



Wave2 Location APIs

Technical Specification Guide

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1. GENERAL INFORMATION

1.1 OVERVIEW

Wave2 Location API

The Wave2 Branch and ATM Locator system provides real-time aggregated multi-network branch and ATM search and mapping functionality in a mobile-responsive and ADA accessible user interface that is integrated seamlessly into the web and mobile web content of financial institutions.

Wave2 has created the Location API to provide a means of integrating that same location search query functionality and resulting location data in third party applications, mobile apps, custom website GUIs, kiosk systems, and the like. This enables developers to utilize live Wave2 data and functionality to power their own systems. This document is intended to provide developers with all the details needed to interface with our API.

2. WAVE2 LOCATION API

2.1 LOCATION API SERVICES OVERVIEW

Location API calls are made using REST (Representational State Transfer) protocol and basic HTTP authentication. Requests are made by supplying the appropriate query parameters to a variety of endpoints using appropriate API service URLs, with the results returned in JSON format.

Integration Procedures

Software systems interacting with the Wave2 Location API will make POST requests to one of five different API Web Service Endpoints, depending on what functionality is needed. Web Service Endpoint Requests and Responses are detailed below.

Online API Documentation and Testing Tools

Additional documentation, endpoint details, sample requests and responses, POSTMAN test request links, and complete sample implementations in PHP, cURL, jQuery, Ruby, Python, Node, and Go can be found in our online documentation at <https://www.Wave2Locator.com/developers/>

Location API Web Services

The Location API provides seven services to extend locator functionality and data to authenticated systems:

- GetConfig
- GetLocationById
- GetLocationCount
- GetLocations
- GetLocationList
- SendEmail
- SendSMS

Location API Request Authentication

All Location API service requests must include two authentication parameters - "AccountSid" and "AuthToken" using the values provided in the Wave2 Admin Portal in the "Integration" menu under "API Access".

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Location API Request Placeholders

Requests to all Location API services **require a placeholder for each request parameter to be provided**. If there is no value available for a parameter, the empty placeholder for that parameter still needs to be included with a blank value supplied. Failure to include values or placeholders for all parameters will result in an error.

Location API Request Content-Type Header

All Location API service requests need to set the Content-Type header to “application/json” to get a proper data response.

2.2 GETCONFIG

The **GetConfig** service returns a JSON object containing a wealth of configuration information that allows us to customize the many small details of the financial institution’s locator GUI. The degree to which you will use this data depends upon the flexibility and customization options that are available within your own system design. It is possible that you will use only a small fraction of the GetConfig data that is provided.

NOTE: For sake of brevity, this document will not itemize and describe every single configuration data detail that can be returned, but it will summarize some of the values and give an outline of possible values and their format.

Request Parameters:

- **AccountSid** – required, use AccountSid string value provided by Admin Portal
- **AuthToken** – required, use AuthToken string value provided by Admin Portal

Example GetConfig Request Format:

POST to <https://locationapi.wave2.io/mobile/api/getconfig>

Providing the following POST data:

```
{
  "AccountSid": "adcb939c-283c-408b-a899-a824354dc2ea",
  "AuthToken": "058b3c54-6574-43a6-96ed-03e56240be8f"
}
```

GetConfig Response Data:

The JSON data returned contains an “Init” object containing a variety of JSON objects. Some of these contain nested JSON Objects of various complexity and length. The major objects are:

- **DefaultLocation**: contains the Longitude and Latitude values assigned as the initial viewpoint location.
- **GeolpLocation**: if present, contains the Longitude and Latitude value of the users present location.
- **InitialLocationType**: determines if Locator should use DefaultLocation or GeolpLocation to start
- **FilterOnLoad**: determines which filter types are selected by default
- **HideDirection**: determines if client wants to disable driving directions links
- **HideShare**: determines if client wants to disable all location sharing
- **HideEmail**: determines if client wants to disable only email location sharing

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- **HideSMS**: determines if client wants to disable only SMS location sharing
- **LobbyHourLabel**: Custom title label for Lobby Hours
- **DriveUpHourLabel**: Custom title label for drive up hours
- **Labels**: a nested JSON object (therefore slash formatted) that provides a list of text customization labels
 - There are far too many of these to define them all here, but they are descriptively named
 - These are specific to the Wave2 ATM Locator GUI, but can be used by third-party apps
 - These are used for GUI element labeling as well as for ADA labeling for hidden ADA features
 - These are sometimes used for multi-language translations as well.
 - See a partial list of examples in the Example GetConfig Response below.
- **Colors**: a nested JSON object (therefore slash formatted) that provides a list of color HEX values
 - These are specific to the Wave2 ATM Locator GUI, but can be used by third-party apps
 - The descriptive variable names make these fairly self-explanatory
- **Filters**: a series of nested values that defines the search filters available
 - These are provided in order of priority appearance in the GUI
 - They define the filter abbreviations values used in FilterOnLoad above
 - They provide a descriptive text value for labeling each filter checkbox.

Example GetConfig Response: (PARTIAL)

```
{
  "Init": {
    "DefaultLocation": {
      "Longitude": "-77.02749",
      "Latitude": "38.88399"
    },
    "GeoIpLocation": {
      "Longitude": "-76.8953",
      "Latitude": "38.8912"
    },
    "InitialLocationType": "DefaultLocation",
    "FilterOnLoad": "FCS,ATMSF,ATMDP,ESC",
    "HideDirection": false,
    "HideShare": false,
    "HideEmail": false,
    "HideSMS": false,

    "Labels": "{
      \"SearchPanelLabel\": \"Location Search\",
      \"SearchBugLabel\": \"Search\",
      \"SearchOptionsLabel\": \"Search Options\"}",
      \"SearchPlaceholderLabel\": \"Search ...\",
      \"SearchButtonLabel\": \"Go\",
      \"DetailsPanelLabel\": \"Location Details\",
      \"DetailsBugLabel\": \"Details\",
      \"DirectionsButtonLabel\": \"Directions\",
      \"ShareButtonLabel\": \"Share\",
      \"PicturesButtonLabel\": \"Pictures\",
      \"HoursButtonLabel\": \"Hours\",
```

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```

\ "DetailsBulletsLabel\ ": \ "Details\ ",
\ "ResultsPanelLabel\ ": \ "Location List\ ",
\ "ResultsBugLabel\ ": \ "List\ ",
\ "TwentyFourHoursLabel\ ": \ "Open 24 Hours\ ",
\ "PrintableHeaderLabel\ ": \ "Nearest Locations\ ",
\ "HoursWordLabel\ ": \ "Hours\ ",
\ "LobbyWordLabel\ ": \ "Lobby\ ",
\ "IsWordLabel\ ": \ "is\ ",
\ "OpenWordLabel\ ": \ "open\ ",
\ "ClosedWordLabel\ ": \ "closed\ ",
\ "UntilWordLabel\ ": \ "until\ ",
\ "DistanceWordLabel\ ": \ "Distance\ ",
\ "MilesWordLabel\ ": \ "miles\ ",
\ "AlertWordLabel\ ": \ "Alert\ ",
\ "OkayWordLabel\ ": \ "Okay\ ",
\ "ZoomInLabel\ ": \ "Zoom In\ ",
\ "ZoomOutLabel\ ": \ "Zoom Out\ ",
\ "ResetZoomLabel\ ": \ "Reset Zoom\ ",
\ "ToggleAngleLabel\ ": \ "Toggle View Angle\ ",
\ "CompassAngleLabel\ ": \ "Compass & Angle\ ",
\ "FullScreenLabel\ ": \ "Switch to Full Screen Mode\ ",
\ "ShrinkScreenLabel\ ": \ "Exit Full Screen Mode\ ",
\ "PrintLabel\ ": \ "Print List of Results\ ",
\ "GeoLocateLabel\ ": \ "Find My Location\ ",
\ "ShareEmailTabLabel\ ": \ "Send Email\ ",
\ "ShareSMSTabLabel\ ": \ "Send SMS/Text\ ",
\ "BuildingsLabel\ ": \ "Toggle Buildings View\ " }",

"Colors": "{
\ "listingHighlightColor\ ": \ "#000000\ ",
\ "listingActiveColor\ ": \ "#2d7501\ ",
\ "popupTitleColor\ ": \ "#FFFFFF\ ",
\ "popupBackgroundColor\ ": \ "#2d7501\ ",
\ "scrollbarColor\ ": \ "#2d7501\ ",
\ "panelGlyphColor\ ": \ "#363636\ ",
\ "panelTitleColor\ ": \ "#363636\ ",
\ "bugGlyphColor\ ": \ "#363636\ ",
\ "bugTitleColor\ ": \ "#363636\ " }",

"Filters":
[ {
    "Id": "FCS",
    "Description": "Eastern Federal Branches"
  }, {
    "Id": "ATMSF",
    "Description": "Surcharge-Free ATMs"
  }, {
    "Id": "ATMDP",
    "Description": "Deposit-Taking ATMs"
  }, {
    "Id": "ESC",

```

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```

        "Description": "CO-OP Shared Branch"
    }
}

```

2.3 GETLOCATIONCOUNT

The **GetLocationCount** service supports both GET and POST requests and returns a simple result count in response to the request criteria. It performs a search within a specified radius of the provided center of search location, subject to the provided request search filter values. The center-of-search location is provided by either a latitude, longitude coordinate pair in decimal notation, or by an address or fragment of an address, and the search filters are provided as a comma delimited list of search filter codes as configured for that particular locator configuration.

Request Parameters:

- **AccountSid** – required, use AccountSid string value provided by Admin Portal
- **AuthToken** – required, use AuthToken string value provided by Admin Portal
- **Latitude** – optional, the latitude value of the center-of-search in decimal notation. Usually, this comes from a GPS device or other geocoded location value. E.G. “39.957395498”
- **Longitude** – optional, the longitude value of the center-of-search in decimal notation. Usually, this comes from a GPS device or other geocoded location value. E.G. “-92.7339534598”
- **Address** – optional, the center-of-search street address, usually including the street number and street name. E.G. “42 Elm Ave”
- **City** – optional, the name of the city. E.G. “New York”
- **State** – optional, the state. E.G. “NY”
- **Zipcode** – optional, the ZIP Code or postal code. E.G. “21218”
- **Country** – optional, name of country or country ISO code. E.G. “US”
- **Filters** – the Filters value determines what Search Option filter values are active in this search, as provided by the **GetConfig** service. Multiple Filter values can be included by providing them in a comma delimited string list. Default value is that all available location types will be returned.
- **SearchDistance** – the SearchDistance is a decimal numeric value that provides the radius for the search in miles. Maximum allowed value is 100.

Example GetLocationCount POST Request Format:

POST to <https://locationapi.wave2.io/mobile/api/getlocationcount>

Providing the following POST data:

```

{
  "AccountSid": "adcb939c-283c-408b-a899-a824354dc2ea",
  "AuthToken": "058b3c54-6574-43a6-96ed-03e56240be8f",
  "Latitude": "38.88399",
  "Longitude": "-77.02749",

```

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```

"Address": "",
"City": "",
"State": "",
"Zipcode": "",
"Country": "",
"Filters": "FCS,ATMSF,ATMDP,ESC,",
"SearchDistance": "5.5"
}

```

Example GetLocationCount GET Request Format:

GET request using <https://locationapi.wave2.io/mobile/api/getlocationcount?AccountSid=adcb939c-283c-408b-a899-a824354dc2ea&AuthToken=058b3c54-6574-43a6-96ed-03e56240be8f&Latitude=40.83668&Longitude=-73.939944&Address=&City&State&Zipcode&Country&Filters=ATMSF&SearchDistance=5.5>

GetLocationCount Response Data:

The JSON data returned contains a “**FeatureCollection**” object with Latitude and Longitude coordinates of the center of the search location, the ResultCount value, and little else. The ResultCount is the primary piece of data this endpoint is designed to return. A complete list of possible data objects follows:

- **Type**: FeatureCollection – the containing object type for the ResultCount meta data object itself.
- **ResultCount** – a numeric string that contains the count of total matching results for this query.
- **Center** – a nested JSON object reflecting the center of search location for this GetLocationCount request.
- **Type** – FeatureCollection – the containing object type for the ResultCount meta data object itself.
- **Features** – an empty placeholder object that is not relevant to a GetLocationCount request.

Example GetLocationCount Response:

```

{
  "Type": "FeatureCollection",
  "ResultCount": "352",
  "Center": {
    "Longitude": "-73.939944",
    "Latitude": "40.83668",
    "City": null,
    "State": null,
    "ZipCode": null,
    "Address": null,
    "FormattedAddress": null,
    "GeoPrecision": null
  },
  "Features": []
}

```

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2.4 GETLOCATIONS

The **GetLocations** service returns a single location or a list of locations that match the request criteria and satisfy a user search. It performs a search within a specified radius of the provided center of search location.

The center-of-search location is provided by either a latitude, longitude coordinate pair in decimal notation, or by an address or fragment of an address.

The search distance (or radius) is not available as a request parameter to the GetLocations service. Instead, the search distance is determined by two configurations (Default Search Distance, and Expanded Search Distance) provided by your financial institution inside the Wave2 Admin Portal under Locator Configurations -> Other Settings, which controls how the results for your interactive locator are returned. The Default Distance value (in miles) sets the search distance that will be used for most searches. The Expanded Search Distance (in miles) sets the distance for a second search, which takes place automatically if NO results are returned using the Default Distance.

Request Parameters:

- **AccountSid** – required, use AccountSid string value provided by Admin Portal
- **AuthToken** – required, use AuthToken string value provided by Admin Portal
- **Latitude** – optional, the latitude value of the center-of-search in decimal notation. Usually, this comes from a GPS device or other geocoded location value. E.G. “39.957395498”
- **Longitude** – optional, the longitude value of the center-of-search in decimal notation. Usually, this comes from a GPS device or other geocoded location value. E.G. “-92.7339534598”
- **Filters** – optional, the Filters value determines what Search Option filter values are active in this search, as provided by the **GetConfig** service. Multiple Filter values can be included by providing them in a comma delimited string list. Default value is that all available location types will be returned. In addition to the location types defined by the **GetConfig** service, the following types are available for all clients: **1 = ATM, 2 = Branch, 3 = All Location Types**
- **Address** – optional, the center-of-search street address, usually including the street number and street name. E.G. “42 Elm Ave”
- **City** – optional, the name of the city. E.G. “New York”
- **State** – optional, the state. E.G. “NY”
- **Zipcode** – optional, the ZIP Code or postal code. E.G. “21218”
- **Country** – optional, name of country or country ISO code. E.G. “US”

Example GetLocations Request Format:

POST to <https://locationapi.wave2.io/mobile/api/getlocations>

Providing the following POST data:

```
{
  "AccountSid": "adcb939c-283c-408b-a899-a824354dc2ea",
  "AuthToken": "058b3c54-6574-43a6-96ed-03e56240be8f",
  "Latitude": "38.88399",
  "Longitude": "-77.02749",
```

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```

"Address": "",
"City": "",
"State": "",
"Zipcode": "",
"Country": "",
"Filters": "FCS,ATMSF,ATMDP,ESC,"
}

```

GetLocations Response Data:

The JSON data returned contains a “**FeatureCollection**” object with Latitude and Longitude coordinates of the center of the result set. This object contains a nested JSON object that is a series of “**Features**” objects which contain all the details of every individual location returned for this request, consisting of a variety of nested JSON objects of varying complexity and length. A PARTIAL list of possible data objects includes:

- **Geometry:** an object containing the Coordinates object with format [Longitude, Latitude] for this location
- **Properties:** an object containing all the nested JSON descriptor objects associated with this location
 - **LocationID** and **TerminalID**
 - **LocationName**
 - **Address**
 - **City**
 - **State**
 - **Postalcode**
 - **Country**
 - **Phone**
 - **Fax**
 - Open and Close hours for each day of the week for three different hours sets
 - **Lobby Hours** = MonOpen, MonClose, TueOpen, TueClose, etc
 - **Drive Up Hours** = DtMonOpen, DtMonClose, DtTueOpen, DTTueClose, etc
 - **Free Form Hours** = FfMonOpen, FfMonClose, FfTueOpen, FfTueClose, etc
 - **FfHoursName** = Descriptive string for title of this third hours option
 - **MapIcon** = URL for map marker image for this location
 - **Image** = URL for brand/logo image for this location
 - **Notes** = Additional detail notes text provided for this location
 - **Branchimg** = Nested JSON string object (therefore slash formatted) with list of facility photos
 - **Distance** = distance from center of search in miles
- **Location Features:** an object that contains all the nested JSON details objects for this location
 - **LocationType** = Descriptive name of the type of location
 - **AcceptDeposit** = Descriptive text that indicates deposits are accepted here
 - **SurchargeFree** = Descriptive text that indicates that this location is surcharge-free
 - **RestrictedAccess** = Descriptive text that indicates that this location is a restricted location
 - **TwentyFourHours** = Descriptive text that indicates that this location is a 24 hour access location
 - **Coin Counter** = Descriptive text that indicates that this location includes a coin counter
 - **MANY MORE...**
- **TimeZoneFeature:** an object that contains nested JSON objects related to timezone for this location

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- **TimeZoneLabel** = Descriptive text indicating the timezone of this location
- **UTCOffset** = Numeric value showing the offset from UTC time in milliseconds for this location
- **DayLightSavings** = Y/N value indicating if daylight savings time is in effect for this location

Example GetLocations Response: (PARTIAL)

```
{
  "Type": "FeatureCollection",
  "Center": {
    "Longitude": "-77.02749",
    "Latitude": "38.88399"
  },
  "Features": [{
    "Type": "Feature",
    "Geometry": {
      "Type": "Point",
      "Coordinates": [-77.0276, 38.8842]
    },
    "Properties": {
      "LocationId": 82235,
      "TerminalId": "ACQ2667",
      "LocationName": "12th Street Branch",
      "Address": "500 12th St SW",
      "City": "Washington",
      "State": "DC",
      "Postalcode": "20024",
      "Country": "UNITED STATES",
      "Phone": "",
      "Fax": null,
      "MonOpen": "8:30",
      "MonClose": "3:30",
      "TueOpen": "8:30",
      "TueClose": "3:30",
      "WedOpen": "8:30",
      "WedClose": "3:30",
      "ThuOpen": "8:30",
      "ThuClose": "3:30",
      "FriOpen": "8:30",
      "FriClose": "3:30",
      "SatOpen": "Closed",
      "SatClose": "",
      "SunOpen": "Closed",
      "SunClose": "",
      "DtMonOpen": "07:00 AM",
      "DtMonClose": "05:00 PM",
      "DtTueOpen": "07:00 AM",
      "DtTueClose": "05:00 PM",
      "DtWedOpen": "07:00 AM",
      "DtWedClose": "05:00 PM",
      "DtThuOpen": "07:00 AM",
      "DtThuClose": "05:00 PM",
      "DtFriOpen": "07:00 AM",

```

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```

        "DtFriClose": "05:00 PM",
        "DtSatOpen": "07:00 AM",
        "DtSatClose": "05:00 PM",
        "DtSunOpen": "",
        "DtSunClose": "",
        "FfHoursName": "Mortgage Center",
        "FfMonOpen": "10:00 AM",
        "FfMonClose": "04:00 PM",
        "FfTueOpen": "10:00 AM",
        "FfTueClose": "04:00 PM",
        "FfWedOpen": "10:00 AM",
        "FfWedClose": "04:00 PM",
        "FfThuOpen": "10:00 AM",
        "FfThuClose": "04:00 PM",
        "FfFriOpen": "10:00 AM",
        "FfFriClose": "04:00 PM",
        "FfSatOpen": "",
        "FfSatClose": "",
        "FfSunOpen": "",
        "FfSunClose": "",
        "MapIcon": "https://cdn.wave2.io/images/demo_marker.png",
        "Image": "https://cdn.wave2.io/images/demo_logo.png",
        "Notes": "",
        "Latitude": 38.8842,
        "Longitude": -77.0276,
        "Distance": "0.0156529",
        "Branchimg": "{\\"https://domain.com/demo_exterior1.jpg\\",
                      \\"https://domain.com/images/demo_interior1.jpg\\"}"
    },
    "LocationFeatures": {
        "LocationType": "Eastern Federal Branch"
    },
    "TimeZoneFeature": {
        "TimeZoneLabel": "Eastern",
        "UTCOffset": "-18000",
        "DaylightSavings": "Y"
    }
},
    ...additional Feature objects...

}]
}

```

2.5 GETLOCATIONLIST

The **GetLocationList** service returns *all* locations in the client's own location list, regardless of current location, or search criteria. This is useful for getting a complete list of client locations spanning a large geographic area which would be difficult to achieve with a standard search.

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Request Parameters:

- **AccountSid** – required, use AccountSid string value provided by Admin Portal
- **AuthToken** – required, use AuthToken string value provided by Admin Portal

Example GetLocationList Request Format:

POST to <https://locationapi.wave2.io/mobile/api/getlocationlist>

Providing the following POST data:

```
{
  "AccountSid":"adcb939c-283c-408b-a899-a824354dc2ea",
  "AuthToken":"058b3c54-6574-43a6-96ed-03e56240be8f ",
}
```

Example GetLocationList Response:

Same as shown in GetLocations response, with locations restricted to the complete list of the client's own branch and ATM locations.

2.6 GETLOCATIONBYID

The **GetLocationById** service returns **only one** location in the client's own location list, based only on a unique identifier that is passed, regardless of current location, or search criteria. This is useful for getting details on a particular client location for something like dynamic population of data in a branch information page in a website.

Note: The important thing to note with this service is that it can take either a system generated Location ID or a client defined Terminal ID as its unique identifier input parameter. The risk with using a Location ID value is that such a value will change whenever the client performs an update via data file upload in the Admin Portal system, therefore it is more reliable to assign a unique Terminal ID value to a location and to use that Terminal ID with the GetLocationById service.

Request Parameters:

- **AccountSid** – required, use AccountSid string value provided by Admin Portal
- **AuthToken** – required, use AuthToken string value provided by Admin Portal
- **LocationId** – required, use either system-generated LocationId value or client defined TerminalId value. See note above regarding reliability of LocationId.

Example GetLocationList Request Format:

POST to <https://locationapi.wave2.io/mobile/api/getlocationlist>

Providing the following POST data:

```
{
  "AccountSid":"adcb939c-283c-408b-a899-a824354dc2ea",
  "AuthToken":"058b3c54-6574-43a6-96ed-03e56240be8f",
}
```

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```
"LocationId": "BID3983850"
}
```

Example GetLocationByld Response:

Same as shown in GetLocations response, with locations returned restricted to the single location specified by the supplied LocationId.

2.7 SENDEMAIL

The **SendEmail** service allows for sharing of the details of a location via automated email send.

Request Parameters:

- **AccountSid** – required, use AccountSid string value provided by Admin Portal
- **AuthToken** – required, use AuthToken string value provided by Admin Portal
- **ToName** – required, descriptive Name of the email recipient. Can also use the email address.
- **ToEmailAddress** – required, the email address of the recipient
- **Subject** – required, the subject line of the email message
- **Content** – required, the message body content of the email message.

Example GetLocationList Request Format:

POST to <https://locationapi.wave2.io/mobile/api/sendemail>

Providing the following POST data:

```
{
  "AccountSid": "adcb939c-283c-408b-a899-a824354dc2ea",
  "AuthToken": "058b3c54-6574-43a6-96ed-03e56240be8f",
  "ToName": "John Public",
  "ToEmailAddress": "jqpublic@gmail.com",
  "Subject": "Eastern FCU Location Details",
  "Content": "The location you requested is at 2121 Main Street... etc"
}
```

Example SendEmail Response:

The SendEmail service responds with a simple boolean value indicating if the email send was successful or not.

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2.8 SENDSMS

The **SendSms** service allows for sharing of the details of a location via automated SMS/Text Message.

Request Parameters:

- **AccountSid** – required, use AccountSid string value provided by Admin Portal
- **AuthToken** – required, use AuthToken string value provided by Admin Portal
- **MobileNumber** – required, the destination phone number for the SMS/Text Message
- **Content** – required, the 140 character or less message content to send.

Example GetLocationList Request Format:

POST to <https://locationapi.wave2.io/mobile/api/sendemail>

Providing the following POST data:

```
{
  "AccountSid":"adcb939c-283c-408b-a899-a824354dc2ea",
  "AuthToken":"058b3c54-6574-43a6-96ed-03e56240be8f",
  "MobileNumber":"3015551212",
  "Content":"The location you requested is at 2121 Main Street... etc"
}
```

Example SendSms Response:

The SendSms service responds with a simple boolean value indicating if the message send was successful or not.

2.9 ERROR MESSAGES

There are a variety of possible Http Status Codes and Error Responses that could be returned from the Location API. These are returned in a restricted XML response that contains only the locations container element and a status sub-element. For example:

Example ERROR MESSAGE Response:

```
<?xml version="1.0" encoding="utf-8"?>
<locations>
  <status>Error Message Will Appear Here</status>
</locations>
```

Status Values / Error Messages

Below are a few of the main error conditions. This list is incomplete. Most error messages are self-explanatory.

- **Invalid Username/Password Or Access Is Restricted**

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The request had bad or missing authentication (user/pass) values.

- **Invalid Address Entered or Address not found**

The request had a bad or invalid address value which could not be resolved by the geocoder.

- **Missing Address Entered or Address not found**

The request either had an incomplete or missing address, or the address was unable to be resolved by the geocoder.

- **Value cannot be null**

The request had missing search parameters – all request parameters require at least placeholders even if they contain no information.

2.10 LOCATION API SUPPORT

For support, please send an email to support@wave2.io or visit <https://wave2locator.com/> and click on *Support* under the *Contact Us* menu.

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