



GeoPal
Mobile Workforce Management

API Documentation

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GeoPal web site



GeoPal Mobile app

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Change Log

Date	Changes Made	Changes By
2013-05-20	Initial version	Sean O'Reilly, Lukasz Jajesnica, Gabor Zelei
2013-07-08	New API functionality for Employees and Jobs	Gabor Zelei
2013-09-17	New API's for reassigning Jobs, updating Job Statuses and listing Shifts	Gabor Zelei

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 (or GET) and Push (or POST). 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`.

Pull API

Creating a Job

Allows creating a job in GeoPal

Parameters	Method specific value
URI	api/jobs/createandassign
Verb	POST
Data Type	JSON

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

Get Parameter	Description
<u>template_id</u>	The ID of the job template to create the job from

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

Response	Description
	<pre> 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: 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, </pre>

Response	Description
	<pre> industry: string, updated_on: dateTime / string, annual_revenue: integer, employees: string, ownership: string, phone_office: string, phone_alterdate: string, phone_fax: string, updated_by: string, website: string, email: string, email_alterdate: 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_alterdate: string, mobile_number: string, email_alterdate: string, is_user: bool, is_deleted: bool, is_primary: bool, notes: string }, assigned_to: { id: integer, title: string, first_name: string, last_name: string } } </pre>

Getting Job Details

Returns a list with all existing job templates.

Parameters	Method specific value
URI	api/job/get
Verb	GET
Data Type	JSON

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

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

Response	Description
status	[true/false] Indicates if there was an error on the server or not
tag	An URI to which the call was made to
employee	A JSON array with the account details of the requestor user who made the call. <pre>{ id: integer, title: string, first_name: string, last_name: string }</pre>
company	Details of the current company. <pre>{ id: integer, name: string }</pre>
job	An object containing the job details. <pre>{ id: integer, identifier: string, priority_text: string, start_date_time: dateTime / string, preferred_start_date_time: dateTime / string, created_on: dateTime / string, updated_on: dateTime / string, duration: integer, priority_color: string, rate_per_hour: integer, preferred_stop_date_time: dateTime / string, job_status_id: integer, schedule_log_id: integer, }</pre>

Response	Description
	<pre> start_date: dateTime / string, end_time: dateTime / string, first_to_accept: bool, assigned_at: dateTime / string, estimated_duration: integer, ob_assigned_to: string, url: string, notes: string, job_status_change_messages: string, address: { id: integer, identifier: string, is_billing: bool, is_user: bool, is_deleted: bool, created_on: dateTime / string, updated_by: string, updated_on: dateTime / string, city: string, is_primary: bool, company_id: integer, country_id: integer, created_by: string, address_line_1: string, address_line_2: string, address_line_3: string, postal_code: string, lat: float, lng: float }, 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, </pre>

Response	Description
	<pre> 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 } } </pre>

Changing Job Status

Allows for changing the current status of a job.

Parameters	Method specific value
URI	api/job/status
Verb	POST
Data Type	JSON

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

Post Parameters	Description
<u>job_id</u>	The ID of the target job
<u>job_status_id</u>	<p>The ID of the job status to set the job to.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> - 1 for "Accepted" - 2 for "Rejected" - 3 for "Completed" - 5 for "In Progress" - 7 for "Incomplete" <p>Note: Values not listed above will cause the request to fail.</p>
<u>updated_on</u>	A Unix Timestamp to mark the time of the update
message	An optional message to include in the job notes

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

Response	Description
	<pre> name: string } </pre>
job	<p>An object containing the job details.</p> <pre> { id: integer, identifier: string, priority_text: string, start_date_time: dateTime / string, preferred_start_date_time: dateTime / string, created_on: dateTime / string, updated_on: dateTime / string duration: integer, priority_color: string, rate_per_hour: integer, preferred_stop_date_time: dateTime / string, job_status_id: integer, schedule_log_id: integer, start_date: dateTime / string, end_time: dateTime / string, first_to_accept: bool, assigned_at: dateTime / string, estimated_duration: integer, ob_assigned_to: string, url: string, notes: string, job_status_change_messages: string, address: { id: integer, identifier: string, is_billing: bool, is_user: bool, is_deleted: bool, created_on: dateTime / string, updated_by: string, updated_on: dateTime / string, city: string, is_primary: bool, company_id: integer, country_id: integer, created_by: string, address_line_1: string, address_line_2: string, address_line_3: string, postal_code: string, lat: float, lng: float }, preferred_start_date_time: dateTime / string, priority_text: string, job_template: { id: integer, name: string, is_deleted: bool, default_rate_per_hour: integer, updated_on: dateTime / string, 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, </pre>

Response	Description
	<pre> 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_alterdate: string, phone_fax: string, updated_by: string, website: string, email: string, email_alterdate: 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_alterdate: string, mobile_number: string, email_alterdate: string, is_user: bool, is_deleted: bool, is_primary: bool, notes: string }, assigned_to: { id: integer, title: string, first_name: string, last_name: string } } </pre>

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

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

Response	Description
	<pre> job_status_id: integer, schedule_log_id: integer, start_date: dateTime / string, end_time: dateTime / string, first_to_accept: bool, assigned_at: dateTime / string, estimated_duration: integer, ob_assigned_to: string, url: string, notes: string, job_status_change_messages: string, address: { id: integer, identifier: string, is_billing: bool, is_user: bool, is_deleted: bool, created_on: dateTime / string, updated_by: string, updated_on: dateTime / string, city: string, is_primary: bool, company_id: integer, country_id: integer, created_by: string, address_line_1: string, address_line_2: string, address_line_3: string, postal_code: string, lat: float, lng: float }, 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, </pre>

Response	Description
	<pre> industry: string, updated_on: dateTime / string, annual_revenue: integer, employees: string, ownership: string, phone_office: string, phone_alterate: string, phone_fax: string, updated_by: string, website: string, email: string, email_alterate: 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_alterate: string, mobile_number: string, email_alterate: string, is_user: bool, is_deleted: bool, is_primary: bool, notes: string }, assigned_to: { id: integer, title: string, first_name: string, last_name: string } } </pre>

Reading a Job Template

Returns a Job Template.

Parameters	Method specific value
URI	api/jobtemplate/get
Verb	GET
Data Type	JSON

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

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

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

Response	Description
	<pre> 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 }] </pre>

Getting Jobs in a Specific Date Range

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

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

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

Get Parameter	Description
<u>date_time_from</u>	Date and time to list entries from.
<u>date_time_to</u>	Date and time to list entries to.

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

Listing Employees

Returns a detailed list with all employees of the company.

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

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

Response	Description
status	[true/false] Indicates if there was an error on the server or not
tag	An URI to which the call was made to
employee	<p>A JSON array with the account details of the requestor user who made the call.</p> <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string }</pre>
company	<p>Details of the current company.</p> <pre>{ id: integer, name: string }</pre>
employees	<p>An array containing the details for all the employees of the current company.</p> <p>Each object has:</p> <pre>{ id: integer, identifier: string, title: string, first_name: string, last_name: string, mobile_number: string, status: integer [0, 1, 2], lat: float, lng: float, address: string, last_updated_on: string }</pre> <p>Statuses:</p>

Response	Description
	<ul style="list-style-type: none">- 0 for "Ready"- 1 for "Busy"- 2 for "Offline"

Create an Employee

Creates a new employee entry in the system.

Parameters	Method specific value
URI	api/employee/create
Verb	POST
Data Type	JSON

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

Post Parameters	Description
<u>USERNAME</u>	A unique username that will allow the employee to log in to GeoPal.
<u>PASSWORD</u>	A password to allow the employee to log in to GeoPal.
<u>EMAIL</u>	The new employee's e-mail address.
<u>MOBILE_NUMBER</u>	The new employee's mobile phone number.
IDENTIFIER	A unique identifier for the new employee. If not provided, an identifier will be generated automatically.
FIRST_NAME	The new employee's first name.
LAST_NAME	The new employee's last name.
IMAGE_URL	A URL to the employee's photo.
TIMEZONE	<p>The new employee's time zone. It may be provided in either of the following formats:</p> <ol style="list-style-type: none"> 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. <p>If not provided, the employer's time zone will be applied.</p>

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

Response	Description
	<pre>title: string, first_name: string, last_name: string }</pre>
company	<p>Details of the current company.</p> <pre>{ id: integer, name: string }</pre>
employee_data	<p>An object with data on the newly created user.</p> <pre>{ id: integer, identifier: string, first_name: string, last_name: string, email: string, mobile_number: string, username: string, timezone: string }</pre>

Update an Employee

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

Parameters	Method specific value
URI	api/employee/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.
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.
IMAGE_URL	An URL to the employee's photo.
TIMEZONE	<p>The employee's time zone. It may be provided in either of the following formats:</p> <ol style="list-style-type: none"> 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.

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

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

Update an Employee By Identifier

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

Parameters	Method specific value
URI	api/employee/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
<u>IDENTIFIER</u>	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.
IMAGE_URL	An URL to the employee's photo.
TIMEZONE	The employee's time zone. It may be provided in either of the following formats: <ol style="list-style-type: none"> 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.

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

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

Listing Shifts

Returns a list of shifts in the target time frame.

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

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

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

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

Response	Description
	<pre>stop_address: string, stop_on: dateTime / String, duration: string }</pre>

Get Route Replay

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

Parameters	Method specific value
URI	api/employee/routereplay
Verb	GET
Data Type	JSON

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

Get Parameters	Description
<u>EMPLOYEE_ID</u>	The employee's GeoPal ID.
<u>DATETIME_FROM</u>	The date and time to list the entries from.
<u>DATETIME_TO</u>	The date and time to list the entries to.

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

Response	Description
	<pre>signal_strength_txt: string, battery_level_percentage: integer, accuracy: integer, accuracy_type: string, tag: string, distance_travelled: integer, created_on: dateTime / String }</pre>

Get Route Replay By Identifier

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

Parameters	Method specific value
URI	api/employee/routereplaybyidentifier
Verb	GET
Data Type	JSON

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

Get Parameters	Description
<u>EMPLOYEE_IDENTIFIER</u>	The employee's Identifier.
<u>DATETIME_FROM</u>	The date and time to list the entries from.
<u>DATETIME_TO</u>	The date and time to list the entries to.

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

Response	Description
	<pre>battery_level_percentage: integer, accuracy: integer, accuracy_type: string, tag: string, distance_travelled: integer, created_on: dateTime / String }</pre>

Visual Basic Reference

Creating a Job

```
Private Shared Sub CreateAJob()  
    Console.WriteLine("Please enter a job template id")  
    Dim jobTemplateId As String = Console.ReadLine()  
    Dim geopalClient As New GeopalClient("api/jobs/createandassign")  
    geopalClient.setEmployeeId(employeeId)  
    geopalClient.setPrivateKey(privateKey)  
  
    Dim pairs As New NameValueCollection()  
    pairs.Add("template_id", jobTemplateId)  
    Dim response As [String] = geopalClient.post(pairs)  
  
    Dim geopalRequestJob As GeopalRequestJob = JsonConvert.DeserializeObject(Of  
GeopalRequestJob)(response)  
    Console.WriteLine("Created Job With Identifier = " & geopalRequestJob.job.identifier)  
    Console.WriteLine("Created Job With Id = " & geopalRequestJob.job.id)  
End Sub
```

Getting Job Details

```
Private Shared Sub ReadAJob(jobId As String)  
    Dim geopalClient As New GeopalClient("api/jobs/get")  
    geopalClient.setEmployeeId(employeeId)  
    geopalClient.setPrivateKey(privateKey)  
    Dim response As [String] = geopalClient.[get]("job_id=" & jobId)  
    Dim geopalRequestJob As GeopalRequestJob = JsonConvert.DeserializeObject(Of  
GeopalRequestJob)(response)  
    Console.WriteLine("Job Identifier: " & geopalRequestJob.job.identifier)  
    Console.WriteLine("Job Template: " & geopalRequestJob.job.job_template.name)  
  
    Console.WriteLine(vbLf & "Job Fields")  
    For Each jobField As JobField In geopalRequestJob.job.job_fields  
        Console.WriteLine((jobField.name & " (" & jobField.id & "): ") &  
jobField.action_value_entered)  
    Next  
  
    Console.WriteLine(vbLf & "Job Workflows")  
    For Each jobWorkflow As JobWorkflow In geopalRequestJob.job.job_workflows  
        Console.WriteLine((jobWorkflow.name & " (" & jobWorkflow.id & "): ") &  
jobWorkflow.action_value_entered)  
        For Each jobWorkflowFile As JobWorkflowFile In jobWorkflow.job_workflow_files  
            Console.WriteLine((jobWorkflowFile.file_name & " (" & jobWorkflowFile.id & "):  
s3 file id ") & jobWorkflowFile.s3file_id)  
            DownloadS3File(jobWorkflowFile.s3file_id)  
        Next  
    Next  
End Sub
```

Listing All Job Templates

```
Private Shared Sub ListTemplates()
    Dim geopalClient As New GeopalClient("api/jobtemplates/all")
    geopalClient.SetEmployeeId(employeeId)
    geopalClient.SetPrivateKey(privateKey)
    Dim response As [String] = geopalClient.[get]()
    Dim geopalRequestJobTemplates As GeopalRequestJobTemplates =
    JsonConvert.DeserializeObject(Of GeopalRequestJobTemplates)(response)
    For Each jobTemplateSimple As JobTemplateSimple In
    geopalRequestJobTemplates.job_templates
        If jobTemplateSimple.is_deleted = False Then
            Console.WriteLine(jobTemplateSimple.name & " (" &
            jobTemplateSimple.job_template_id & ")")
        End If
    Next
End Sub
```

Reading a Job Template

```
Private Shared Sub ReadTemplate()
    Console.WriteLine("Please enter a job template id")
    Dim jobId As String = Console.ReadLine()
    Dim geopalClient As New GeopalClient("api/jobtemplates/get")
    geopalClient.SetEmployeeId(employeeId)
    geopalClient.SetPrivateKey(privateKey)
    Dim response As [String] = geopalClient.[get]("template_id=" & jobId)
    Dim geopalRequestJobTemplate As GeopalRequestJobTemplate =
    JsonConvert.DeserializeObject(Of GeopalRequestJobTemplate)(response)
    Console.WriteLine("Job Template Name = " & geopalRequestJobTemplate.job_template.name)
    Console.WriteLine(vbLf & "Job Fields")
    For Each jobTemplateField As JobTemplateField In
    geopalRequestJobTemplate.job_template.job_template_fields
        Console.WriteLine(jobTemplateField.name & " (" & jobTemplateField.id & ")")
    Next
    Console.WriteLine(vbLf & "Job Workflows")
    For Each jobTemplateWorkflow As JobTemplateWorkflow In
    geopalRequestJobTemplate.job_template.job_template_workflows
        Console.WriteLine((jobTemplateWorkflow.name & " (" & jobTemplateWorkflow.id & ")
        [" & jobTemplateWorkflow.action & "]")
    Next
End Sub
```

Getting Jobs in a Specific Date Range

```
Private Shared Sub ReadJobsDateRange()
    Console.WriteLine("Please enter a from date (YYYY-MM-DD HH:II:SS)")
    Dim dateTimeFrom As String = Console.ReadLine()
    dateTimeFrom = HttpUtility.UrlEncode(dateTimeFrom)
    Console.WriteLine("Please enter a to date (YYYY-MM-DD HH:II:SS)")
    Dim dateTimeTo As String = Console.ReadLine()
    dateTimeTo = HttpUtility.UrlEncode(dateTimeTo)
```

```

Dim geopalClient As New GeopalClient("api/jobsearch/ids")
geopalClient.SetEmployeeId(employeeId)
geopalClient.SetPrivateKey(privateKey)

Dim response As [String] = geopalClient.[get]("date_time_from=" & dateTimeFrom &
"&date_time_to=" & dateTimeTo)

Dim geopalRequestJobIds As GeopalRequestJobIds = JsonConvert.DeserializeObject(Of
GeopalRequestJobIds)(response)

For Each jobJustId As JobJustId In geopalRequestJobIds.jobs
    Console.WriteLine("Job Id: " & jobJustId.id)
    ReadAJob(jobJustId.id)
Next
End Sub

```

Listing Employees

JSON output

```

Private Shared Sub ListEmployee(Optional convert2Xml As Boolean = False)
    Dim geopalClient As New GeopalClient("api/employees/all")
    geopalClient.SetEmployeeId(employeeId)
    geopalClient.SetPrivateKey(privateKey)
    Dim response As [String] = geopalClient.[get]()
    If convert2Xml Then
        Dim doc As XmlDocument = DirectCast(JsonConvert.DeserializeXmlNode(response,
"employees"), XmlDocument)
        Console.WriteLine(doc.OuterXml)
    Else
        Dim geopalRequestEmployees As GeopalRequestEmployees =
JsonConvert.DeserializeObject(Of GeopalRequestEmployees)(response)
        For Each employee As Employee In geopalRequestEmployees.employees
            Console.WriteLine(((employee.first_name & " " & employee.last_name & " (") &
employee.id & ")") & employee.address)
        Next
    End If
End Sub

```

XML output

```

Dim doc As XmlDocument = DirectCast(JsonConvert.DeserializeXmlNode(response, "employees"),
XmlDocument)
Console.WriteLine(doc.OuterXml)

```

Java Reference

Creating a Job

Getting Job Details

Listing All Job Templates

Reading a Job Template

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PHP Reference

Creating a Job

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XML output

Python Reference

Creating a Job

```
# creates job based on template_id
# @param integer template_id
# @return string
def createAJob(self, template_id):
    job = json.loads(self.makeRequest(
        'POST',
        'api/jobs/createandassign',
        {'template_id': template_id.__str__()}
    ))
    return job
```

Getting Job Details

```
# returns job based on job_id
# @param integer job_id
# @return string
def getAJob(self, job_id):
    return self.makeRequest(
        'GET',
        'api/jobs/get?job_id=' + job_id.__str__()
    )
```

Listing All Job Templates

```
# returns list of templates
# @return string
def listOfTemplates(self):
    output = self.makeRequest(
        'GET',
        'api/jobtemplates/all'
    )
    return json.loads(output.__str__())['job_templates']
```

Reading a Job Template

```
# returns job template based on template_id
# @param integer template_id
# @return string
def readAJobTemplate(self, template_id):
    output = self.makeRequest(
        'GET',
        'api/jobtemplates/get?template_id=' + template_id.__str__()
    )
    return json.loads(output.__str__())['job_template']
```

Getting Jobs in a Specific Date Range

```
# returns jobs based on date range
# @param string start_date - data in format YYYY-mm-dd HH:ii:ss passed as string
# @param string end_date - data in format YYYY-mm-dd HH:ii:ss passed as string
# @return string

def readsJobsByDateRange(self, start_date, end_date):
    params = urllib.urlencode({'date_time_from': start_date.__str__(), 'date_time_to':
end_date.__str__()}).__str__()
    output = self.makeRequest(
        'GET',
        'api/jobsearch/ids?' + params
    )
    return json.loads(output.__str__())['jobs']
```

Listing Employees

JSON output

```
# returns employees list in JSON format
# @return string

def getEmployees(self):
    output = self.makeRequest(
        'GET',
        'api/employees/all'
    )
    return json.loads(output.__str__())['employees']
```

XML output

```
# returns employees list in XML format
# @return string

def getEmployeesXml(self):
    output = self.makeRequest(
        'GET',
        'api/employees/all'
    )
    json_str = json.loads(output)
    return dicttoxml.dicttoxml(json_str)
```

C# .Net Reference

Creating a Job

```
private static void CreateAJob ()
{
    Console.WriteLine ("Please enter a job template id");
    string jobTemplateId = Console.ReadLine();
    GeopalClient geopalClient = new GeopalClient("api/jobs/createandassign");
    geopalClient.setEmployeeId(employeeId);
    geopalClient.setPrivateKey(privateKey);
    NameValueCollection pairs = new NameValueCollection();
    pairs.Add("template_id", jobTemplateId);
    String response = geopalClient.post(pairs);

    GeopalRequestJob geopalRequestJob =
    JsonConvert.DeserializeObject<GeopalRequestJob>(response);
}
```

Getting Job Details

```
private static void ReadAJob (string jobId)
{
    GeopalClient geopalClient = new GeopalClient("api/jobs/get");
    geopalClient.setEmployeeId(employeeId);
    geopalClient.setPrivateKey(privateKey);
    String response = geopalClient.get("job_id="+jobId);

    GeopalRequestJob geopalRequestJob =
    JsonConvert.DeserializeObject<GeopalRequestJob>(response);

    Console.WriteLine("Job Identifier: "+geopalRequestJob.job.identifier);
    Console.WriteLine("Job Template: "+geopalRequestJob.job.job_template.name);

    Console.WriteLine("\nJob Fields");
    foreach(JobField jobField in geopalRequestJob.job.job_fields) {
        Console.WriteLine(jobField.name + " (" + jobField.id + "): " +
        jobField.action_value_entered );
    }

    Console.WriteLine("\nJob Workflows");
    foreach(JobWorkflow jobWorkflow in geopalRequestJob.job.job_workflows) {
        Console.WriteLine(jobWorkflow.name + " (" + jobWorkflow.id + "): " +
        jobWorkflow.action_value_entered );
        foreach(JobWorkflowFile jobWorkflowFile in jobWorkflow.job_workflow_files) {
            Console.WriteLine(jobWorkflowFile.file_name + " (" +
            jobWorkflowFile.id + "): s3 file id " + jobWorkflowFile.s3file_id );
            DownloadS3File(jobWorkflowFile.s3file_id);
        }
    }
}
```

Listing All Job Templates

```
private static void ListTemplates ()
{
    GeopalClient geopalClient = new GeopalClient("api/jobtemplates/all");
```

```

geopalClient.setEmployeeId(employeeId);
geopalClient.setPrivateKey(privateKey);
String response = geopalClient.get();
GeopalRequestJobTemplates geopalRequestJobTemplates =
JsonConvert.DeserializeObject<GeopalRequestJobTemplates>(response);
foreach(JobTemplateSimple jobTemplateSimple in geopalRequestJobTemplates.job_templates) {
    if (jobTemplateSimple.is_deleted == false) {
        Console.WriteLine(jobTemplateSimple.name + " (" +
jobTemplateSimple.job_template_id + ")");
    }
}
}

```

Reading a Job Template

```

private static void ReadTemplate ()
{
    Console.WriteLine ("Please enter a job template id");
    string jobTemplateId = Console.ReadLine();
    GeopalClient geopalClient = new GeopalClient("api/jobtemplates/get");
    geopalClient.setEmployeeId(employeeId);
    geopalClient.setPrivateKey(privateKey);
    String response = geopalClient.get("template_id="+jobTemplateId);
    GeopalRequestJobTemplate geopalRequestJobTemplate =
JsonConvert.DeserializeObject<GeopalRequestJobTemplate>(response);
    Console.WriteLine("Job Template Name = " +
geopalRequestJobTemplate.job_template.name);
    Console.WriteLine("\nJob Fields");
    foreach(JobTemplateField jobTemplateField in
geopalRequestJobTemplate.job_template.job_template_fields) {
        Console.WriteLine(jobTemplateField.name + " (" + jobTemplateField.id + ")");
    }

    Console.WriteLine("\nJob Workflows");
    foreach(JobTemplateWorkflow jobTemplateWorkflow in
geopalRequestJobTemplate.job_template.job_template_workflows) {
        Console.WriteLine(jobTemplateWorkflow.name + " (" + jobTemplateWorkflow.id +
") [" +jobTemplateWorkflow.action+"]");
    }
}

```

Getting Jobs in a Specific Date Range

```

private static void ReadJobsDateRange ()
{
    Console.WriteLine ("Please enter a from date (yyyy-MM-dd HH:mm:ss) see
http://msdn.microsoft.com/en-us/library/8kb3ddd4.aspx");
    string dateTimeFrom = Console.ReadLine ();
    dateTimeFrom = HttpUtility.UrlEncode(dateTimeFrom);
    Console.WriteLine ("Please enter a to date (yyyy-MM-dd HH:mm:ss)");
    string dateTimeTo = Console.ReadLine ();
    dateTimeTo = HttpUtility.UrlEncode(dateTimeTo);
    GeopalClient geopalClient = new GeopalClient ("api/jobsearch/ids");
    geopalClient.setEmployeeId (employeeId);
    geopalClient.setPrivateKey (privateKey);
    String response = geopalClient.get ("date_time_from=" + dateTimeFrom +
"&date_time_to=" + dateTimeTo);
    GeopalRequestJobIds geopalRequestJobIds =
JsonConvert.DeserializeObject<GeopalRequestJobIds> (response);
    foreach (JobJustId jobJustId in geopalRequestJobIds.jobs) {

```

```
        Console.WriteLine("Job Id: " + jobJustId.id);
        ReadAJob(jobJustId.id);
    }
}
```

Listing Employees

JSON output

```
private static void ListEmployess (bool convert2Xml = false)
{
    GeopalClient geopalClient = new GeopalClient ("api/employees/all");
    geopalClient.setEmployeeId (employeeId);
    geopalClient.setPrivateKey (privateKey);
    String response = geopalClient.get ();
    if (convert2Xml) {
        XmlDocument doc = (XmlDocument)JsonConvert.DeserializeXmlNode(response,
"employees");
        Console.WriteLine(doc.OuterXml);
    } else {
        GeopalRequestEmployees geopalRequestEmployees =
JsonConvert.DeserializeObject<GeopalRequestEmployees> (response);
        foreach (Employee employee in geopalRequestEmployees.employees) {
            Console.WriteLine(employee.first_name + " " + employee.last_name + "
(" + employee.id + ") " + employee.address);
        }
    }
}
```

XML output

```
XmlDocument doc = (XmlDocument)JsonConvert.DeserializeXmlNode(response, "employees");
Console.WriteLine(doc.OuterXml);
```