



Title of Project

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2020-01-17	1.0	Karl Geppert	2.0.3567+8	Base document
2020-03-30	1.1	Rajat Tiwari	2.0.3592+12	<ul style="list-style-type: none"> Added references to new parameter isNoteVisibleToContractor Removed references to success flag from responses as it was redundant and has same purpose as isSuccessfull.
2020-04-09	1.2	Jeff Granger	N/A	<ul style="list-style-type: none"> Changed this document's file name. Added software release to Document History section. Removed Terms & Abbreviations section. Miscellaneous other changes.
2020-05-13	1.3	Jeff Granger	2.0.3622+13	<ul style="list-style-type: none"> Added details of new failure return codes that can be returned by the LocateCode function. Replaced the term "job" with "ticket".
2020-05-20	1.4	Rajat Tiwari	N/A	<ul style="list-style-type: none"> Added "Suggested Usage" section.
2020-05-25	1.5	Jeff Granger	N/A	<ul style="list-style-type: none"> Removed "Confidentiality Agreement" section and updated "Intellectual Property" section.
2020-10-06	1.6	Rajat Tiwari, Jeff Granger	2.0.3818+28	<ul style="list-style-type: none"> Replaced the term "response code" with "return code". Updated the list of possible endpoint return codes when adding a Locate Code to a ticket. This included removing return code "200", previously (but no longer) returned if the Station's current Locate Code is the same as the Locate Code to be added.
2020-10-30	1.7	Jeff Granger	2.0.3818+28	<ul style="list-style-type: none"> Added Appendix A - Return Codes Simplified for LocateCode Method

Referenced Documents

Document Name	Document Location
None at this stage	

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Purpose of Document

PelicanCorp PositiveResponse provides an API for developers to be able to integrate applications to submit Locate Codes for locate requests directly.

In this document the term "return code" refers to a numeric success/failure code returned by the PositiveResponse API upon execution of a requested function. Whereas the term "Locate Code" refers to the alphanumeric code that can be assigned by the API to an Authority Station, indicating the intermediate or final status of a locate request for a OneCall ticket.

API

There are three key functions for public integration to the PositiveResponse application that allow you to:

- Fetch a list of the Locate Codes available for assigning to tickets
- Assign a Locate Code to a specific ticket for your Authority Station
- Review the Locate Codes currently assigned to a ticket.

You must first authenticate with the service to use these functions.

Authentication

Each of the functions are available to authenticated users only. Authenticated users are any users in company accounts subscribed to the PositiveResponse Service only.

Note: There is no access for general service accounts to use the API member functions. This is because every action must be associated with a specific user. Applications authenticating must use the credentials for the specific user authorised to do the update.

The API will return a Token which can be used for Authentication. To fetch a token, the API method /api/Token can be called to get a JWT token.

The request for the Token will contain the Username and Password

```
{
  "userName": "YourUser",
  "password": "YourPassword"
}
```

If you get a return code 200 then the method has executed successful. The endpoint's response must be examined to determine if it was successful.

```
{
  "isSuccessful": true,
  "token": "string"
}
```

If the isSuccessful parameter is true, then the credentials have been successfully authenticated and a token created. The endpoint's response body will contain the token.

Response body

```
{
  "isSuccessful": true,
  "token":
  "eyJhbGciOiJodHRwOi8vd3d3LnczLm9yZy8yMDAxLzA0L3htbGRzaWctbW9yZSNOUWYjLXNoYTY1NiIsInR5cCI6IkpXVCJ9.eyJodHRwOi8vc2NoZW1hcy54bWxzbnI2FwLm9yZy93cy8yMDAxLzA1L2lkZW50aXR5L2NsYWl0cy9uYW11IjoiUGVsaWNhbkNvcnBVc2VyIiwiaHR0cDovL3NjhcC5vcmevd3MvMjAwNS8wNS9pZGVudGl0eS9jbGFpbXBvbWVtZWlkZW50aWZpZXIiOiJQZWxpY2FuQ29yczdJQZWxpY2FuQ29ycFVzZXIiLCJqdGkiOiI4MTkwMjYzZS0wNm5LTQ5NzQtODdmZC1hNTEeXNThLOWY0M2QiLCJpYXQiOiJlNzkyMzQ4MDEsIm5iZiI6MTU3OTIzNDgwMSwiZXhwIjojNTc5MzIxMjAxL2Ijc3MiOiJQZWxpY2FuQ29ycFRva2VuSXNzdWVYIiwiaXVzIjojoiUGVsaWNhbkNvcnBBcHBzIn0.Eo2vZHvzg4wu70nejZ2Ve2phkouFxoFb80vRFQbhu4"
}
```

This token should be added to the headers of all additional requests with:

- Bearer
eyJhbGciOiJodHRwOi8vd3d3LnczLm9yZy8yMDAxLzA0L3htbGRzaWctbW9yZSNOUWYjLXNoYTY1NiIsInR5cCI6IkpXVCJ9.eyJodHRwOi8vc2NoZW1hcy54bWxzbnI2FwLm9yZy93cy8yMDAxLzA1L2lkZW50aXR5L2NsYWl0cy9uYW11IjoiUGVsaWNhbkNvcnBVc2VyIiwiaHR0cDovL3NjhcC5vcmevd3MvMjAwNS8wNS9pZGVudGl0eS9jbGFpbXBvbWVtZWlkZW50aWZpZXIiOiJQZWxpY2FuQ29yczdJQZWxpY2FuQ29ycFVzZXIiLCJqdGkiOiI4MTkwMjYzZS0wNm5LTQ5NzQtODdmZC1hNTEeXNThLOWY0M2QiLCJpYXQiOiJlNzkyMzQ4MDEsIm5iZiI6MTU3OTIzNDgwMSwiZXhwIjojNTc5MzIxMjAxL2Ijc3MiOiJQZWxpY2FuQ29ycFRva2VuSXNzdWVYIiwiaXVzIjojoiUGVsaWNhbkNvcnBBcHBzIn0.Eo2vZHvzg4wu70nejZ2Ve2phkouFxoFb80vRFQbhu4

If the isSuccessful is false, you will get an empty token

Response body

```
{
  "isSuccessful": false,
  "token": ""
}
```

Get All the Locate Codes

The first action is to get all the available Locate Codes that can be used in this jurisdiction. This is returned from a call to the lookup method:

GET /member/LocateCode *Get a list of all currently applicable Locate Codes.*

This method takes no parameters. A successful run will have a return code of 200 and the following model:

```
{
  "locateCodes": [
    {
      "locateCodeId": "string",
      "locateCode": "string",
      "isActive": true,
      "description": "string",
      "descriptionShort": "string",
      "createdDate": "2020-01-24T04:45:58.780Z",
      "createdBy": "string",
      "lastUpdatedDate": "2020-01-24T04:45:58.780Z",
      "lastUpdatedBy": "string"
    }
  ],
  "validationErrors": [
    {
      "code": "string",
      "message": "string"
    }
  ],
  "exceptionMessages": [
    {
      "code": "string",
      "message": "string"
    }
  ],
  "trailId": "string",
  "isSuccessful": true
}
```

For example:

```
{
  "locateCodes": [
    {
      "locateCodeId": "bf1d40f1-6d68-4c9f-905d-32cbcf906b65",
      "locateCode": "9BJW",
      "isActive": false,
      "description": "Auto test When it rains, look for rainbows. When it's dark, look for stars",
      "descriptionShort": "Auto Test Rain Dark",
      "createdDate": "2019-12-23T06:05:43.902037",
      "createdBy": "autousservop",
      "lastUpdatedDate": null,
      "lastUpdatedBy": null
    },
    {
      "locateCodeId": "8f365e5e-3359-4b35-b497-7153616692a4",
      "locateCode": "9OCJ",
      "isActive": false,

```

```

    "description": "Auto test When it rains, look for rainbows. When it's dark,
look for stars",
    "descriptionShort": "Auto Test Rain Dark",
    "createdDate": "2020-01-02T05:36:47.717437",
    "createdBy": "autousservop",
    "lastUpdatedDate": null,
    "lastUpdatedBy": null
  },
  {
    "locateCodeId": "334616d4-010e-11ea-89a8-fb93c0b6595f",
    "locateCode": "1A",
    "isActive": false,
    "description": "Located + Marked: Underground facilities owned by this
company have been identified on site",
    "descriptionShort": "Marked",
    "createdDate": "2019-11-07T03:25:08.956403",
    "createdBy": "PositiveResponse",
    "lastUpdatedDate": "2019-11-18T04:40:22.394941",
    "lastUpdatedBy": "service.operator"
  },
  {
    "locateCodeId": "3a5d5bbf-8b4a-4e90-a0c5-9f4b84bc0f2d",
    "locateCode": "CODE 1",
    "isActive": true,
    "description": "Facilities are not in conflict with the excavation site/
pre-marked area.",
    "descriptionShort": "Clear/No Conflict",
    "createdDate": "2019-11-18T04:40:51.487896",
    "createdBy": "service.operator",
    "lastUpdatedDate": null,
    "lastUpdatedBy": null
  },
  {
    "locateCodeId": "3d9abea0-6dbf-49b7-87ea-f144fa0dbf36",
    "locateCode": "CODE 2",
    "isActive": true,
    "description": "Facilities have been marked according to the excavation
site/ pre-marked area.",
    "descriptionShort": "Marked",
    "createdDate": "2019-11-18T04:41:08.878044",
    "createdBy": "service.operator",
    "lastUpdatedDate": null,
    "lastUpdatedBy": null
  },
  {
    "locateCodeId": "dd841f8b-7f46-4a50-8c07-bbf7c344b94f",
    "locateCode": "CODE 3",
    "isActive": true,
    "description": "Do not dig - Utility personnel required onsite.",
    "descriptionShort": "Marked - Critical Facilities",
    "createdDate": "2019-11-18T04:41:58.189187",
    "createdBy": "service.operator",
    "lastUpdatedDate": null,
    "lastUpdatedBy": null
  },
  {
    "locateCodeId": "056f2dae-ca5a-48d0-9966-3318ebebed5d",
    "locateCode": "CODE 4",
    "isActive": true,

```



```

    "description": "Maps or other documentation has been provided to the
excavator.",
    "descriptionShort": "Marked - Maps Provided",
    "createdDate": "2019-11-18T04:42:34.406946",
    "createdBy": "service.operator",
    "lastUpdatedDate": null,
    "lastUpdatedBy": null
  },
  {
    "locateCodeId": "473ac612-a6b1-4525-b6e8-862ec6d06117",
    "locateCode": "9AQH",
    "isActive": false,
    "description": "La productivité consiste à regarder vers l'avenir. En
regardant trop en arrière, ou en essayant d'être trop perfectionniste, on peut
détruire cette productivité. Alors continuez. Continuez à créer. Continuer à
construire test",
    "descriptionShort": "Auto Test Rain DarkDans une gr",
    "createdDate": "2019-12-02T05:29:02.313394",
    "createdBy": "autousservop",
    "lastUpdatedDate": "2020-01-03T03:59:57.900824",
    "lastUpdatedBy": "autousservop"
  }
],
"validationErrors": [],
"exceptionMessages": [],
"trailId": "acc9a75d-ac1d-454d-be4d-c363988d7556",
"isSuccessful": true
}

```

This will need to be unpacked and the LocateCode codes may be used for submitting to set the value of a Locate Code for a specific authority for a ticket. These values are data-driven and may change at any time that the service operators see fit. However, it is expected that changes will be infrequent, and this list could be cached and checked once each day.

Adding a Locate Code to a ticket

To add a Locate Code to a ticket, the LocateCode method can take a Request Number:

POST/member/LocateCode *Add the Locate Code for a Response.*

The request requires the following parameters:

```
{
  "requestNumber": "string",
  "station": "string",
  "locateCode": "string",
  "reason": "string",
  "isNoteVisibleToContractor" : bool
  "trailId": "string"
}
```

These are

- Request Number for a ticket for which the current user has permission to access.
- Station code for the ticket being updated.
- Locate Code (taken from the previous functions list).
- Reason why this Locate Code is being set to this value.
- IsNoteVisibleToContractor flag to indicate whether the Reason should be made visible to the contractor when they view the locator's response via the PositiveResponse web site.
- trailId is a GUID for tracking all actions relevant to this enquiry.

Return Codes

Return Code	isSuccessful	Meaning
201	True	The Locate Code has been successfully assigned to the nominated Authority Station on the ticket.
401	False	The user is not authorised to submit requests to the API Member end point.
403	False	The user tried to assign a Locate Code to a ticket and station for which they are not authorised.
412	False	The assignment of the nominated Locate Code is rejected for one of the following reasons: <ol style="list-style-type: none">1. The nominated Locate code is not in the list of valid, active codes.2. Creation of response record not permitted. The Authority Station was either not notified for this ticket or was not a subscriber to PositiveResponse when the ticket was lodged.3. Creation of response record not permitted. The ticket has already been closed by the enquirer.4. No Enquiry found for the given Request Number.5. No Sequence found for the given Request Number and Station Code combination.6. The Request Number provided was a Free Form Request Number. Response for Free Form Request Number and Station Code has been ignored. Free Form responses are unnecessary for PositiveResponse.7. Creation of response record not permitted. The ticket has been cancelled in OneCallAccess. ← caters for a future scenario that is not yet testable with the current release of PositiveResponse.
500	False	Some unexpected error occurred during the processing of the request.

You can examine the body for the isSuccessful flag. If the code was added happily to the ticket, you will get IsSuccessful: True.

```
{
  "message": "string",
  "validationErrors": [
    {
      "code": "string",
      "message": "string"
    }
  ],
  "exceptionMessages": [
    {
      "code": "string",
      "message": "string"
    }
  ],
  "trailId": "string",
  "isSuccessful": true
}
```

Refer to Appendix A for details about how the LocateCode method's range of potential return codes was simplified from PositiveResponse release 2.0.3818+28 onwards.

Review a specific ticket

You can use the following method to retrieve the Stations that are available for having Locate Codes assigned:

`GET/member/LocateCode/{requestNumber}` *Get every Response recorded for this ticket and each one's currently active, assigned Locate Code.*

This method will only return values if the executing user is appropriately authorised to see the tickets relating to this authority. If the executing user does not have permission, they will receive an empty list of tickets.

The Request takes the following parameters

requestNumber: string

Where:

- requestNumber is for a ticket for which the current user has permission to access.

If the method runs successfully it will have one of the following return codes and model:

Return Code	isSuccessful	Meaning
200	True	Success – you get back a collection of Station Codes and associated Locate Codes for the nominated ticket Request Number.
400	False	The nominated Request Number was not found. Either the Request Number is wrong or not on the list of Request Numbers available to this user.
401	False	User was not authorised to use this function.

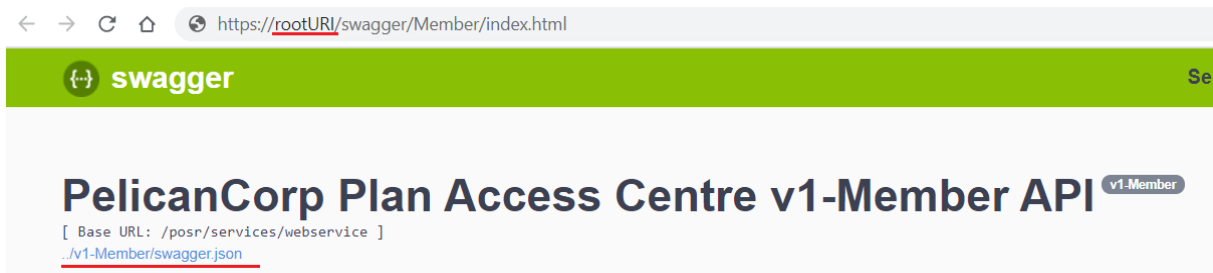
You can examine the body for the isSuccessful flag. If the code was added happily to the ticket, you will get IsSuccessful: True.

```
{
  "message": "string",
  "locateCodes": [
    {
      "requestNumber": "string",
      "station": "string",
      "locateCode": "string"
    }
  ],
  "validationErrors": [
    {
      "code": "string",
      "message": "string"
    }
  ],
  "exceptionMessages": [
    {
      "code": "string",
      "message": "string"
    }
  ],
  "trailId": "string",
  "isSuccessful": true
}
```

Suggested Usage

The swagger json for the PositiveResponse API Member functions can be retrieved from the swagger user interface using the swagger.json link, as indicated in the screenshot shown below.

NOTE: The "rootURI" shown in the browser address bar is a just a placeholder for the appropriate domain URL that PelicanCorp will provide to organisations needing to integrate their systems with PositiveResponse.



The swagger json retrieved can then be used to generate a client in your preferred technology and programming language.

When creating the client and using it to call the PositiveResponse API, please consider implementing the following recommendations to help ensure requests get a timely response in production environments with high traffic:

1. The client should allow for the endpoints to be invoked asynchronously. So, in the client there should be async methods that take in a cancellation token.
2. The client instantiation should be scoped. It is best to define a delegate that returns the client instance. If using Windows .net then this could be done using `Func<IClient> delegate`.
3. The delegate can then be used to instantiate a client when needed and the instance can be disposed after the call. If using Windows .net then this can be done via a `using(){} construct`.

Appendix A – Return Codes Simplified for LocateCode Method

The range of return codes supplied by the LocateCode method when adding a Locate Code to a ticket was simplified in PositiveResponse release 2.0.3818+28. The number of possible return codes was reduced, and no new return code values were introduced. The table below explains what has changed compared to earlier releases.

Releases before 2.0.3818+28			Release 2.0.3818+28 Onwards			Comments
Return Code	isSuccessful	Meaning	Return Code	isSuccessful	Meaning	
200	True	The Authority Station on the ticket is already assigned the nominated Locate Code.				Code 200 no longer supplied. Scenario is now included as part of return code 201.
201	True	The Locate Code has been successfully assigned to the nominated Authority Station on the ticket.	201	True	The Locate Code has been successfully assigned to the nominated Authority Station on the ticket.	Now also includes the scenario previously given as return code 200.
400	False	The nominated Locate code is not in the list of valid, active codes.				Code 400 no longer supplied. Scenario is now included as part of return code 412.
401	False	The user is not authorised to submit requests to the API Member end point.	401	False	The user is not authorised to submit requests to the API Member end point.	No change.
403	False	The user tried to assign a Locate Code to a ticket for which you are not authorised.	403	False	The user tried to assign a Locate Code to a ticket for which you are not authorised.	No change.
404	False	No Sequence found for the given Request Number and Station Code combination.				Code 404 no longer supplied. Scenario is now included as part of return code 412.
412	False	The assignment of the nominated Locate Code is rejected for one of the following reasons: 1. Creation of response record not permitted. The Authority Station was either not notified for this	412	False	The assignment of the nominated Locate Code is rejected for one of the following reasons: 1. The nominated Locate code is not in the list of valid, active codes.	Now also includes scenarios previously given as return codes 400 and 404, as well as a couple of new scenarios.

Releases before 2.0.3818+28			Release 2.0.3818+28 Onwards			Comments
Return Code	isSuccessful	Meaning	Return Code	isSuccessful	Meaning	
		<p>ticket or was not a subscriber to PositiveResponse when the ticket was lodged.</p> <ol style="list-style-type: none"> 2. Creation of response record not permitted. The ticket has already been closed by the enquirer. 3. Creation of response record not permitted. The ticket has been cancelled in OneCallAccess. ← caters for a future scenario that is not testable with the current release of PositiveResponse. 			<ol style="list-style-type: none"> 2. Creation of response record not permitted. The Authority Station was either not notified for this ticket or was not a subscriber to PositiveResponse when the ticket was lodged. 3. Creation of response record not permitted. The ticket has already been closed by the enquirer. 4. No Enquiry found for the given Request Number. 5. No Sequence found for the given Request Number and Station Code combination. 6. The Request Number provided was a Free Form Request Number. Response for Free Form Request Number and Station Code has been ignored. Free Form responses are unnecessary for PositiveResponse. 7. Creation of response record not permitted. The ticket has been cancelled in OneCallAccess. ← caters for a future scenario that is not yet testable with the current release of PositiveResponse. 	
500	False	Some unexpected error occurred during the processing of the request.	500	False	Some unexpected error occurred during the processing of the request.	No change.