Customer API V2 Design

For:

Interface Design Document

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INTRODUCTION

The purpose of this document is to outline interface requirements between outside client applications and JETNET API.

Note that only customers with a valid JETNET API licensing are allowed to use the services outlined in this document.

Restrictions on JETNET API Use

Due to the ease and flexibility of the JETNET API, not all customers will be allowed to subscribe to the service. All access to the JETNET API will be governed by a tailored JETNET agreement/contract. No clients will be allowed to access or utilize JETNET resources via the API for purposes not outlined in the specific agreement and no clients may use the data from the JETNET API to compete with JETNET.

Contact Information

For further information regarding the technical details of the JETNET API contact.

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JETNET API Common Applications

JETNET customers may choose to utilize JETNET API for a wide variety of purposes. The bullets below outline a few of the most common reasons for using the service.

- CRM Integration – Many customers desire to integrate JETNET data for the purpose of better automating their sales and customer feedback processes. Whether they are looking for address information to support mailings, phone numbers to support direct sales and research calls or emails to support direct email or campaigns. Common CRM platforms that customers may choose to interface with include SalesForce, ZoHo, Act, Microsoft Dynamics, etc.
- Customized Model Market Summaries – Many JETNET clients maintain their own customized versions of model market summary spreadsheets or tools allowing them

to compare specific fields on aircraft side by side depending on a given model and sometimes even depending on a specific customer need.

- Inventories & Fleet Management – Many JETNET customers seek to keep details of aircraft relating to specific fleets as up to date as possible. This may be just aircraft related data or also include data about the associated owners and operators.

API Access & Credentials

Any and all customers utilizing JETNET API must access the API using valid credentials consisting of a username and password. Such credentials must be obtained via a JETNET API subscription. For further information regarding getting a JETNET API subscription contact:

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API Design

All results from API calls are returned as JavaScript Object Notation or **JSON** ("jay-son"). JSON is an open-standard file format that uses human-readable text to transmit data objects consisting of attribute–value pairs and array data types (or any other serializable value).

Connection & Testing

A first-time use of the API should be preceded by testing and understanding the connection to the API itself. JETNET has established a Swagger page at https://customer.jetnetconnect.com/swagger/index.html for use in testing your requests and responses. Details of response fields are also provided within this interface.

Accessing JETNET API

The primary API can be accessed via the following URL https://customer.jetnetconnect.com/api/.

STANDARD API ENDPOINTS/REQUESTS

Login/Connection to the Customer API

Refer to the swagger open API page for examples using the link below.

https://customer.jetnetconnect.com/swagger/index.html

Sample programs/code are available from the following Github link.

https://github.com/jetnet-llc/jtcTestClient

Overview of the API Login Process

The following figure provides an overview of the API connect and token

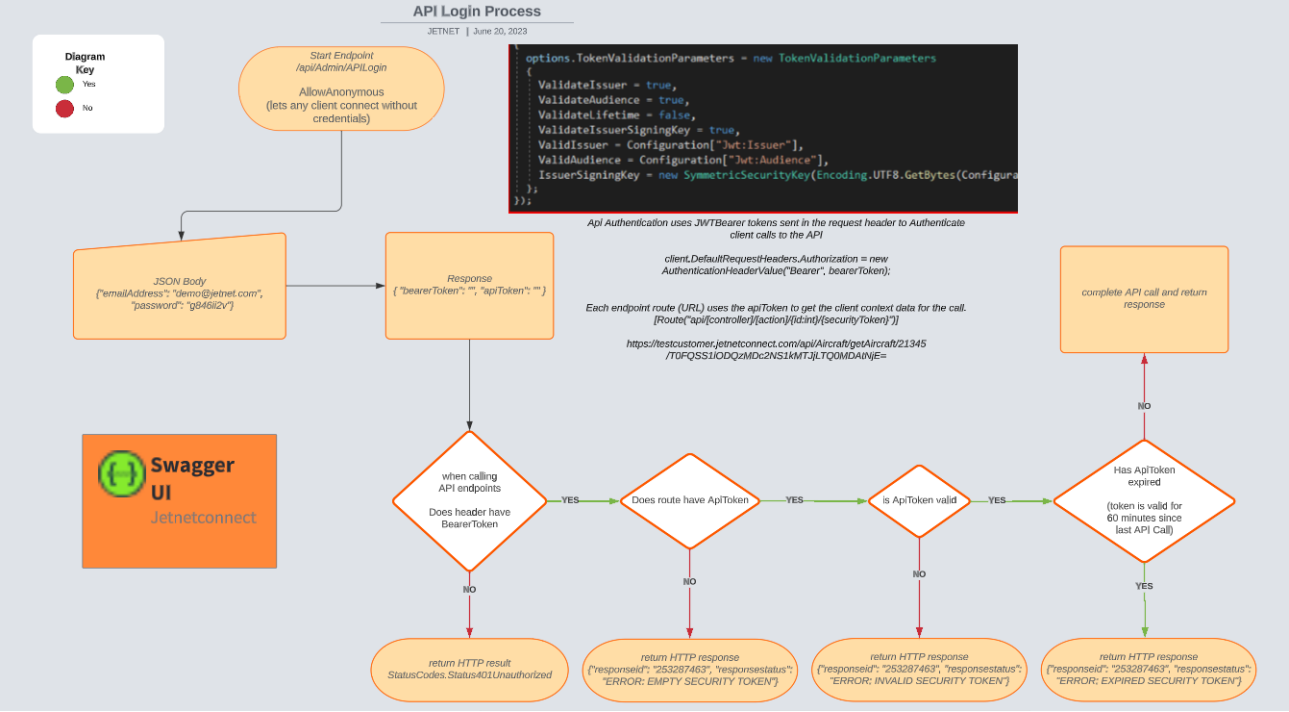


Figure: Overview of the API Login/Connection Process

Getting/Verifying a Connection to the API

The following endpoint is used to make your initial connection to the API.

https://customer.jetnetconnect.com/api/Admin/APILogin

Below is some example “curl” code for making an initial login connect to obtain the bearer token and application token (apitoken).

curl -X 'POST' \ 'https://customer.jetnetconnect.com/api/Admin/APILogin' \ -H 'accept: application/json' \ -H 'Content-Type: application/json' \ -d '{ "emailAddress": "demo@jetnet.com", "password": "g846ii2v" }'

APILogin Response

{

"bearerToken": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJleHAiOjE2NzQ3NzU1MTAsImlzcyI6Imh0dHBzOi8vamV0bmV0Y29ubmVjdC5jb20vIiwiYXVkIjoiaHR0cHM6Ly9qZXRuZXRjb25uZWN0LmNvbS8ifQ.TlRealIlUJIWZ3nuKZ_Cn7rUV9dVDjzqRMDps3_6KZ5k",

"apiToken": "T0FGUy00ODU3MTE5MS0zYzJjLTQ4ZTUtYmVkOC1jYmUzZjZiNmEzNWI="

}

Bearer Token: APILogin

The Bearer Token is used in the request header to authenticate the call to the API

C# sample code shown below

```
client.DefaultRequestHeaders.Authorization = new AuthenticationHeaderValue("Bearer", bearerToken);
client.DefaultRequestHeaders.Accept.Add(new MediaTypeWithQualityHeaderValue("*/*"));
client.DefaultRequestHeaders.Accept.Add(new MediaTypeWithQualityHeaderValue("application/json"));
```

API Token Management

The APIToken(securityToken) is used for each endpoint to secure the endpoint for this user.

Longevity: Each apiToken(securityToken) has a “longevity” of 60 minutes from the last request made. Therefore, if the applications using the API do not access any data for over 60 minutes then the application will need to re-validate the connection using the APILogin endpoint.

Account Information: getAccountInfo

This is designed to request and return important details about the users account that may be helpful in driving application interfaces.

Request

The base request is as follows.

https://customer.jetnetconnect.com/api/Utility/getAccountInfo/{securityToken}

FIELD DESCRIPTION

- Responseid - Unique ID assigned to every response. Note that all responses will include a response ID.
- Responsestatus - Indicates the status of the response generally starting with phrase "Success:" or "Error:" followed by words if appropriate adding detail.
- Servicetype - Identifies the type of service the customer has access to as either Marketplace or Aerodex.

This is critical in identifying what fields may be search and responses may be received by several requests/endpoints.

- Servicefrequency - Indicates whether the customer has access to Live, Weekly, or Monthly data.
- Maxrecords - Indicates the maximum number of records the user will receive in a single request.

Note that certain applications such as SaleForce may default to 2,000 records regardless of the customer max setting.

- Subid - Subscription ID assigned by JETNET to this customer account.
- Historyavailable - Does customer have aircraft history avaliable for subscription.
- Flightsavailable - Does customer have aircraft flight data avaliable for subscription.

Overview of Standard Endpoints/Request Types

JETNET API provides a variety of requests designed to provide maximum flexibility to application developers in the access and use of JETNET's vast data resources. Key end points (request types) are outlined below and described in greater detail in the following subsections.

- **Validate Connection: api/Utility/APILogin**– Used to validate user license and obtain a security token allowing for communication with the service.
- **Account Information**: **api/Utility/getAccountInfo** – Used to get information regarding the users account including whether they are Marketplace/Aerodex, types of aircraft they can access, and result return limitations.
- **Aircraft Model List: api/Utility/getAircraftModelList** – Used to get a list of aircraft models.
- **Aircraft List: api/Aircraft/getAircraftList** – Used to get a list of aircraft. Includes a wide variety of parameters such as:
    - serial number (wildcarded)
    - registration number (wildcarded)

    - model id
    - for sale status (for sale or not) in combination with model Id will allow for market summaries
- **Aircraft Details: api/Aircraft/getAircraft** – Used to get a single aircraft record based on a unique aircraft ID.
- **Aircraft Make List: api/Utility/getAircraftMakeList** – Used to get a list of aircraft makes such as Gulfstream, Falcon, Learjet, etc.
- **Aircraft Make Type List: api/Utility/getMakeTypeList** – Used to get a list of the types of makes such as Business Jet, Turboprop, Piston, etc.
- **Aircraft Airframe Type List: api/Utility/getAirframeTypes** – Used to get a list of airframe types such as Fixed Wing or Rotary.
- **Aircraft Event Category List: api/Utility/getEventCategories** – Used to get a list of event categories such as Market Status, Transaction, Aircraft Identification, Financial Document, etc. for searching on vents.
- **Aircraft Event Type List: api/Utility/getEventTypes** – Used to get a list of event types such as Change in Airframe Total Time, Change in Asking Price/Status, etc. for searching on Events.
- **Aircraft Event List: api/Utility/getAircraftEventList** – Used to get a list of aircraft related events such as when market status changes to changes to particular fields on records were made.
- **Airport List: api/Utility/getAirportList** – Used to get a list of airports.
- **Company List: api/Company/getCompanyList** – Used to get a list of companies based on passed parameters.
- **Company Details: api/Company/getCompany** – Used to get a single company record based on a unique company ID.
- **Company Business Types: api/Utility/getCompanyBusinessTypes** – Used to get a list of company business types used for searching for specific company lists.
- **Contact List: api/Contact/getContactList** – Used to get a list of contacts based on a series of passed parameters.
- **Contact Details: api/Contact/getContact** – Used to get a single contact record based on a unique contact ID.

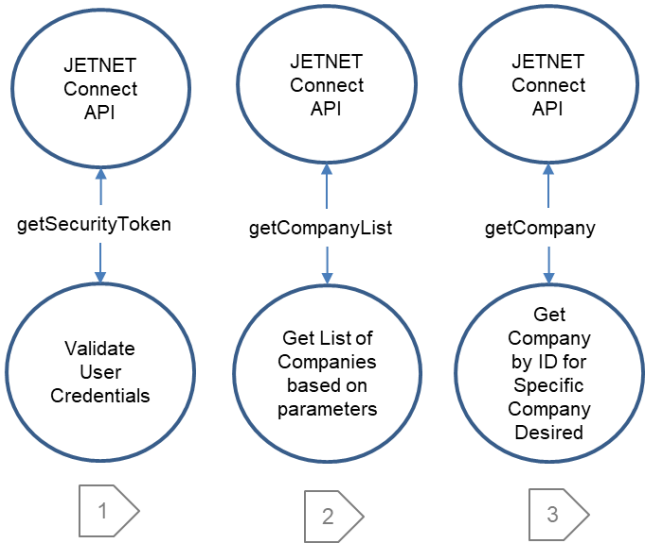
- **Country List: api/Utility/getCountryList** – Used to get a list of countries used by JETNET.
- **State List: api/Utility/getStateList** – Used to get a list of states used by JETNET.

Request Examples/Workflow

As previously stated, there are lots of reasons and ways to access data resources through the API. The following are a few simple examples of the basic steps used to get specific types of information.

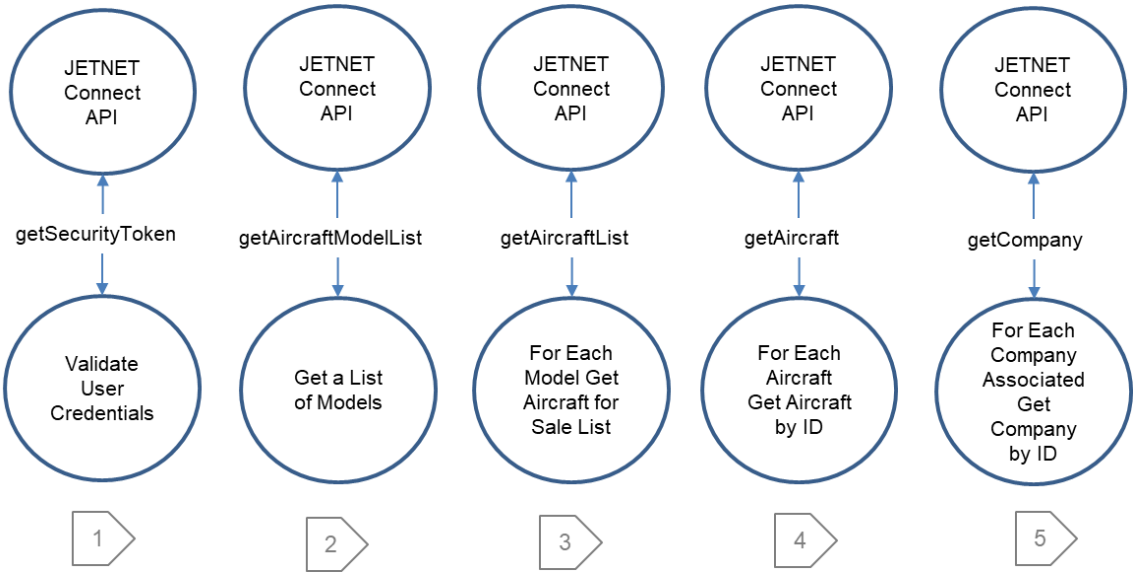
Search for and Select a Company to Download

The example below represents a relatively simple workflow where the application goal is search for and select a specific company to download.



Get Companies (Owners) Associated with a Model of Aircraft

The example below represents a more complex workflow where the application goal is to download a list of all companies (or potentially owners) of aircraft for sale.



Standard Request/Response Details

Common Response Indicators

Each request/response will return the following as the first 2 result fields as a means of uniquely identifying each response as well as clearly indicating success or failure of the response.

- responseid - Unique ID assigned to every response. Note that all responses will include a response ID
- responsestatus - Indicates the status of the response generally starting with phrase "Success: " or "ERROR: " followed by words if appropriate adding detail. Should the security token be expired at the time of any request, the API will return "ERROR: INVALID SECURITY TOKEN" and the application will need to request a new security token using "getSecurityToken" request before proceeding.

Common Error Responses

In any responses that result in an error, the word "ERROR:" will appear as the first word in the response status. Below is a list of common ERROR responses. Note that each of these responses will be presented in upper case for consistency.

- **ERROR: INVALID ACCOUNT [ACCOUNT NOT AUTHORIZED FOR API ACCESS]** - This will be the response if the user or account is not authorized to use the API.
- **ERROR: EXPIRED SECURITY TOKEN** – This indicates that the securityToken passed was valid but now has expired. This means that the calling application will need to use the getSecurityToken request to obtain a new security token before proceeding.

- **ERROR: INVALID SECURITY TOKEN** – This indicates that the securityToken passed was invalid. This means that the calling application will need to use the getSecurityToken request to obtain a new security token before proceeding.
- **ERROR: NO RESULTS FOUND [RECORD NAME]** – Used for single record or listing requests.
    - Example: getAircraft request - ERROR: NO RESULTS FOUND [AIRCRAFT]
- **ERROR: INVALID PARAMETER [PARAMETER NAME] – [OPTIONAL DESCRIPTION]**
    - Example: getAircraft request - ERROR: INVALID PARAMETER [AIRCRAFT ID] – [NON-NUMERIC INPUT]
- **ERROR: RESULTS EXCEEDED LIMITS [LIMIT]** – Used for listing requests.
    - Example: getAircraftList request - ERROR: RESULTS EXCEEDED LIMITS [3000]
- **ERROR: MISSING REQUIRED PARAMETER [PARAMETER NAME]** – This is used for any requests where there are parameters and the requests did not receive input parameters expected.
    - Example: getAircraft request - ERROR: MISSING REQUIRED PARAMETER [AIRCRAFT ID]
    - Example: getAircraftList request - ERROR: MISSING REQUIRED PARAMETER [AT LEAST ONE PARAMETER REQUIRED]

NON-STANDARD API ENDPOINTS/REQUESTS

Overview of Standard Endpoints/Request Types

JETNET API provides clients with *specialized licenses and authorization* the ability to have expanded API services including access to history related data. Common API licensing will not include the requests contained in this section. Specific requests available for customers with specialized licenses include:

- **getAircraftHistoryList** – Used to get a list of historical transactions associated with aircraft, companies, data ranges, etc.
- **getAircraftHistoryTransTypes** – Provides a list of transaction types that may be used in the selecting of history records.
- **getAircraftFlightData** – Provides a list of flights for specific date range and group of aircraft selected.

ACCESSING JETNET EVOLUTION PAGES FROM APPS

Several JETNET API requests return a “pageurl” in the results. This would typically apply to getCompany, getContact, and getAircraft requests/endpoints.

The URL provided represents a page within JETNET Evolution that can be used in a direct page call and/or IFRAME from other applications to see full pages relating to companies, contacts, and/or aircraft.

For security purposes, such page calls will require that the calling application pass the security token as a request variable. Otherwise, the page call will return a failure unless otherwise logged into to Evolution thru some other valid means.

Examples

The following represent examples of how to display pages from JETNET Evolution using information from the “pageurl” along with the security token as shown below where the capitalized elements would be replaced with appropriate values.

Evolution Company Display

https://www.jetnetevolution.com/DisplayCompanyDetail.aspx?compid=[COMPID]&securityToken=[TOKEN]

Evolution Contact Display

https://www.jetnetevolution.com/DisplayContactDetail.aspx?conid=[CONID]3&securityToken=[TOKEN]

Evolution Aircraft Display

https://www.jetnetevolution.com/DisplayAircraftDetail.aspx?acid=[ACID]&securityToken=[TOKEN]