

**Salesforce.com Open 311 Technical Design**

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**Revision History**

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# Overview

This document defines the Technical Design of Open 311 API.

The API consists of two main kinds of resources which expose cities Services and Service Requests,

There are six API’s developed to interact with these resources:

* GET Service List,
* GET Service Definition(a specific service\_code id),
* POST Service Request,
* GET Service Requests,
* GET Service Request (a specific service\_request\_id).

# API Design

This Section details the Specification Used, format support, Encoding followed in development of API’s.

### Specification

The GeoReport API v2 specification has been used as a reference to build the API’s in the standard format that allow both government and third party developers to create new applications and technologies that can integrate directly with cities 311 call center.

### Date/time format

All date/time fields is formatted in a common subset of ISO 8601 as per the w3 note. Timezone information (either Z meaning UTC, or an HH:MM offset from UTC) is included.

Examples:

1994-11-05T08:15:30-05:00 corresponds to November 5, 1994, 8:15:30 am, US Eastern Standard Time.

1994-11-05T13:15:30Z corresponds to the same instant.

### Format Support

All text returned by the service, are implemented in XML and JSON format as per the Open 311 specification. XML is a default format, but JSON can be provided at the discretion of the API provider.

**XML** for the API should be Content-Type: text/xml. The XML output currently defined is schema less and without a namespace declaration.

**JSON** for the API should be Content-Type: application/json. JSON support is based on a programmatic mapping of the XML format.

# Schema Design

Below section details the objects or custom setting created or used in salesforce to develop API’s

### Service Request:

Standard Salesforce Object which is used to create Service Requests, it stores all the details of the service requests created with the system and the imported novo tickets records.

### 311 Request Type:

Custom Salesforce Object which details the various Service Request Types supported by the city, Details Such as Service Request Name, department, Unique Identifier of the Service Request Type are stored in this object.

### APIkey Register:

Custom Salesforce Object which stores the information of the individual who wants to create the Service Request through POST API call, once all the information is submitted a unique API key is generated and returned in response.

# API Methods

### Service Discovery

Service Discovery is implemented for formats specified in Section 2.1.3 as per the specification mentioned <http://wiki.open311.org/Service_Discovery> and for Open311 Get Discovery API, the end point would be as https://[API endpoint]/discovery.[format]

### GET Service List

|  |  |
| --- | --- |
| **Purpose** | Provide a list of acceptable 311 service request types and their associated service codes supported by City of Philadelphia Call Centre. |
| **URL** | https://[API endpoint]/services.[format] |
| **Formats** | XML, JSON |
| **HTTP Method** | GET |
| **Salesforce Object** | 311 Request Type - This Object contains the details of all the Service Request Types supported by city. |

#### Response Parameters:

|  |  |  |
| --- | --- | --- |
| **Salesforce Field** | **DataType** | **Description** |
| **service\_code** | Service\_Code\_\_c | The unique identifier for the service request type |
| **service\_name** | Name | The human readable name of the service request type |
| **description** | Description\_\_c | A brief description of the service request type. |
| **metadata** | metadata\_\_c | Determines whether there are additional form fields for this service type.  True: This service request type requires additional metadata so the client will need to make a call to the Service Definition method.  False: No additional information is required and a call to the Service Definition method is not needed. |
| **type** | Request\_Category\_\_c | realtime: The service request ID will be returned immediately after the service request is submitted. |
| **keywords** | Keywords\_\_c | A comma separated list of tags or keywords to help users identify the request type. This can provide synonyms of the service\_name and group. |
| **group** | Department\_\_c | A category to group this service type within. This provides a way to group several service request types under one category such as “sanitation” |

### GET Service Definition

|  |  |
| --- | --- |
| Conditional | Yes - This call is only necessary if the Service selected has metadata set as true from the GET Services response |
| Purpose | Define attributes associated with a service code. These attributes can be unique to the city/jurisdiction. |
| URL | https://[API endpoint]/services/[service\_code].[format] |
| Formats | XML,JSON |
| HTTP Method | GET |

#### Request Arguments:

|  |  |  |
| --- | --- | --- |
| **Salesforce Field** | **DataType** | **Description** |
| **service\_code** | Formula | The unique identifier for the service request type |

#### Response Parameters:

|  |  |  |
| --- | --- | --- |
| **Salesforce Field** | **DataType** | **Description** |
| **service\_code** | Fomula(Text) | Returns the service\_code associated with the definition, the same one submitted for this call. |
| **variable** | Boolean | True: denotes that user input is needed  False: means the attribute is only used to present information to the user within the description field |
| **code** | Text | A unique identifier for the attribute |
| **datatype** | Text | Denotes the type of field used for user input. |
| **required** | Boolean | true means that the value is required to submit service request  false means that the value not required. |
| **datatype\_description** | Text | A description of the datatype which helps the user provide their input. |
| **order** | Number | The sort order that the attributes will be presented to the user. 1 is shown first in the list. |
| **description** | Text | An description of the attribute field with instructions for the user to find and identify the requested information |
| **key** | Picklist – Name | The unique identifier associated with an option for singlevaluelist or multivaluelist. This is analogous to the value attribute in an html option tag. |
| **name** | Picklist - value | The human readable title of an option for singlevaluelist or multivaluelist. This is analogous to the innerhtml text node of an html option tag. |

### POST Service Request

|  |  |
| --- | --- |
| Conditional | Yes - This call is only necessary if the Service selected has metadata set as true from the GET Services response |
| Purpose | Create service requests |
| URL | [https://API endpoint]/requests.[format] |
| Format sent | Content-Type: application/x-www-form-urlencoded |
| Formats returned | XML, JSON |
| HTTP Method | GET |

#### Required Arguments:

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Description** | **Notes & Requirements** |
| service\_code | The unique identifier for the service request type |  |
| location parameter | A full location parameter must be submitted. | One of lat & long or address\_string or address\_id |
| attribute | An array of key/value responses based on Service Definitions | To Specify the values for Picklist/Multipicklist fields |

#### Optional Arguments:

|  |  |
| --- | --- |
| Field Name | Description |
| lat | Latitude of the service request location |
| long | Longitude of the service request location |
| address\_string | Service Request Location |
| address\_id | NA |
| email | The email address of the person submitting the request |
| first\_name | The given name of the person submitting the request |
| last\_name | The family name of the person submitting the request |
| phone | The phone number of the person submitting the request |
| description | A full description of the request or report being submitted. |
| media\_url | A URL to media associated with the request, eg an image |

#### API key generation:

When a user wants to POST service request into city’s database, an API key would be required, to get the API key client application details should be registered in the city’s database.

To register client application details an object is created in salesforce, once client details are registered under the object the unique key i.e. API Key associated with record is returned, which can be used by the respective client application to POST service request into city’s database.

#### Service request Id returned in response:

As in salesforce, upon post request case gets registered in the database and unique Id is generated. Hence always Service\_request\_id will be returned in response.

#### Token returned in response:

To demonstrate returning a token as response to POST request method, a temp object is created which accepts the parameters passed in POST request , an additional parameter temp should be passed with value “true”, which triggers the creation of a new record in the temp object and returns the unique Id (token) of the new record created.

#### Response Parameters:

|  |  |
| --- | --- |
| Field Name | Description |
| service\_request\_id | The unique ID of the service request created. |
| Token | A full location parameter must be submitted. |
| service\_notice | Information about the action expected to fulfill the request or otherwise address the information reported. |

### GET service\_request\_id from a token

Get the service\_request\_id from a temporary token. This is unnecessary if the response from creating a service request does not contain a token. This call is only necessary if the response from POST Service Request contains a token.

|  |  |
| --- | --- |
| Conditional | Yes - This call is only necessary if the response from POST Service Request contains a token |
| Purpose | Get the service\_request\_id from a temporary token. This is unnecessary if the response from creating a service request does not contain a token. |
| URL | [https://API endpoint]/tokens/[token id].[format] |
| Sample URL |  |
| Format sent | Content-Type: application/x-www-form-urlencoded |
| Formats returned | XML, JSON |
| HTTP Method | GET |

#### Required Arguments

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Description** | **Notes & Requirements** |
| token | The Temporary token received from POST Service Request Method. | This is obtained from the POST Service Requests method |

#### Response Parameters

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Description** | **Notes & Requirements** |
| service\_request\_id | The unique ID for the service request created. This can be used to call the GET Service Request method. | This is obtained from the POST Service Requests method |
| token | The token ID used to make this call. |  |

### GET Service Requests

|  |  |
| --- | --- |
| Purpose | Query the current status of multiple requests |
| URL | https://[API endpoint]/requests.[format] |
| Sample URL |  |
| Formats returned | XML, JSON |
| HTTP Method | GET |
| **Salesforce Object** | .Service Request. |

#### Required Arguments

NA

#### Optional Arguments

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Description** | **Notes & Requirements** |
| service\_request\_id | To call multiple Service Requests at once, multiple service\_request\_id can be declared; comma delimited. | This overrides all other arguments. |
| service\_code | Specify the service type by calling the unique ID of the service\_code. |  |
| start\_date | Earliest datetime to include in search. When provided with end\_date, allows one to search for requests which have a requested\_datetime that matches a given range, but may not span more than 90 days. |  |
| end\_date | Latest datetime to include in search. When provided with start\_date, allows one to search for requests which have a requested\_datetime that matches a given range, but may not span more than 90 days. |  |
| Status | Allows one to search for requests which have a specific status. |  |

#### Response parameters:

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Salesforce Field** | **Description** |
| service\_request\_id | CaseNumber/Novo Id | The CaseNumber/Novo Id of the service request created. |
| Status | Status | The current status of the service request. |
| status\_notes | Status\_Update\_\_c |  |
| service\_name | Case\_Record\_Type\_\_c | CaseRecordType of the Service Request. |
| service\_code | Service\_Code\_\_c | The unique identifier for the service request type |
| description | Description | A full description of the request or report submitted. |
| agency\_responsible | Owner | Queue to which Service Request is assigned to work on. |
| service\_notice | SLA\_\_c |  |
| requested\_datetime | CreatedDate | The date and time when the service request was made. |
| updated\_datetime | LastModifiedDate | The date and time when the service request was last modified. |
| expected\_datetime | SLA\_date\_\_c | The date and time when the service request can be expected to be fulfilled. Based on a service-specific service level agreement. |
| address | Street\_\_c | Address or Description of location of the service request. |
| zipcode | ZipCode\_\_c | The postal code for the location of the service request. |
| Lat | centerline\_\_latitude\_\_s |  |
| Long | centerline\_\_longitude\_\_s |  |

### GET Service Request

|  |  |
| --- | --- |
| Purpose | Query the current status of an individual request |
| URL | https://[API endpoint]/requests/[service\_request\_id].[format] |
| Sample URL |  |
| Formats returned | XML, JSON |
| HTTP Method | GET |
| **Salesforce Object** | .Service Request. |

#### Required Arguments

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Salesforce Field** | **Description** | **Notes & Requirements** |
| service\_request\_id | CaseNumber/Novo Id/ Customer Request Id | The CaseNumber/Novo Id/ Customer Request Id of the service request created. | The service\_request\_id is specified in the main URL path rather than an added query string parameter. |

#### Optional Arguments

None

#### Response Parameters:

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Salesforce Field(API Name)** | **Description** | **Notes & Requirements** |
| service\_request\_id | CaseNumber | The CaseNumber of the service request created. |  |
| Status | Status | The current status of the service request. |  |
| status\_notes | Resolution\_\_c/ Description/ Reason/ CaseComment.CommentBody | ~~If Novo Id – mapped with Resolution and Status\_Update is mapped with CaseNumber.~~  if(Department is Streets or Water or L&I)      if status is closed        status\_notes = Resolution\_\_c      else if status is not closed         status notes = latest (public) case comment  For all other departments:   if status is closed        status\_notes - Close Reason      else if status is not closed         status notes - Description | * ~~For all other case when status != Closed Status Update~~ * ~~For all the case where status = 'Closed' Reason~~   For Cases with “Department” Streets, Water, or L&I:   * When not closed, map to “Case Comment” * When closed, map to “Resolution Information Resolution”   For all other departments:   * When not closed, map to “Description Information Comment” * When closed, map to “Resolution Information Close Reason” |
| service\_name | Case\_Record\_Type\_\_c | CaseRecordType of the Service Request. |  |
| service\_code | Service\_Code\_\_c | The unique identifier for the service request type |  |
| description | Description | A full description of the request or report submitted. |  |
| agency\_responsible | ~~Owner~~ Department\_\_c | Queue to which Service Request is assigned to work on. | Map to “Department” |
| service\_notice | SLA\_\_c |  |  |
| requested\_datetime | CreatedDate | The date and time when the service request was made. |  |
| updated\_datetime | LastModifiedDate | The date and time when the service request was last modified. |  |
| expected\_datetime | SLA\_date\_\_c | The date and time when the service request can be expected to be fulfilled. Based on a service-specific service level agreement. |  |
| address | Street\_\_c | Address or Description of location of the service request. |  |
| zipcode | ZipCode\_\_c | The postal code for the location of the service request. |  |
| Lat | centerline\_\_latitude\_\_s |  |  |
| Long | centerline\_\_longitude\_\_s |  |  |
| Media Url | Media\_Url\_\_c |  |  |

# Error Handling

Error handling for GeoReport APIs is implemented within the individual APIs for 400 and 404 error codes. The error description is customized based on required and optional parameters, which are specific to individual APIs.

Error conditions handled are given below:

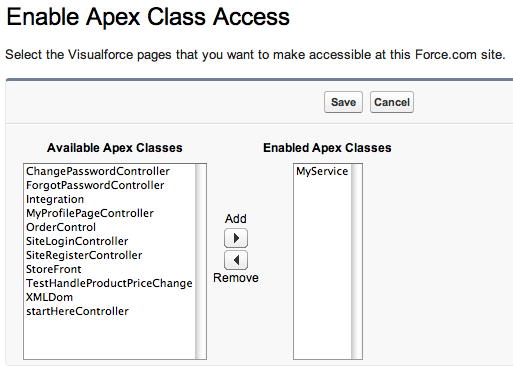
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| In**put** | **Missing** | **Invalid** | **Error**  **code** | **Message** |
| Parameter | Y |  | 400 | Parameter was not provided |
| Content-Type |  | Y | 400 | Missing or Invalid content-type |
| Parameter |  | Y | 404 | parameter provided were not found |
| Content-Type | Y |  | 400 | Missing or Invalid content-type |
| Parameter/Content Type | Y |  | 400 | Missing or Invalid parameter and content-type |
| Parameter/Content Type |  | Y | 400 | Missing or Invalid parameter and content-type |
| Api key |  | Y | 404 | Api key provided was not found |
| Api key | Y |  | 400 | Api key was not provided |
| Token | Y |  | 404 | Token provided were not found |
| Token |  | Y |  | Token was not found |

# Security

Open 311 APIs are exposed using REST Web service clients. All Open 311 APIs except for POST method are implemented without Security.

### API’s Without Authentication:

Apex REST Methods are exposed publicly through Salesforce sites. Apex REST Methods and any relevant objects/ fields are enabled through Site’s Public Access Settings; exposed Apex REST methods can be accessed via the Site URL.



The public URL for an Apex REST method has the format:

*{Site\_URL}/services/apexrest/ {URL\_mapping}*

The API methods exposed publicly are:

|  |
| --- |
| **Open 311 GeoReport API** |
| GET Service List |
| GET Service Definition |
| POST Service Request |
| GET service\_request\_id from a token |
| GET Service Requests |
| GET Service Request |

### With Authentication.

When a user wants to POST service request into city’s database, an API key would be required, to get the API key client application details should be registered in the city’s database.

To register client application details an object is created in salesforce, once client details are registered under the object the unique key i.e. API Key associated with record is returned, which can be used by the respective client application to POST service request into city’s database.

# API Access Links

The Developed API’s can be accessed from the below mentioned link:

### Web Link Access

Open 311 API’s have been integrated with cities website to provide the UI based interaction for API calls. It can be accessed through below mentioned link:

<https://philadelphia.secure.force.com/apps/open311>

### Browser Link Access:

### Also the API calls can be done directly through browser (except submitting request).

|  |  |
| --- | --- |
| **API** | **Sample URL** |
| Get Service List | <https://philadelphia.secure.force.com/apps/services/apexrest/v2/services/json> |
| Get Service Definition | <https://philadelphia.secure.force.com/apps/services/apexrest/v2/services/SR-CL01/json> |
| Post Service Request | https://philadelphia.secure.force.com/apps/services/apexrest/v2/requests/json?service\_code=SR-PD01&api\_key=Key00001&description=Testing%A0Open%20311&address\_string=21 N Juniper St |
| Get Service Requests | <https://philadelphia.secure.force.com/apps/services/apexrest/v2/requests/json> |
| Get Service Request | <https://philadelphia.secure.force.com/apps/services/apexrest/v2/requests/08956007/json> |

# Classes and Custom Settings.

This section details the classes, custom setting and other setting developed in the system.

### Apex classes

|  |  |  |
| --- | --- | --- |
| **API Name** | **Name** | **Test Class Name** |
| Get Service List  Get Service Definition | GetServiceList\_Philly | GetServiceList\_PhillyTest |
| Post Service Request Get Service Requests  Get Service Request | GetServiceRequest | GetServiceRequestTest |
| Application Exception | ApplicationException |  |
| Read custom settings and display all fields w.r.t SR | GetServiceDefinitionDetails | GetServiceDefinitionDetailsTest |

### Custom Setting

|  |  |
| --- | --- |
| Custom Setting | Description |
| Open311Field | Lists the fields which belongs to a specific record type. |
| ProblemType | Stores the details of the Picklist values based on Record type for Problem Type Picklist field. |
| PropertyType | Stores the details of the Picklist values based on Record type for Property Type Picklist field. |
| Required Streets Field | Stores the details of the field based on the record type if the field is required or not. |
| ViolationType | Stores the details of the Picklist values based on Record type for Violation Type Picklist field. |

### Sites

Force.com site has been created to expose the developed API’s publicly the site URL is as below:

Site URL: <https://philadelphia.secure.force.com/apps/open311>.