API Documentation

ver 1.36

Table of contents

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 OReilly
26/09/13	1.6	Added in version number 1.6 added in Job Fields section, updated php section	Sean OReilly
30/09/13	1.7	Updates to titles and s3file details, formatting	Sean OReilly
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 OReilly
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 OReilly
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 OReilly
21/03/14	1.23	Added a list of error codes returned from the api	Sean OReilly
3/04/2014	1.24	Added in delete for job statuses	Sean OReilly
4/04/2014	1.25	Removed delete for job statuses	Sean OReilly
6/6/2014	1.26	Added in updated_on and created_on params to asset replace	Sean OReilly

30/06/2014	1.27	Added in example for basic HTTP authentication using cURL	Gabor Zelei
16/07/2014	1.28	Added in asset identifier into the job create param list	Sean OReilly
16/07/2014	1.29	Added imei and phone_number fields to the employee status logs output fields list	Gabor Zelei
22/07/2014	1.30	Added new entries to error codes list	Gabor Zelei
28/07/2014	1.31	Added job field files sending ability	Sean OReilly
30/07/2014	1.32	Added force_unique_job_identifier_if_set to job create docs	Sean OReilly
22/10/2014	1.33	Made clear the job status change messages contain information about job status changes	Sean OReilly
22/10/2014	1.34	Added in job_assets as well into job json	Sean OReilly
03/12/2014	1.35	Added in type param for job search ids api	Sean OReilly
29/01/2015	1.36	Fixed type in job fields create a single job field should have been job_field not job_fields	Sean OReilly

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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:

- ˅ C#
- ˅ Java
- ˅ PHP
- ˅ Python
- ˅ 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:

- ˅ **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.
- ˅ **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.
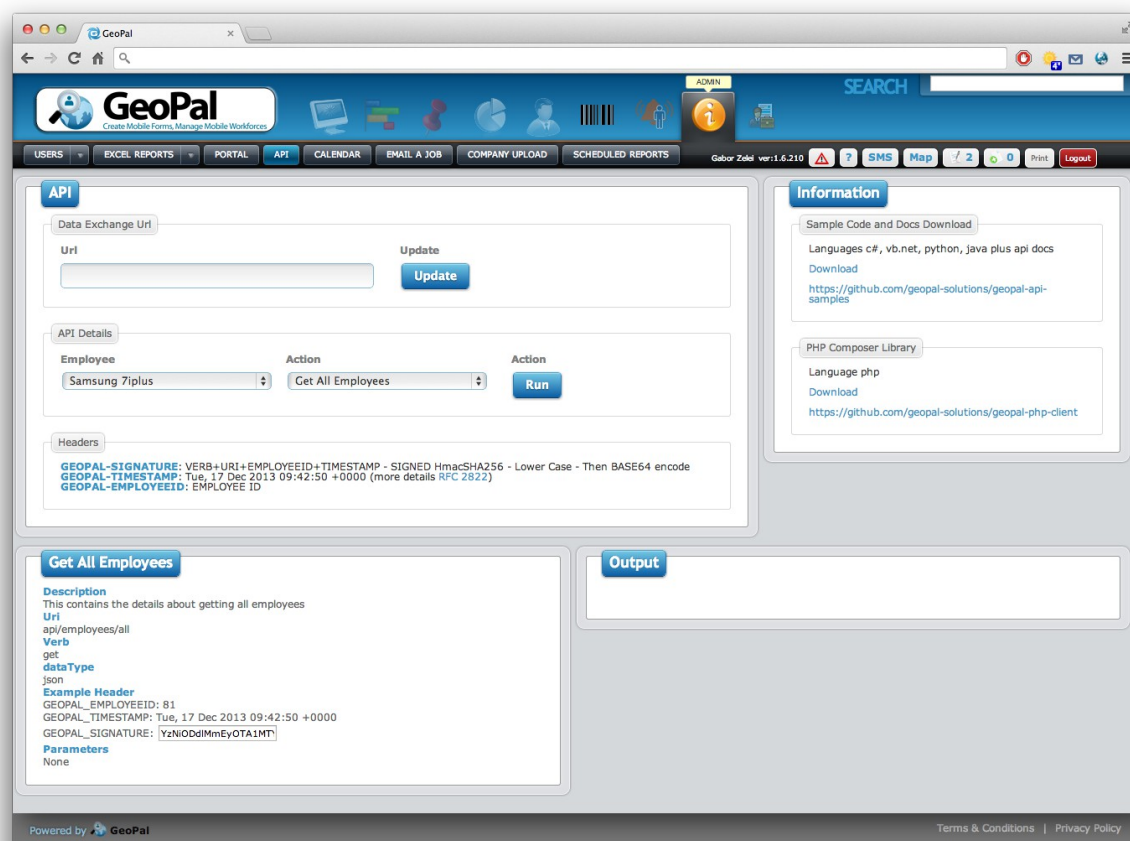
API Page Example: Finding out the EmployeeId

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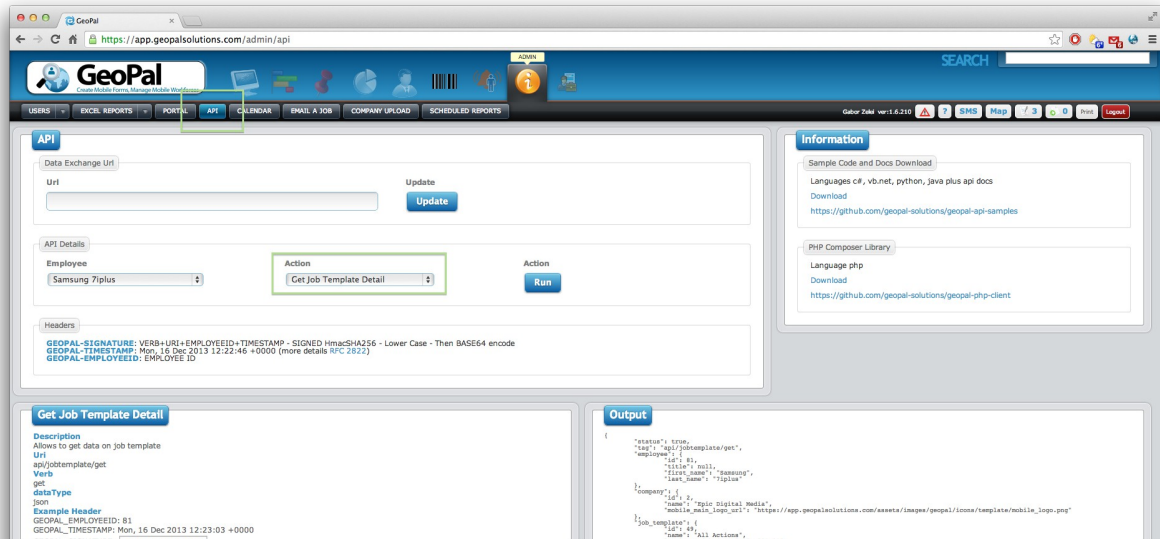
2.: Enter the Template Id in the last input field in the bottom left panel. (In this panel, you can also find detailed information on the api call that is being made to the server.) Click "*Run*".

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.
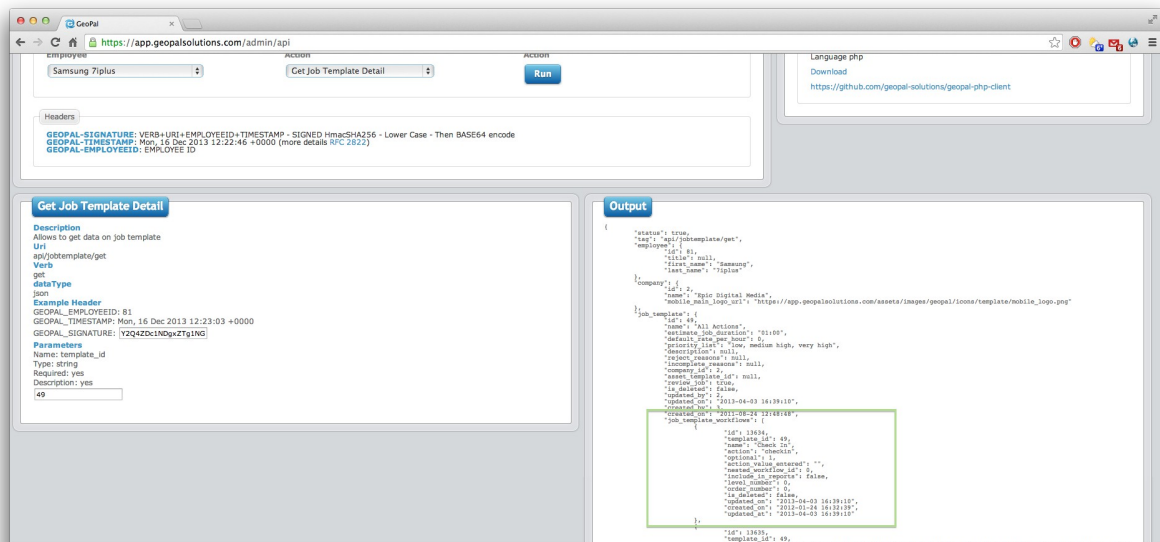
4.: Select the "*Get job data*" action in the top left panel, enter a job id in the corresponding input field in the bottom left panel, and click "*Run*".
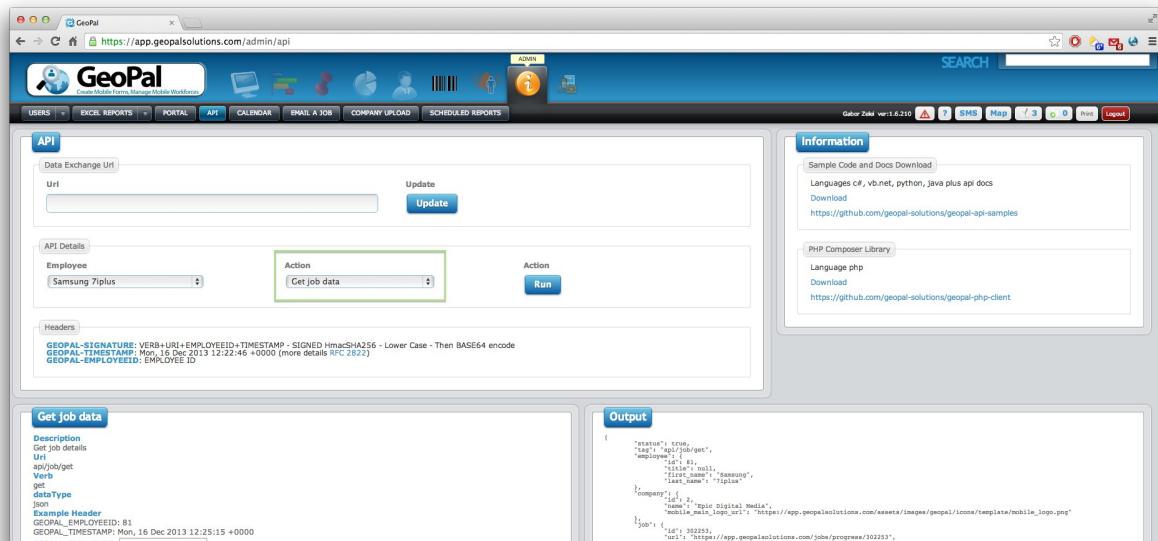
5.: In the response in the bottom right panel, find the `job_workflows` array. This list contains all the steps in a job. Each step has a `name`, which they inherit from the template workflow step (described at point #4), and also a `template_workflow_id`, to identify the template step they were created from.
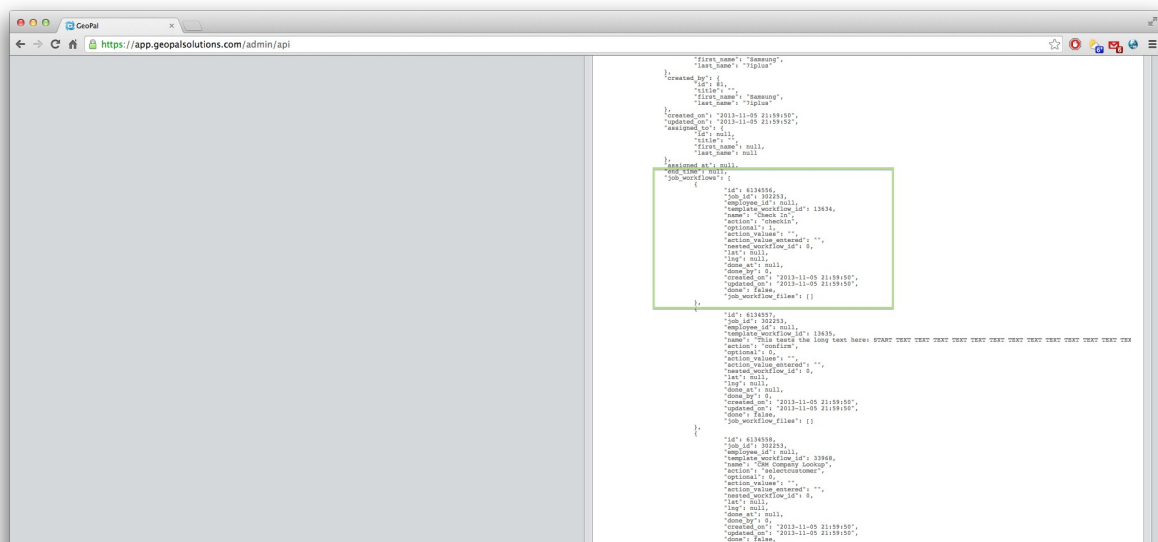
Basic HTTP Authentication

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:

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

Get Parameter	Description
`template_id`	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`	The color label for the job. Accepted values are "green", "yellow", "orange", "red", "purple", "white", and "blue". Defaults to "white".
`job_notes`	Submitter's notes for the job
`force_unique_job_identifier_if_set`	Boolean, if set to "1" and if the job identifier is set it will force the job identifier to be unique if that same identifier already exists. This is done by adding a timestamp to the end of the identifier. If "0" and the job identifier exists the create job routine will return an error. Defaults to "1"

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.
	
	``
	{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string,
	    mobile_main_logo_url: string
	}
	``

job	An object containing details of the new job.
	
	``
	{
	    id: integer,
	    identifier: string,
	    priority_text: string,
	    start_date_time: dateTime / string,
	    prefered_start_date_time: dateTime / string,
	    created_on: dateTime / string,
	    updated_on: dateTime / string
	    duration: integer,
	    priority_color: string,
	    rate_per_hour: integer,
	    prefered_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,


                                    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
                                    },
                                    prefered_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
                              }
                        }
```

Getting Job Details

Returns a list with all existing job templates.

A list of all status change messages can be found in the array item job_status_change_messages. This contains the list of each time the job changes status or a status message was included in the job.

Parameters	Method specific value
URI	api/jobs/get
Verb	GET
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 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	A JSON array with the account details of the requestor user who made the call.
	
	``
	{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

job	An object containing the job details.
	
	``
	{
	    id: integer,
	    identifier: string,
	    priority_text: string,
	    start_date_time: dateTime / string,
	    prefered_start_date_time: dateTime / string,
	    created_on: dateTime / string,
	    updated_on: dateTime / string
	    duration: integer,
	    priority_color: string,
	    rate_per_hour: integer,
	    prefered_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: [
	        {
	            id: int,
	            job_id: int,
	            job_status_id: int,
	``

```
                          message: string,
                          done_at: int
                }
        ],
        job_assets: [
                {
                          id: int,
                          job_id: int,
                          asset_id: int,
                          amount: string,
                          cost_price: int,
                          selling_price: int,
                          asset_identifier: string,
                          asset_name: 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
        },
        prefered_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
                                }
                            }
```

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

Post Parameters	Description
job_id	The ID of the target job
job_status_id	The ID of the job status to set the job to. Valid values are: - **6** for "Accepted" - **2** for "Rejected" - **3** for "Completed" - **5** for "In Progress" - **7** for "Incomplete" Note: Values not listed above will cause the request to fail.
updated_on	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	A JSON array with the account details of the requestor user who made the call.
	
	``
	{
	   id: integer,
	   title: string,
	   first_name: string,
	   last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	   id: integer,
	   name: string
	}
	``

job	An object containing the job details.
	
	``
	{
	   id: integer,
	   identifier: string,
	   priority_text: string,
	   start_date_time: dateTime / string,
	   prefered_start_date_time: dateTime / string,
	``

```
                            created_on: dateTime / string,
                            updated_on: dateTime / string
                            duration: integer,
                            priority_color: string,
                            rate_per_hour: integer,
                            prefered_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: [
                                {
                                    id: int,
                                    job_id: int,
                                    job_status_id: int,
                                    message: string,
                                    done_at: int
                                }
                            ],
                            job_assets: [
                                {
                                    id: int,
                                    job_id: int,
                                    asset_id: int,
                                    amount: string,
                                    cost_price: int,
                                    selling_price: int,
                                    asset_identifier: string,
                                    asset_name: 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
                            },
                            prefered_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
                                            }
                                        }
```

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

Post Parameter	Description
job_id	The ID of the target job
employee_id	The ID of the employee to assign the job to
start_date_time	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.
	
	``{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}```

company	Details of the current company.
	
	``{
	    id: integer,
	    name: string
	}```

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

Post Parameter	Description
`job_id`	The ID of the target job
`employee_reassigned_to_id`	The ID of the employee to assign the job to
`start_date_time`	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.
	
	`{`
	`    id: integer,`
	`    title: string,`
	`    first_name: string,`
	`    last_name: string`
	`}`

company	Details of the current company.
	
	`{`
	`    id: integer,`
	`    name: string`
	`}`

job	An object containing the job details.
	
	`{`
	`    id: integer,`
	`    identifier: string,`
	`    priority_text: string,`
	`    start_date_time: dateTime / string,`
	`    prefered_start_date_time: dateTime / string,`
	`    created_on: dateTime / string,`
	`    updated_on: dateTime / string`
	`    duration: integer,`
	`    priority_color: string,`
	`    rate_per_hour: integer,`
	`    prefered_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: [
                                            {
                                                id: int,
                                                job_id: int,
                                                job_status_id: int,
                                                message: string,
                                                done_at: int
                                            }
                                        ],
                                        job_assets: [
                                            {
                                                id: int,
                                                job_id: int,
                                                asset_id: int,
                                                amount: string,
                                                cost_price: int,
                                                selling_price: int,
                                                asset_identifier: string,
                                                asset_name: 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
                                        },
                                        prefered_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
GEOPAL-SIGNATURE	[reference]
GEOPAL-TIMESTAMP	[reference]
GEOPAL-EMPLOYEEID	A unique ID assigned to the requestor employee by GeoPal

Get Parameter	Description
job_template_id	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.
	
	`{`
	`    id: integer,`
	`    title: string,`
	`    first_name: string,`
	`    last_name: string`
	`}`

company	Details of the current company.
	
	`{`
	`    id: integer,`
	`    name: string`
	`}`

template	An object containing the job template details.
	
	`{`
	`    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,
         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
      }]
}
```

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

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

<u>**type**</u>	Can be set to created_on or updated_on, defaults to updated_on. Created on is the time the job was created on the server, updated on is the time the job was updated on the server

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.
	
	``
	{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

jobs	An array containing the details for all the job templates.
	
	Each object has:
	
	``
	{
	    id: integer
	}
	``

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
GEOPAL-SIGNATURE	[reference]
GEOPAL-TIMESTAMP	[reference]
GEOPAL-EMPLOYEEID	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.
	
	``
	{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

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.
	
	``
	{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

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
GEOPAL-SIGNATURE	[reference]
GEOPAL-TIMESTAMP	[reference]
GEOPAL-EMPLOYEEID	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.
	
	``
	{
	  id: integer,
	  title: string,
	  first_name: string,
	  last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	  id: integer,
	  name: string
	}
	``

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
GEOPAL-SIGNATURE	[reference]
GEOPAL-TIMESTAMP	[reference]
GEOPAL-EMPLOYEEID	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.
	
	``
	{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

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
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.
job_status_id	The ID of the job status to set the job to. Valid values are: - **6** for "Accepted" - **2** for "Rejected" - **3** for "Completed" - **5** for "In Progress" - **7** for "Incomplete" Note: Values not listed above will cause the request to fail.
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	A JSON array with the account details of the requestor user who made the call.
	
	``
	{
	   id: integer,
	   title: string,
	   first_name: string,
	   last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	   id: integer,
	   name: string
	}
	``

job	An object containing the job details. (Output is the same as described for "Creating a Job")

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
GEOPAL-SIGNATURE	[reference]
GEOPAL-TIMESTAMP	[reference]
GEOPAL-EMPLOYEEID	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	A JSON array with the account details of the requestor user who made the call.
	
	``
	{
	    id: integer,
	    identifier: string,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

employees	An array containing the details for all the employees of the current company.
	
	Each object has:
	
	``
	{
	    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
}
```<br><br>Statuses:<br>- **0** for "Ready"<br>- **1** for "Busy"<br>- **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
GEOPAL-SIGNATURE	[reference]
GEOPAL-TIMESTAMP	[reference]
GEOPAL-EMPLOYEEID	A unique ID assigned to the requestor employee by GeoPal

Post Parameters	Description
username	A unique username that will allow the employee to log in to GeoPal.
password	A password to allow the employee to log in to GeoPal.
email	The new employee's e-mail address.
first_name	The new employee's first name.
last_name	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 (`true`/`false`, `1/0`) to indicate if a user is an administrator.
guest_user	A boolean value (`true`/`false`, `1/0`) to indicate if a user is a guest user.
mobile_user	A boolean value (`true`/`false`, `1/0`) to indicate if a user is a mobile app user.
portal_user	A boolean value (`true`/`false`, `1/0`) to indicate if a user is a portal

	user.
web_user	A boolean value (`true`/`false`, `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.
	
	``{
	    id: integer,
	    identifier: string,
	    title: string,
	    first_name: string,
	    last_name: string
	}```

company	Details of the current company.
	
	``{
	    id: integer,
	    name: string
	}```

employee_data	An object with data on the newly created user.
	
	``{
	    id: integer,
	    identifier: string,
	    first_name: string,
	    last_name: string,
	    email: string,
	    mobile_number: string,
	    username: string,
	    timezone: string
	}```

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

Post Parameters	Description
id	The target employee's GeoPal ID.
username	The employee's unique username for logging in to GeoPal.
password	The employee's password for logging in to GeoPal.
first_name	The employee's first name.
last_name	The employee's last name.
email	The employee's e-mail address.
identifier	The employee's unique identifier.
mobile_number	The employee's mobile phone number.
administrator	A boolean value (`true`/`false`, `1/0`) to indicate if a user is an administrator.
guest_user	A boolean value (`true`/`false`, `1/0`) to indicate if a user is a guest user.
mobile_user	A boolean value (`true`/`false`, `1/0`) to indicate if a user is a mobile app user.
portal_user	A boolean value (`true`/`false`, `1/0`) to indicate if a user is a portal user.
web_user	A boolean value (`true`/`false`, `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. ```{` ` id: integer,` ` identifier: string,` ` title: string,` ` first_name: string,` ` last_name: string` `}```
company	Details of the current company. ```{` ` id: integer,` ` name: string` `}```
employee_data	An object with updated data on the target user. ```{` ` id: integer,` ` identifier: string,` ` first_name: string,` ` last_name: string,` ` email: string,` ` mobile_number: string,` ` username: string,` ` timezone: string` `}```

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

Post Parameters	Description
identifier	The employee's unique identifier.
username	The employee's unique username for logging in to GeoPal.
password	The employee's password for logging in to GeoPal.
first_name	The employee's first name.
last_name	The employee's last name.
email	The employee's e-mail address.
mobile_number	The employee's mobile phone number.
administrator	A boolean value (`true`/`false`, `1`/`0`) to indicate if a user is an administrator.
guest_user	A boolean value (`true`/`false`, `1`/`0`) to indicate if a user is a guest user.
mobile_user	A boolean value (`true`/`false`, `1`/`0`) to indicate if a user is a mobile app user.
portal_user	A boolean value (`true`/`false`, `1`/`0`) to indicate if a user is a portal user.
web_user	A boolean value (`true`/`false`, `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.
	
	``
	{
	   id: integer,
	   identifier: string,
	   title: string,
	   first_name: string,
	   last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	   id: integer,
	   name: string
	}
	``

employee_data	An object with updated data on the target user.
	
	``
	{
	   id: integer,
	   identifier: string,
	   first_name: string,
	   last_name: string,
	   email: string,
	   mobile_number: string,
	   username: string,
	   timezone: string
	}
	``

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
GEOPAL-SIGNATURE	[reference]
GEOPAL-TIMESTAMP	[reference]
GEOPAL-EMPLOYEEID	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
If the `stop_on` parameter is not provided, GeoPal will still create the shift entry. This shift can later be ended by providing the same `start_on` value and a valid `stop_on` value in another call. Please note that existing shifts will be identified based on the `start_on` parameter and the 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.
	
	``
	{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string,
	    mobile_main_logo_url: string
	}
	``

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

Get Parameters	Description
date_time_from	Shifts starting at or after this point will be listed. (YYYY-MM-DD HH:MI:SS)

date_time_to	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	A JSON array with the account details of the requestor user who made the call.
	
	``
	{
	    id: integer,
	    identifier: string,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

shifts	An array containing the details for all the shifts matching provided criteria.
	
	Each object has:
	
	``
	{
	
	    employee_id: integer,
	    employee_name: string,
	    start_address: string,
	    start_on: dateTime / String,
	    stop_address: string,
	    stop_on: dateTime / String,
	    duration: string
	}
	``

Note
In the response, the objects for ongoing shifts will have `null` values for the `stop_on` and `duration` 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
`GEOPAL-SIGNATURE`	[reference]
`GEOPAL-TIMESTAMP`	[reference]
`GEOPAL-EMPLOYEEID`	A unique ID assigned to the requestor employee by GeoPal

Get Parameters	Description
date_time_from	Shifts starting at or after this point will be listed. (YYYY-MM-DD HH:MI:SS)
date_time_to	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 `employee_identifier` first; if both values are valid, the `employee_identifier` 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.<br><br>```
{
    id: integer,
    identifier: string,
    title: string,
    first_name: string,
    last_name: string
}
``` |
| company | Details of the current company.<br><br>```
{
    id: integer,
    name: string
}
``` |
| status_logs | An array containing the details for all the employee status logs |

matching provided criteria.

Each object has:

```
{
    id: integer,
    employee_id: integer,
    company_id: integer,
    status: integer,
    status_update_from: integer,
    imei: string,
    phone_number: string,
    ip_address: string,
    user_agent: string,
    updated_on: dateTime / string
}
```

Status values and the source of status update are represented as integers:

`status` field:
- **0** for "Ready"
- **1** for "Busy"
- **2** for "Offline"

`status_update_from` field:
- **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
GEOPAL-SIGNATURE	[reference]
GEOPAL-TIMESTAMP	[reference]
GEOPAL-EMPLOYEEID	A unique ID assigned to the requestor employee by GeoPal

Get Parameters	Description
employee_id	The employee's GeoPal ID.
date_time_from	The date and time to list the entries from.
date_time_to	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.
	
	``
	{
	    id: integer,
	    identifier: string,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

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:
	
	``
	{
	  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
	}
	``

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

Get Parameters	Description
employee_identifier	The employee's Identifier.
date_time_from	The date and time to list the entries from.
date_time_to	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.
	
	 ``
	{
	   id: integer,
	   identifier: string,
	   title: string,
	   first_name: string,
	   last_name: string
	}
	``

company	Details of the current company.
	
	 ``
	{
	   id: integer,
	   name: string
	}
	``

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:
	
	 ``
	{
	   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
	}
	``

Asset Management API

We expect your Asset Identifiers to be [RFID](s), 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
GEOPAL-SIGNATURE	[[reference]]
GEOPAL-TIMESTAMP	[[reference]]
GEOPAL-EMPLOYEEID	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.
	
	`{`
	`    id: integer,`
	`    title: string,`
	`    first_name: string,`
	`    last_name: string`
	`}`

company	Details of the current company.

| | ```
{
   id: integer,
   name: string
}
``` |
| 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 `limit`, `page` and `updated_on` parameters. |
| assets | An array of objects representing all assets that match the given criteria. Each object has:<br><br>```
{
    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
}
``` |

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

Get Parameter	Description
asset_id	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	A JSON array with the account details of the requestor user who made the call.
	
	``
	{
	   id: integer,
	   title: string,
	   first_name: string,
	   last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	   id: integer,
	   name: string
	}
	``

asset	An object containing the Asset details.
	
	``
	{
	    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,
                                          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
                                    }]
                              }
```

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

Get Parameter	Description
asset_identifier	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	A JSON array with the account details of the requestor user who made the call.
	
	``
	{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

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

Post Parameter	Description
asset_identifier	The identifier of the Asset. Either the Identifier or the Id must be provided.
asset_id	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	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.
	
	E.g.:
	
	``
	{
	    asset_field_id_1: asset_field_new_value_1,
	    asset_field_id_2: asset_field_new_value_2,
	    ...
	}
	``
	
	Asset Fields not associated with the Asset's Template will be ignored.

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	A JSON array with the account details of the requestor user who

	made the call.
	
	``
	{
	   id: integer,
	   title: string,
	   first_name: string,
	   last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	   id: integer,
	   name: string
	}
	``

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

Post Parameter	Description
asset_identifier	The identifier of the Asset. Either the Identifier or the Id must be provided.
asset_id	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.
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.
	
	``
	{
	    id: integer,
	    title: string,
	    first_name: string,
	    last_name: string
	}
	``

company	Details of the current company.
	
	``
	{
	    id: integer,
	    name: string
	}
	``

asset_field	An object containing the Asset Field details.
	
	``
	{
	    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
	}
	``

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

Post Parameter	Description
asset_identifier	The identifier of the Asset. Either the Identifier or the Id must be provided.
asset_id	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.<br><br>```
{
    id: integer,
    title: string,
    first_name: string,
    last_name: string
}
``` |
| company | Details of the current company.<br><br>```
{
    id: integer,
    name: string
}
``` |
| asset_field | An object containing details on the target Asset Field.<br><br>```
{
    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
}
``` |

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

Post Parameter	Description
asset_identifier	The identifier of the Asset. Either the Identifier or the Id must be provided.
asset_id	The Id of the Asset. Either the Identifier or the Id must be provided.
asset_company_trigger_id	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.
	
	`{`
	`  id: integer,`
	`  title: string,`
	`  first_name: string,`
	`  last_name: string`
	`}`

company	Details of the current company.
	
	`{`
	`  id: integer,`
	`  name: string`
	`}`

asset_trigger	An object containing the Asset Trigger details.
	
	`{`
	`  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
                            }
```

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

Get Parameters	Description
s3_file_id	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.
	
	`{`
	`  id: integer,`
	`  identifier: string,`
	`  title: string,`

	first_name: string, last_name: string }

company	Details of the current company.
	
	{
	   id: integer,
	   name: string
	}

S3file
(Only if `json=true`)
	A json string with the metadata associated with the file
	
	{
	   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
	}

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 Text 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_field_JOB_FIELD_ID1", JOB_FIELD_VALUE1)
pairs.Add("job_field_JOB_FIELD_ID2", JOB_FIELD_VALUE2)
pairs.Add("job_field_JOB_FIELD_ID3", JOB_FIELD_VALUE3)
Dim response As [String] = geopalClient.post(pairs)
```

Sending Job Fields Files In Create A Job

Files can be uploaded in job fields by passing the file along with the index of the job field template id. You can find the job field template ids in the template details api call. See below for an example in C# (post function can be found here: https://github.com/geopal-solutions/csharp-api-sample/blob/master/GeopalJobSample/GeopalClient.cs#L41)

```
GeopalClient gc = new GeopalClient();
gc.setEmployeeId("ID");
gc.setPrivateKey("KEY");
gc.setUri("api/jobs/create");
NameValueCollection nameValueCollection = new NameValueCollection();
nameValueCollection.Add("template_id","YOUR_TEMPLATE_ID");
gc.post("PATH_TO_IMAGE/test.png", "image/png", "JOB_FIELD_TEMPLATE_ID",
nameValueCollection);
```

Multiple files can be uploaded into different fields with this method. There is a restriction of 6MB on the file size and there is a restriction on the file types. Currently only the following file formats are supported: gif,jpg,png,pdf,xls,xlsx,txt,xml

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
ERROR_MESSAGING_REGISTRATION_ERROR	api/geopal	22	N / A
ERROR_MAX_DB_CONNECTIONS	api/geopal	23	Max connections reached
ERROR_UNAUTHORIZED_DEVICE	api/geopal	24	Unauthorized device. Make

			sure your device is white-listed.

Visual Basic Reference

1. Creating Signature

```vbnet
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

```java
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

```python
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

```csharp
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