routereplay |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameters | Description |
|-----------------------|---|
| <u>employee_id</u> | The employee's GeoPal ID. |
| <u>date_time_from</u> | The date and time to list the entries from. |
| <u>date_time_to</u> | The date and time to list the entries to. |

| Response | Description |
|----------|---|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |

| | |
|----------|---|
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string }</pre> |
| company | <p>Details of the current company.</p> <pre>{ id: integer, name: string }</pre> |
| tracks | <p>An array of objects with information on the individual points recorded on the user's route, in the target time period. Each object has:</p> <pre>{ employee_name: integer, address: string, lat: float, lng: float, speed: integer, heading_txt: string, signal_strength_txt: string, battery_level_percentage: integer, accuracy: integer, accuracy_type: string, tag: string, distance_travelled: integer, created_on: dateTime / String }</pre> |

Get Route Replay of Employee By Identifier

Get route data within a given time period, by an employee's Identifier.

| Parameters | Method specific value |
|------------|---------------------------------------|
| URI | api/employees/routereplaybyidentifier |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|-------------------------|-------------------------------|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |

| | |
|---------------------------------|--|
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |
|---------------------------------|--|

| Get Parameters | Description |
|-----------------------------------|---|
| <u>employee_identifier</u> | The employee's Identifier. |
| <u>date_time_from</u> | The date and time to list the entries from. |
| <u>date_time_to</u> | The date and time to list the entries to. |

| Response | Description |
|----------|---|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| tracks | An array of objects with information on the individual points recorded on the user's route, in the target time period. Each object has: <pre>{ employee_name: integer, address: string, lat: float, lng: float, speed: integer, heading_txt: string, signal_strength_txt: string, battery_level_percentage: integer, accuracy: integer, accuracy_type: string, tag: string, distance_travelled: integer, created_on: dateTime / String }</pre> |

Asset Management API

We expect your Asset Identifiers to be RFIDs, as this is the way you look up assets on the Mobile App.

Getting a list of Assets

Returns a paged list of all assets in the system.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/assets/getall |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|---------------|--|
| limit | The amount of assets to be returned per page. Defaults to 10. |
| page | The page number to start the listing from. Defaults to 0. |
| updated_on | An optional Unix timestamp. If provided, only assets modified at or after the indicated date and time will be listed. |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| total | The total number of assets in GeoPal. |

| | |
|----------|--|
| has_next | A boolean value to indicate if there are additional records in the system, based on the current settings for the <code>limit</code> , <code>page</code> and <code>updated_on</code> parameters. |
| assets | <p>An array of objects representing all assets that match the given criteria. Each object has:</p> <pre> { id: integer, identifier: string, name: string, company_id: integer, asset_template_id: integer, asset_company_status_id: integer, customer_id: integer, address_id: integer, parent_id: integer, cost_price: string, selling_price: string, last_scanned_on: string / dateTime, last_scanned_by: integer, is_deleted: boolean, updated_on: string / dateTime, updated_by: integer, created_on: string / dateTime, created_by: integer }</pre> |

Getting an Asset by Id

Returns details of an Asset, based on its Id in GeoPal.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/assets/get |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|-----------------|----------------------|
| <u>asset_id</u> | The ID of the Asset. |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | <p>Details of the current company.</p> <pre>{ id: integer, name: string }</pre> |
| asset | <p>An object containing the Asset details.</p> <pre>{ id: integer, identifier: string, name: string, company_id: integer, asset_template_id: integer, asset_company_status_id: integer, customer_id: integer, address_id: integer, parent_id: integer, cost_price: string, selling_price: string, last_scanned_on: string / dateTime, last_scanned_by: integer, is_deleted: boolean, updated_on: string / dateTime, updated_by: integer, created_on: string / dateTime, created_by: integer, address: { id: integer, identifier: string, is_primary: boolean, is_billing: boolean, is_user: boolean, address_line_1: string, address_line_2: string, address_line_3: string, city: string, postal_code: string, country_id: integer, coordinates_verified: boolean, lat: float, lng: float, boundary: string, is_deleted: boolean, company_id: integer, updated_on: string / dateTime, updated_by: integer, created_on: string / dateTime, created_by: integer }, asset_fields: [{ id: integer, asset_id: integer, asset_company_field_id: integer, </pre> |

| | |
|--|---|
| | <pre> company_id: integer, action_value_entered: string, s3file_id: integer, updated_on: string / dateTime, updated_by: integer, created_on: string / dateTime, created_by: integer }}, asset_triggers: [{ id: integer, company_id: integer, asset_id: integer, asset_company_trigger_id: integer, assigned_date_time: string / dateTime, trigger_date_time: string / dateTime, is_active: boolean, updated_on: string / dateTime, updated_by: integer, created_on: string / dateTime, created_by: integer }] }</pre> |
|--|---|

Getting an Asset by Identifier

Returns details of an Asset, based on its Identifier.

| Parameters | Method specific value |
|------------|----------------------------|
| URI | api/assets/getbyidentifier |
| Verb | GET |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameter | Description |
|-------------------------|------------------------------|
| <u>asset_identifier</u> | The identifier of the Asset. |

| Response | Description |
|----------|---|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre> { id: integer, title: string,</pre> |

| | |
|---------|---|
| | <pre> first_name: string, last_name: string } </pre> |
| company | Details of the current company. <pre> { id: integer, name: string } </pre> |
| asset | An object containing the Asset details. (Same as for getting an Asset by Id) |

Updating and Creating an Asset

Updates an existing asset or creates a new one with the details provided.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/assets/replace |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameter | Description |
|--------------------------------|--|
| <u>asset_identifier</u> | The identifier of the Asset. Either the Identifier or the Id must be provided. |
| <u>asset_id</u> | The Id of the Asset. Either the Identifier or the Id must be provided. |
| asset_template_id | The Id of the Asset Template based on which to create the Asset. For new Assets, this parameter is required. For existing Assets, the Asset Template Id cannot be changed. As such, it will be ignored and may be omitted from the request. |
| asset_company_status_id | The Id of the company-defined asset status to assign to the Asset. |

| | |
|---------------------|--|
| | For new Assets, this parameter is required. |
| asset_name | The human-readable name of the Asset. |
| customer_identifier | The identifier of the customer associated with the Asset. |
| last_scanned_on | A unix timestamp to indicate the last time the Asset has been checked. |
| last_scanned_by | The Id of the last employee to check the Asset. |
| address_lat | The latitude coordinate of the Asset's location. |
| address_lng | The longitude coordinate of the Asset's location. |
| address_postal_code | The postal code to the Asset's location |
| address_city | The name of the city or village where the Asset is located. |
| address_line_1 | The first line of the address where the Asset is located. |
| address_line_2 | The second line of the address where the Asset is located. |
| address_line_3 | The third line of the address where the Asset is located. |
| address_updated_on | Indicates when the Address data to the Asset has last been updated. |
| asset_fields | <p>An array or JSON encoded list of key-value pairs representing the user-defined Asset's Fields, where the Asset Field's Id acts as the key, and the Asset Field's new value to set as the value.</p> <p>E.g.:</p> <pre>{ asset_field_id_1: asset_field_new_value_1, asset_field_id_2: asset_field_new_value_2, ... }</pre> <p>Asset Fields not associated with the Asset's Template will be ignored.</p> |
| updated_on | Unixtimestamp of the last updated on time of the asset |
| created_on | Unixtimestamp of the created on time of the asset |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | <p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |

| | |
|---------|---|
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| asset | An object containing the Asset details. (Same as for getting an Asset by Id) |

Updating an Asset Field

Allows for updating an individual, user-defined field of an asset.

| Parameters | Method specific value |
|------------|------------------------|
| URI | api/assetfields/update |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameter | Description |
|--------------------------------------|--|
| <u>asset_identifier</u> | The identifier of the Asset. Either the Identifier or the Id must be provided. |
| <u>asset_id</u> | The Id of the Asset. Either the Identifier or the Id must be provided. |
| <u>asset_company_field_id</u> | The Id of the corresponding Asset Company Field. |
| action_value_entered | The value to set to the selected Asset Field. Defaults to null. |

| Response | Description |
|----------|---|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who |

| | |
|-------------|--|
| | made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| asset_field | An object containing the Asset Field details. <pre>{ id: integer, asset_id: integer, asset_company_field_id: integer, company_id: integer, action_value_entered: string, s3file_id: integer, updated_on: string / dateTime, updated_by: integer, created_on: string / dateTime, created_by: integer }</pre> |

Uploading a file to an Asset Field

Allows for uploading a file to an Asset Field.

| Parameters | Method specific value |
|------------|-----------------------|
| URI | api/assetfields/file |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameter | Description |
|--------------------------------|--|
| <u>asset_identifier</u> | The identifier of the Asset. Either the Identifier or the Id must be provided. |
| <u>asset_id</u> | The Id of the Asset. Either the Identifier or the Id must be provided. |

| | |
|-------------------------------|--|
| asset_company_field_id | The Id of the corresponding Asset Company Field. |
| file2upload | The absolute path to the file to be uploaded. |

| Note | |
|--|--|
| The file upload behaviour here is that of a standard single file upload via HTTP. That means that, for example, in CURL or .NET, you should prefix the file path with an "@" symbol. | |

| Response | Description |
|-------------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| asset_field | An object containing details on the target Asset Field. <pre>{ id: integer, asset_id: integer, asset_company_field_id: integer, company_id: integer, action_value_entered: string, s3file_id: integer, updated_on: string / dateTime, updated_by: integer, created_on: string / dateTime, created_by: integer }</pre> |

Updating an Asset Trigger

Allows for updating an Asset Trigger.

| Parameters | Method specific value |
|------------|--------------------------|
| URI | api/assettriggers/update |
| Verb | POST |
| Data Type | JSON |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Post Parameter | Description |
|--|--|
| <u>asset_identifier</u> | The identifier of the Asset. Either the Identifier or the Id must be provided. |
| <u>asset_id</u> | The Id of the Asset. Either the Identifier or the Id must be provided. |
| <u>asset_company_trigger_id</u> | The Id of the corresponding Asset Company Trigger. |
| assigned_date_time | The unix timestamp indicating when the triggered Job should be assigned. Defaults to the current date and time. |

| Response | Description |
|---------------|---|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |
| asset_trigger | An object containing the Asset Trigger details. <pre>{ id: integer, company_id: integer, asset_id: integer, asset_company_trigger_id: integer, assigned_date_time: string / dateTime, trigger_date_time: string / dateTime, is_active: boolean, updated_on: string / dateTime, updated_by: integer, created_on: string / dateTime, created_by: integer }</pre> |

Files API

Getting a File

Retrieves An Uploaded File From The System. Any s3file id can be downloaded with this call.

| Parameters | Method specific value |
|------------|---------------------------------|
| URI | api/s3files/get |
| Verb | GET |
| Data Type | Binary or JSON (see parameters) |

| Headers | Method specific value |
|--------------------------|--|
| <u>GEOPAL-SIGNATURE</u> | [reference] |
| <u>GEOPAL-TIMESTAMP</u> | [reference] |
| <u>GEOPAL-EMPLOYEEID</u> | A unique ID assigned to the requestor employee by GeoPal |

| Get Parameters | Description |
|-------------------|---|
| <u>s3_file_id</u> | The S3 file's ID in GeoPal. |
| json | A boolean value to indicate if the file metadata should be returned instead of the file contents. Defaults to false. |

| Response | Description |
|----------|--|
| status | [true/false] Indicates if there was an error on the server or not |
| tag | An URI to which the call was made to |
| employee | A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string }</pre> |
| company | Details of the current company. <pre>{ id: integer, name: string }</pre> |

| | |
|---|---|
| S3file (Only if <code>json=true</code>) | A json string with the metadata associated with the file <pre> { id: integer, uuid: string, bucket: string, file_name: string, mime_type: string, size: integer, tmp_file_name: string, tmp_file_created_on: string / dateTime, company_id: integer, is_deleted: boolean, deleted_by: integer, created_by: integer, created_on: string / dateTime, updated_on: string / dateTime } </pre> |
|---|---|

Sending Job Fields

Getting Job Field Ids

If you would like to get the job field ids you can use the api section on Geopal (<https://app.geopalsolutions.com/admin/api>) you can use Get All Job Templates first to find all the job template ids you currently have and then use the Get Job Template Detail function to see details about a specific template. In the json returned there is a section called `job_template_fields`, the ids for each of these fields are the id for the job fields.

Sending Job Fields In Create A Job

To send on job fields you need to construct a simple json array. You can use either the ids of the job fields or the job field names. If you decide to use the name then be careful when editing the template that the names then do not change and the names remain unique. The ids do not have this issue.

To construct the json array you can use a simple dictionary of ids/names and values:

```

Dim jobFieldsDict = New Dictionary(Of Integer, [String])()
jobFieldsDict(JobTemplateFieldId) = "value"
or
Dim jobFieldsDict = New Dictionary(Of String, [String])()
jobFieldsDict(JobTemplateFieldName) = "value"

```

There are two ways of sending job fields:

1. You can send custom job fields as serialized JSON array like so:

```

Dim jobFieldsJson As String = JsonConvert.SerializeObject(jobFieldsDict)
Dim pairs As New NameValueCollection()
pairs.Add("template_id", jobTemplateId)

//Here you are sending serialized JSON dictionary of job_fields
pairs.Add("job_fields", jobFieldsJson)
Dim response As [String] = geopalClient.post(pairs)

```

2. You can send custom job fields directly in post request as additional fields like so:

```

Dim jobFieldsJson As String = JsonConvert.SerializeObject(jobFieldsDict)
Dim pairs As New NameValueCollection()
pairs.Add("template_id", jobTemplateId)

```

```
//Here you are adding job fields values to post array as standard parameters  
pairs.Add("job_fields_JOB_FIELD_ID1", JOB_FIELD_VALUE1)  
pairs.Add("job_fields_JOB_FIELD_ID2", JOB_FIELD_VALUE2)  
pairs.Add("job_fields_JOB_FIELD_ID3", JOB_FIELD_VALUE3)  
Dim response As [String] = geopalClient.post(pairs)
```

Error Codes

The status for all errors is set to false.

| Name | tag | error_code | error_message |
|--|------------|------------|--|
| ERROR_JOB_TEMPLATE_NOT_FOUND | api/geopal | 1 | Job Template Not Found |
| ERROR_INVALID_JOB_ID | api/geopal | 3 | Job ID Invalid |
| ERROR_JOB_STATUS_INVALID | api/geopal | 2 | Job Status Invalid |
| ERROR_CODE_BAD_CREDS | api/geopal | 0 | Invalid Credentials |
| ERROR_INVALID_PARAM | api/geopal | 4 | Invalid parameter |
| ERROR_INTERNAL_ERROR | api/geopal | 5 | Internal Error |
| ERROR_JOB_NOT_FOUND | api/geopal | 6 | Job not found |
| ERROR_JOBWORKFLOW_NOT_FOUND | api/geopal | 7 | Job workflow not found |
| ERROR_FORM_NOT_FOUND | api/geopal | 8 | Form not found |
| ERROR_FORMFIELD_NOT_FOUND | api/geopal | 9 | Form field not found |
| ERROR_NO_PERMISSION | api/geopal | 10 | You do not have permission to access this resource |
| ERROR_UPLOAD | api/geopal | 11 | Upload of resource failed |
| ERROR_ALREADY_ACCEPTED | api/geopal | 12 | Job has already been accepted due to first to accept setting |
| ERROR_ASSET_NOT_FOUND | api/geopal | 14 | Asset not found |
| ERROR_ASSET_TEMPLATE_NOT_FOUND | api/geopal | 13 | Asset template not found |
| ERROR_ASSET_IDENTIFIER_NOT_FOUND | api/geopal | 15 | No valid asset identifier has been found |
| ERROR_ASSET_IDENTIFIER_OR_ID_NOT_FOUND | api/geopal | 16 | No input data provided to identify asset |
| ERROR_INVALID_FILE_TO_UPLOAD | api/geopal | 17 | Invalid file to upload |
| ERROR_ASSET_GIS_ALREADY_EXISTS | api/geopal | 18 | This asset already has a GIS entry. |
| ERROR_ASSET_FIELD_NOT_FOUND | api/geopal | 19 | Asset company field(s) not found |

| | | | |
|--------------------------------------|------------|----|---|
| ERROR_ASSET_COMPANY_STATUS_NOT_FOUND | api/geopal | 20 | Asset company status(es) not found. |
| ERROR_COMPANY_ACCOUNT_INACTIVE | api/geopal | 21 | Your trial of GeoPal has now expired. To continue using GeoPal, please ' . 'contact our sales team at sales@geopal-solutions.com |

Visual Basic Reference

1. Creating Signature

```
Private Function GetSignature(signText As String, privateKey As String) As String
    Dim encoding As New System.Text.ASCIIEncoding()

    Dim keybytes As Byte() = encoding.GetBytes(privateKey)
    Dim signbytes As Byte() = encoding.GetBytes(signText)

    Dim hmacsha256 As New HMACSHA256(keybytes)

    Return EncodeTo64(ByteToString(hmacsha256.ComputeHash(signbytes)).ToLower())
End Function

Private Function EncodeTo64(toEncode As String) As String
    Dim toEncodeAsBytes As Byte() =
System.Text.ASCIIEncoding.ASCII .GetBytes(toEncode)
    Dim returnValue As String = System.Convert.ToBase64String(toEncodeAsBytes)
    Return returnValue
End Function

Private Shared Function ByteToString(buff As Byte()) As String
    Dim sbinary As String = ""

    For i As Integer = 0 To buff.Length - 1
        ' hex format
        sbinary += buff(i).ToString("X2")
    Next
    Return (sbinary)
End Function
```

2. Creating a Job

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/vb.net/VBGeopalJob/Application.vb#L81>

3. Getting Job Details

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/vb.net/VBGeopalJob/Application.vb#L107>

4. Listing All Job Templates

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/vb.net/VBGeopalJob/Application.vb#L163>

5. Reading a Job Template

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/vb.net/VBGeopalJob/Application.vb#L184>

6. Getting Jobs in a Specific Date Range

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/vb.net/VBGeopalJob/Application.vb#L214>

7. Listing Employees

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/vb.net/VBGeopalJob/Application.vb#L239>

Java Reference

1. Creating Signature

```
private String getSignature(String signtext, String privateKey) {
    String test = getHMAC256(privateKey, signtext);
    return Base64.encodeBase64String(test.getBytes());
}

public String getHMAC256(String pwd, String inputdata) {
    String temp = null;
    SecretKeySpec keySpec = new SecretKeySpec(pwd.getBytes(), "HmacSHA256");
    try {
        Mac mac = Mac.getInstance("HmacSHA256");
        mac.init(keySpec);
        // update method adds the given byte to the Mac's input data.
        mac.update(inputdata.getBytes());
        byte[] m = mac.doFinal();
        // The base64-encoder in Commons Codec
        temp = new String(Hex.encodeHex(m));
    } catch (Exception e) {
        e.printStackTrace();
    }
    return temp;
}
```

2. Creating a Job

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/java/src/GeopalJobSample/MainClass.java#L88>

3. Getting Job Details

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/java/src/GeopalJobSample/MainClass.java#L114>

4. Listing All Job Templates

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/java/src/GeopalJobSample/MainClass.java#L214>

5. Reading a Job Template

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/java/src/GeopalJobSample/MainClass.java#L174>

6. Getting Jobs in a Specific Date Range

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/java/src/GeopalJobSample/MainClass.java#L244>

7. Listing Employees

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/java/src/GeopalJobSample/MainClass.java#L281>

PHP Reference

Our php client code can be found: <https://github.com/geopal-solutions/geopal-php-client>

1. Creating Signature

```
private String getSignature(String signtext, String privateKey) {  
    String test = getHMAC256(privateKey, signtext);  
    return Base64.encodeBase64String(test.getBytes());  
}
```

2. Creating a Job

<https://github.com/geopal-solutions/geopal-php-client/blob/master/src/Geopal/Geopal.php#L117>

3. Getting Job Details

<https://github.com/geopal-solutions/geopal-php-client/blob/master/src/Geopal/Geopal.php#L128>

4. Listing All Job Templates

<https://github.com/geopal-solutions/geopal-php-client/blob/master/src/Geopal/Geopal.php#L164>

5. Reading a Job Template

<https://github.com/geopal-solutions/geopal-php-client/blob/master/src/Geopal/Geopal.php#L176>

6. Getting Jobs in a Specific Date Range

<https://github.com/geopal-solutions/geopal-php-client/blob/master/src/Geopal/Geopal.php#L140>

7. Listing Employees

<https://github.com/geopal-solutions/geopal-php-client/blob/master/src/Geopal/Geopal.php#L153>

Python Reference

1. Creating Signature

```
def __generateSignatureString(self, method, uri, employee_id):  
    return method.lower() + uri + employee_id.__str__() + self.getTimeStamp()  
  
def __generateSignature(self, sign_text, private_key):  
    dig = hmac.new(private_key, sign_text, hashlib.sha256).hexdigest()  
    sign = base64.b64encode(dig)  
    return sign
```

2. Creating a Job

<https://github.com/geopal-solutions/geopal-python-client/blob/master/geopal-client/geopal-client.py#L160>

3. Getting Job Details

<https://github.com/geopal-solutions/geopal-python-client/blob/master/geopal-client/geopal-client.py#L172>

4. Listing All Job Templates

<https://github.com/geopal-solutions/geopal-python-client/blob/master/geopal-client/geopal-client.py#L194>

5. Reading a Job Template

<https://github.com/geopal-solutions/geopal-python-client/blob/master/geopal-client/geopal-client.py#L214>

6. Getting Jobs in a Specific Date Range

<https://github.com/geopal-solutions/geopal-python-client/blob/master/geopal-client/geopal-client.py#L235>

7. Listing Employees

<https://github.com/geopal-solutions/geopal-python-client/blob/master/geopal-client/geopal-client.py#L250>

and

<https://github.com/geopal-solutions/geopal-python-client/blob/master/geopal-client/geopal-client.py#L272>

C# .Net Reference

1. Creating Signature

```
private string GetSignature(string signtext, string privateKey)
{
    System.Text.ASCIIEncoding encoding = new System.Text.ASCIIEncoding();

    byte[] keybytes = encoding.GetBytes(privateKey);
    byte[] signbytes = encoding.GetBytes(signtext);

    HMACSHA256 hmacsha256 = new HMACSHA256(keybytes);

    return EncodeTo64(ByteToString(hmacsha256.ComputeHash(signbytes)).ToLower());
}

private string EncodeTo64(string toEncode)
{
    byte[] toEncodeAsBytes
        = System.Text.ASCIIEncoding.ASCII.GetBytes(toEncode);
    string returnValue
        = System.Convert.ToBase64String(toEncodeAsBytes);
    return returnValue;
}

private static string ByteToString(byte[] buff)
{
    string sbinary = "";

    for (int i = 0; i < buff.Length; i++)
    {
        sbinary += buff[i].ToString("X2"); // hex format
    }
    return (sbinary);
}
```

2. Creating a Job

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/csharp.net/GeopalJobSample/Main.cs#L84>

3. Getting Job Details

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/csharp.net/GeopalJobSample/Main.cs#L117>

4. Listing All Job Templates

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/csharp.net/GeopalJobSample/Main.cs#L167>

5. Reading a Job Template

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/csharp.net/GeopalJobSample/Main.cs#L188>

6. Getting Jobs in a Specific Date Range

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/csharp.net/GeopalJobSample/Main.cs#L218>

7. Listing Employees

<https://github.com/geopal-solutions/geopal-api-samples/blob/master/samples/csharp.net/GeopalJobSample/Main.cs#L243>