Domain Engine

API Guide

Version 2.0

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1 Overview

Welcome to the Domain Engine API Guide. This document will enable you to easily integrate with the Domain Engine API service. Additionally, the provided details will allow you to quickly and effectively meet the needs of various business use cases. First, let's start out with a general overview.

The Domain Engine service provides a fast and capable REST API. The *request* must be sent using a secure HTTP GET method, and the *response* is returned as a UTF-8 encoded JSON string.

Domain Engine works to satisfy a number of different use cases by offering a flexible solution to a complex problem. It accomplishes this by utilizing multiple query parameters. Consequently, querying the Domain Engine API service can potentially be more complicated and less straightforward than a typical REST API. Given that, it is important to be aware of the following:

- Domain Engine only consists of one primary API command.
- Domain Engine provides multiple query parameters for the above command, each having a unique effect on the resulting data values.
- Some query parameters have complex behaviors and care must be taken to implement them correctly.
- A careful balance of query parameters must be used in order to achieve desired data results.

This guide, then, attempts to be as thorough as possible, allowing you to integrate with our system quickly and recommend the best domain suggestions for your users.

1.2 Domain Engine User Guide

In addition to this API guide, we provide a Domain Engine User Guide as well. The user guide provides higher level details about the Domain Engine service, and it details specific use cases your company might want to take advantage of. We recommend using the Domain Engine User Guide as a reference.

1.3 Domain Engine Customer Portal

We provide an easy-to-use customer portal, allowing you to configure vital data, manage your account, access our documentation, and contact customer support.

The Domain Engine Customer Portal can be accessed at: https://app.rns.domains/

1.4 Domain Engine Customer Support

We are here to make your implementation experience as simple and seamless as possible. Please reach out to our customer support team if you have any questions, run into any problems, or have general feedback.

Email: domainengine@identity.digital

2 API Overview

Getting started with the Domain Engine API is quite simple. This section provides details about connecting to our service, authentication, and SLA expectations.

2.1 Endpoint and Query Structure

The endpoint for the Domain Engine API Service is located at:

```
https://api.rns.domains
```

All Domain Engine queries adhere to the following URL structure:

```
https://api.rns.domains/{command_name}?param1={param1_value}&param2={param2_value}
```

2.2 Authentication

Each customer is given a unique account name and password, and these values must be provided for every Domain Engine API call. If they are not supplied, or if the values are incorrect, then Domain Engine will respond with an error, and the query will not be processed.

An example of a valid Domain Engine API query containing authentication parameters might be the following:

> https://api.rns.domains/recommend-domains?**account**=domains4all&**password**=*3GaQ(xb)Z&**input**=domainenginetest

3 Request

This section provides details on making requests to the Domain Engine API service. The *request* must be sent using a secure HTTP GET method.

3.1 Commands

3.1.1 Recommend Domains

We provide public documentation for only one Domain Engine command: *Recommend Domains*. This command provides the primary functionality for our relevant domain search product. By utilizing different query parameter options and properly configuring your customer account, the Recommend Domains command will provide the results you need for almost all business use cases.

The API documentation provided throughout the rest of this document is dedicated solely to the Recommend Domains command. All details should be understood within that context.

Finally, if you determine that you have a use case for additional functionality not provided by the Recommend Domains command, then please contact Domain Engine Customer Support. We'll be happy to work with you!

Email: domainengine@identity.digital

3.2 Request Parameters

This section provides details on all query parameters that can be used with the *Recommend Domains* API command. Implementation is straightforward for most parameters. However, some query parameters involve complex logic, and care needs to be taken when using them. In these situations, we recommend testing appropriately in order to achieve desired results.

Important Note: All request parameters are *case-insensitive*. The parameters provided below are displayed in camelCase for readability purposes only.

Name	Implementation	Description
account	**Definition** *String* *Required* **Example** *domains4all*	Unique account identifier. **Details** This value can be retrieved from the Domain Engine Customer Portal. Go to Account Management > Account Details. The associated field name is "API Username".
password	**Definition** *String* *Required* **Example** *2sr95*7je1)$*	Unique account password. **Details** This value can be retrieved from the Domain Engine Customer Portal. Go to Account Management > Account Details. The associated field name is "API Password".
input	**Definition** *String* *Required* **Example** *bestdomainname*	The input value provided by the user. This is the search string from which recommended domains will be generated.
maxCount	**Definition** *Integer (1 to 150)* *Default: 10* **Example** *25*	The maximum number of domains that will be returned. **Details** It is not guaranteed that the number of returned domains will equal the *maxCount* value. The final number is dependent on query filtering behavior and domain availability.
enhancedAvailability	**Definition**	Ensures that all returned domains are available

	Integer *Enum: 0, 1* *Default: 0* Values: *0: Disabled* *1: Enabled* Example *1*	for registration. Details Performs a DNS availability check for all recommended domains, until the *maxCount* value has been satisfied. Warning Expect increased latencies when enabled. Test appropriately.

onlyTLDs	Definition
	String (comma-separated list)
	
	Sub-Parameters
	{tld name}
	    String
	    Required
	{tld value}
	    Double (0.0 to 1.0)
	    Optional
	
	Example
	live,life,today
	live:0.95,life:0.85,today:0.70
		Domains are returned for the provided TLDs only. An optional TLD *value* can be provided.
		
		Details
		onlyTLDs requires passing a list of TLDs. Each TLD must be separated by a comma. It supports optionally passing a TLD *value*, separated by a colon (":").
		
		If a *value* is not provided, then Domain Engine will use default internal relevancy logic to determine the best value for the TLD. If a value is provided, then the final value for the TLD will be manually set equal to this specified number, directly affecting the overall score of the domain.
		
		Warning
		Providing a value of 0.0 is not recommended, as this is equivalent to not passing an optional TLD value at all. This means that if you provide a value of 0.0, then Domain Engine will use internal relevancy logic for calculating the best value of the TLD.
		
		If you desire to set the value of a TLD to the lowest possible number, then it is suggested to provide a value of 0.1.

forceTLDs	Definition
	String (comma-separated list)
	
	Sub-Parameters
	{tld name}
	    String
	    Required
	{domain score}
	    Double (0.0 to 1.0)
		Ensures that at least one domain will be returned for the provided TLD(s). The domain score will be equal to the optional score value. (See Domain Engine User Guide for more details.)
		
		Details
		forceTLDs requires passing a list of TLDs. Each TLD must be separated by a comma. It supports

	Optional *Default: 1.0* Example *com,net,org* *com:1.0,net:0.95,org:0.90*	optionally passing a domain score, separated by a colon (":"). If provided, domains will be scored according to this domain score. (See Domain Engine User Guide). Warning *forceTLDs* does not guarantee position in the result list. It only guarantees domain score. A domain with the same score may appear in a higher position. (See Domain Engine User Guide)
allowPremium	Definition *Integer* *Enum: 0, 1, 2* *Default: 2* Values *0: None* *1: All* *2: Exact Match* Example *1*	Determines whether or not premium domains should be included in the result list. Details *allowPremium* supports three types of behavior. A value of zero (0) indicates that no premium domains will be returned. A value of one (1) indicates that, if any recommended domain happens to be premium, then it will be returned. A value of two (2) indicates that premium domains will only be returned where the SLD value of the *input* exactly matches the SLD value of the recommended domain. Important Note Domain Engine can only guarantee premium domain accuracy for Identity Digital TLDs at this time
allowPlatinum	Definition *Integer* *Enum: 0, 1, 2* *Default: 2* Values *0: None* *1: All* *2: Exact Match* Example *0*	Determines whether or not platinum domains should be included in the result list. Platinum domains are typically sold at a higher price than premium domains. Details *allowPlatinum* supports three types of behavior. A value of zero (0) indicates that no platinum domains will be returned. A value of one (1) indicates that if any recommended domains happen to be platinum, then they will be returned. A value of two (2) indicates that platinum domains will only be returned where the SLD value of the *input* exactly matches the SLD value of the recommended domain.

allowAdult	**Definition** *Integer* *Enum: 0, 1* *Default: 1* **Values** *0: Removed* *1: Included* **Example** *1*	Determines whether or not domains containing adult SLDs should be returned. **Details** Domain Engine maintains a database of words considered "adult". If an SLD for a domain contains an adult word, then the domain will not marked as adult.
allowOffensive	**Definition** *Integer* *Enum: 0, 1* *Default: 1* **Values** *0: Removed* *1: Included* **Example** *1*	Determines whether or not domains containing offensive SLDs should be returned. **Details** Domain Engine maintains a database of words considered "offensive". If an SLD for a domain contains an offensive word, then the domain will be marked as offensive.
clientIP	**Definition** *String* **Values** *IPv4 Format (0.0.0.0 - 255.255.255.255)* **Example** *69.64.144.72*	User IP address used for geotargeted TLDs. **Details** *clientIP* is the IPv4 address of the user performing the domain search. When provided, Domain Engine increase the weight of geographic TLDs, based on the location of the user's IP address. Geotargeted TLDs can be configured in the Domain Engine Customer Portal. Go to Domain Engine Features > Geotargeting TLDs.
usageId	**Definition** *String* **Example** *mainSearchBar-v1.34*	Unique customer query identifier. **Details** *usageId* is used for customer query tracking only. Domain Engine performs no logic on this parameter. It simply returns the value provided by the customer in the output.
hints	**Definition** *String (comma-separated list)* **Sub-Parameters** {hint name}	Increases the *weight* for TLDs associated with the provided pre-defined Hint values. **Details** *Hints* must be first configured in the Domain Engine

	String *Required* Example hint-name-1,hint-name-2	Customer Portal. Go to Domain Engine Features > Hints. (See User Guide) *hints* requires passing a list of one or more Hint Names, exactly matching the values defined in the Domain Engine Customer Portal. Each *hint* must be separated by a comma.

addTLDs	Definition
	String (comma-separated list)
	
	Sub-Parameters
	{tld name}
	    String
	    Required
	{tld value}
	    Double (0.0 to 1.0)
	    Optional
	
	Example
	org.uk,net.uk,me.uk
	org.uk:0.9,net.uk:0.89,me.uk:0.88
		Result list can include recommended domains for the provided TLDs. An optional TLD *value* can be provided.
		
		Details
		addTLDs should only be used if you want to recommend domains for TLDs that are not in your Supported TLDs list, managed in the Domain Engine Customer Portal. *addTLDs* requires passing a list of TLDs. Each TLD must be separated by a comma. It supports optionally passing a TLD *value*, separated by a colon (":").
		
		If a *value* is not provided, then Domain Engine will use default internal relevancy logic to determine the best value for the TLD. If a value is provided, then the final value for the TLD will be manually set equal to this specified number, directly affecting the overall score of the domain.
		
		Warning
		Providing a value of 0.0 is not recommended, as this is equivalent to not passing an optional TLD value at all. This means that if you provide a value of 0.0, then Domain Engine will use internal relevancy logic for calculating the best value of the TLD.
		
		If you desire to set the value of a TLD to the lowest possible number, then it is suggested to provide a value of 0.1.

removeTLDs	Definition
	String (comma-separated list)
	
	Sub-Parameters
	{tld name}
	    String
	    Required
		Provided TLDs will be removed from the result list.
		
		Details
		removeTLDs requires passing a list of TLDs. Each TLD must be separated by a comma.

	Example *fail,gripe,wtf*	
exactSldOnly	Definition *Integer* *Enum: 0, 1* *Default: 1* Values 0: Disabled 1: Enabled Example *0*	Ensures that the SLD of all domains in the result list must exactly match the SLD of the *input* value. Details When exactSldOnly is enabled, only the TLDs for the recommended domains will vary in the result list.
v	Definition *Integer* *Enum: 1, 2, 3* *Default: 1* Values *1: Version 1* *2: Version 2* *3. Version 3 (recommended)* Example *3*	Determines the format, structure, and metadata content returned in the response. *v* is shorthand for "version". Details The output version *does not* affect domain recommendations or associated metadata values; they are the same for all versions. Different versions are provided in order to support reverse compatibility. It is recommended to use Version 3 in conjunction with an appropriate *verbose* value, as this provides the most up-to-date format, structure, and content.
verbose	Definition *Integer* *Enum: 0, 1, 2* *Default: 0* Values *0: Low* *1: Medium* *2. High* Example *2*	Determines the amount (verbosity) of domain metadata returned. Details Domain Engine returns metadata for each recommended domain. Depending on the specified *verbose* level, the output will contain more or less metadata. If you wish to track more metadata for your metrics, select a higher verbosity level.

4 Response

This section provides details on the response output for the API command *Recommend Domains*. All responses are returned as a UTF-8 encoded JSON string. Additionally, it is expected behavior that all responses are returned with an **HTTP 200 status code**, even if the output contains errors. This is very important to note and be aware of: It is expected that the application itself will not return an HTTP 4xx status code.

Additionally, as was defined in the [Request](#) section of this document, Domain Engine allows you to return different output versions and verbosities. This creates many different output variants. In order to keep this guide as concise and focused as possible, the response section will only define output for the **latest version and highest verbosity** (v=3, verbose=2). We recommend using the latest version for your queries, as this provides the most up-to-date format, structure, and content. Additionally, we will use the highest verbosity to ensure we cover the largest scope of details. However, we recommend using a verbosity level that best fits your needs.

4.1 API Response Definitions

The following sections detail the JSON API response. Each heading corresponds to a root level JSON field name. As defined in the introduction to this section, the response definitions will be detailed at the latest API version and highest verbosity level.

4.1.1 Service

Data Type: Object

The *service* object generally contains information specific to the Domain Engine service. These fields can most appropriately be used for debugging purposes. The following table of fields are associated with the response object *service*.

Field	Description	Data Type	Example
serviceName	A debugging field. *serviceName* refers to the name of the internal Domain Engine server that received the API call.	String	Hummingbird
version	A debugging field. *version* refers to the name of the version of Domain	String	1.46.0.851

	Engine that received the API call.		
instance	A debugging field. *instance* refers to the name of the server instance that received API call.	String	1-hummingbird-1
command	The name of the API command that was called.	String	recommend-domains
elapsed	A debugging field. *elapsed* refers to the total elapsed time (in milliseconds) that it took for Domain Engine to process the API query.	Integer (non-negative)	25

4.1.2 Input

Data Type: Object

The *input* object consists of field names that correspond directly to specific API query parameters. The value of these fields are equal to one of two sources:

1. The parameter values provided by the customer.
2. The default values set by the Domain Engine service.

For more information on these input fields, please see the Request Parameters section.

4.1.3 Errors

Data Type: Array

The *errors* array will only contain values if one or more errors occurred during processing. If no errors were found, then the *errors* array will be empty.

Important Note: If an expected error is encountered, then the *output* object *will not be returned.* Domain Engine output is defined in the Output section.

Error Definition

An error array can be defined according to the fields described in the following table.

Field	Description	Data Type	Example
type	The type of error that occurred.	String	System.Exception
message	Information about what caused the error.	String	Invalid account or token key

Error Messages

The following table details all potential expected error messages that can be returned for an API query.

Message	Reason
Aborting command due to invalid user input	Generic error. This message is always returned when Domain Engine encounters expected errors or exceptions.
Invalid command.	The provided Domain Engine *command* is unrecognized.
Invalid account or token key	The provided *account* value is unrecognized.
Invalid account or token key	The provided *password* value is unrecognized.
Integer parameter '{parameter_name}' has incorrect format.	The provided parameter value is not of the type *Integer*. Domain Engine expects the provided parameter to be an integer value. This affects all parameters of the type *Integer*. Example Parameter *maxCount*
Parameter '{parameter_name}' outside of allowed range.	The provided parameter value is not within the expected range. This affects all parameters under the following conditions: ● An *Integer* parameter value is less than or greater than allowed values. ● A *Double* parameter value is less than or greater than allowed values. Example *maxcount=0* *v=textnotallowed*
Required parameter '{parameter_name}' is missing.	A value was not provided for a required parameter. The value was empty. Example *input=*

Unexpected Errors

There may be scenarios where the API encounters errors that are unexpected. In these situations, the service will fail gracefully, and you should still expect to receive a response. The *errors* array will contain a message detailing the unexpected exception.

Additionally, the response for Unexpected Errors is slightly different. You should still expect that the recommended domains array will be empty. However, the JSON object may contain an *output* field, containing the child fields domains, info, and geo.

4.1.4 Output

Data Type: object

The *output* object contains all data belonging to the list of recommended domains for a query. It consists of a parent *domains* array, which lists each recommended domain in order from highest rank to lowest rank. The sections below detail each of the data fields associated with a domain. You may also wish to reference the Domain Engine User Guide, which contains additional information about each field.

There are two very important notes to be aware of:

1. The recommended *domains* array of the *output* object could potentially be empty, and this should be handled appropriately by the calling system. An empty array means that either Domain Engine could find no available domains to recommend, or Domain Engine experienced an unexpected error (see Unexpected Errors).
2. The *output* object could potentially not be included in the Domain Engine response. If the *output* object is not included, then this means that the system experienced an expected error, and the *errors* array will contain one or more objects detailing the problem.

Domains

Data Type: array of objects

The *domains* array contains an array of recommended domain objects. The table below details the fields that exist at the root level of each *domain* object.

Field	Description	Definition
rank	The position of the recommended domain in the domains array. The highest ranked domain will always start with a value of 1.	<u>Type</u> *Integer* <u>Parent Object</u> *domains* <u>Values</u> *A number value greater than or equal to 1.* <u>Example</u> *14*
domain	The name of the recommended domain. <u>Additional Details</u> The first letter of the SLD of a domain is always capitalized. This is a recognized bug. It will be changed to lowercase in a future version.	<u>Type</u> *String* <u>Parent Object</u> *domains* <u>Values</u> *Format: {sld}.{tld}* <u>Example</u> *Mydomain.cool*

exact	Flag that determines whether or not the recommended domain is an exact match of the query *input* value.
	
	<u>Additional Details</u>
	Domain Engine considers a domain to be an exact match in the following cases:
	    1) {sld}.{tld} matches *input* value {sld}.{tld}
	    2) {sld}.{tld} matches *input* value {tld}.{sld}
	    3) {tld}.{sld} matches *input* value {tld}.{sld}
	    4) {tld}.{sld} matches *input* value {sld}.{tld}
	
	Additionally, singular and plural forms of the *input* value can both result in an exact match. Example:
	    best.code => {best.codes, code.best}
		<u>Type</u>
		Integer (Boolean)
		
		<u>Parent Object</u>
		domains
		
		<u>Values</u>
		0: False
		1: True
		
		<u>Example</u>
		0

registered	Flag that determines whether or not the recommended domain is currently registered. <u>Additional Details</u> This flag will only be true if the query parameter *allowRegistered* has a value of 1.	<u>Type</u> *Integer (Boolean)* <u>Parent Object</u> *domains* <u>Values</u> *0: False* *1: True* <u>Example</u> *0*

premium	Flag that determines whether or not the recommended domain is a premium domain.	**Type** *Integer (Boolean)* **Parent Object** *domains* **Values** *0: False* *1: True* **Example** *0*
premium	Flag that determines whether or not the recommended domain is a platinum domain.	**Type** *Integer (Boolean)* **Parent Object** *domains* **Values** *0: False* *1: True* **Example** *0*
adult	Flag that determines whether or not the recommended domain contains adult words.	**Type** *Integer (Boolean)* **Parent Object** *domains* **Values** *0: False* *1: True* **Example** *0*
sldValue	The calculated value that Domain Engine has given to the SLD of the recommended domain.	**Type** *Double* **Parent Object** *domains* **Values** *Non-negative double containing up to two decimal places. (0.00 to 1)* **Example** *0.84*
tldValue	The calculated value that Domain Engine has given to the TLD of the recommended domain.	**Type** *Double* **Parent Object** *domains*

		Values *Non-negative double containing up to two decimal places. (0.00 to 1)* **Example** *0.2*
price	Deprecated field. The value for this field will either equal 0 or null.	**Type** *Integer* **Parent Object** *domains* **Values** *0, null* **Example** *0*
renewal	Deprecated field. The value for this field will either equal 0 or null.	**Type** *Integer* **Parent Object** *domains* **Values** *0, null* **Example** *null*
sld	A parent object that contains data fields specific to the SLD of the recommended domain.	**Type** *Object* **Parent Object** *domains*
tld	A parent object that contains data fields specific to the TLD of the recommended domain.	**Type** *Object* **Parent Object** *domains*
score	The calculated value that Domain Engine has given to the recommended domain.	**Type** *Double* **Parent Object** *domains* **Values** *Non-negative double containing up to two decimal places. (0.00 to 1)* **Example** *0.84*

SLD

Data Type: object

The *sld* object consists of data fields specific to the SLD of the recommended domain. The table below details these fields.

Field	Description	Metadata
name	The name of the SLD of the recommended domain. Additional Details The first letter of the SLD name is always capitalized. This is a recognized bug. It will be changed to lowercase in a future version.	Type *String* Parent Object *sld* Values *A valid SLD label. See RFC 1035.* Example *Mydomain*
value	The calculated value that Domain Engine has given to the SLD of the recommended domain.	Type *Double* Parent Object *sld* Values *Non-negative double containing up to four decimal places. (0.0000 to 1)* Example *0.1286*
adult	Flag that determines whether or not the SLD of the recommended domain contains adult words.	Type *Integer (Boolean)* Parent Object *sld* Values *0: False* *1: True* Example *0*
offensive	Flag that determines whether or not the SLD of the recommended domain contains offensive words.	Type *Integer (Boolean)* Parent Object *sld*

		Values *0: False* *1: True* Example *0*

TLD

Data Type: object

The *tld* object consists of data fields specific to the TLD of the recommended domain. The table below details these fields.

Field	Description	Metadata
name	The name of the TLD of the recommended domain.	Type *String* Parent Object *tld* Values *A valid TLD label.* Example *com*
value	The calculated value that Domain Engine has given to the TLD of the recommended domain.	Type *Double* Parent Object *tld* Values *Non-negative double containing up to four decimal places. (0.0000 to 1)* Example *1*
phase	Deprecated field. The value for this field will always equal "GA".	Type *String* Parent Object *tld* Values *N/A* Example *"GA"*
lucene	Flag that determines whether or not the TLD was recommended because it was matched using	Type *Integer (Boolean)*

	historical frequency indexing. **Additional Details** Domain Engine uses signals from historical domain data in order to make the most relevant recommendations. If Domain Engine matches a TLD for the query *input* based on these signals, then *lucene* will have a value of 1.	**Parent Object** *tld* **Values** *0: False* *1: True* **Example** *1*
manual	Flag that determines whether or not the TLD was recommended because it was manually influenced by customer action. **Additional Details** A TLD will have *manual* value of 1 if it was recommended using one or more of the following query parameters: • onlyTLDs • forceTLDs • addTLDs	**Type** *Integer (Boolean)* **Parent Object** *tld* **Values** *0: False* *1: True* **Example** *1*
category	Flag that determines whether or not the TLD was recommended because it was matched from a keyword category. **Additional Details** Domain Engine maintains a database of keywords that intelligently maps to Domain Engine TLDs. If the query *input* contains a keyword that exists in this database, and if the TLD is recommended as a result, then *category* will have a value of 1.	**Type** *Integer (Boolean)* **Parent Object** *tld* **Values** *0: False* *1: True* **Example** *1*
geo	Flag that determines whether or not the TLD was recommended because it was a match for geotargeting. **Additional Details** Domain Engine may suggest TLDs that match the geographic location of the user performing the search. If the TLD is geographically mapped to the user's location, then *geo* will have a value of 1.	**Type** *Integer (Boolean)* **Parent Object** *tld* **Values** *0: False* *1: True* **Example** *1*
graph	Flag that determines whether or not the TLD was recommended because it was a match for contextual TLD mapping. **Additional Details** Domain Engine maintains a database of TLDs which are linked together under related contexts. For example, a	**Type** *Integer (Boolean)* **Parent Object** *tld* **Values**

	group of TLDs might be related to law or travel. If the query *input* provides a TLD, and the recommended domain contains a contextually linked TLD, then *graph* will have a value of 1.	0: False 1: True Example 1
hints	Flag that determines whether or not the TLD was recommended because it was associated with a configured Hint. Additional Details Hints are configured by customers in the Domain Engine Customer Portal. If the TLD was recommended because it was associated with a query hint value, then *hints* will have a value of 1.	Type *Integer (Boolean)* Parent Object *tld* Values *0: False* *1: True* Example *0*
generic	Flag that determines whether or not the TLD was recommended because the query *input* was considered generic. Additional Details Domain Engine attempts to intelligently map query *input* with relevant TLDs. In the case where no mapping is found, then the input is considered generic. If a TLD is recommended because the query *input* was generic, then *generic* will have a value of 1.	Type *Integer (Boolean)* Parent Object *tld* Values *0: False* *1: True* Example *0*

Info

Data Type: object

The *output* object of an Domain Engine response returns data fields about the provided *input* value itself. Specifically, these fields are calculated values determined by Domain Engine processing logic. The data is outputted for customer tracking only, and, as a result, is contained in an object called *info*. The following fields are provided in the *info* object.

Field	Description	Metadata
input	The query *input* value provided by the user. This is the search string from which recommended domains will be generated.	Type *String* Parent Object *info* Values *A valid input label* Example *mycooldomain*

keywords	The keywords parsed from the query *input* value. Each keyword is separated by a space (" ") within the string. Additional Details Domain Engine utilizes an extensive language dictionary to separate an *input* value into logical keywords. The system then uses these keywords to generate relevant domain recommendations.	Type *String* Parent Object *info* Values *A string of space-separated substrings.* Example *"my cool domain"*
generic	Flag that determines whether or not the query *input* was considered generic. Additional Details Domain Engine attempts to intelligently map the query *input* with relevant TLDs. In the case where no mapping is found, then the input is considered *generic*, and the field will have a value of 1.	Type *Integer (Boolean)* Parent Object *info* Values *0: False* *1: True* Example *0*
adult	Flag that determines whether or not the query *input* contains adult words. Additional Details Domain Engine maintains a database of words considered "adult". If a query *input* contains an adult word, then *adult* will have a value of 1.	Type *Integer (Boolean)* Parent Object *info* Values *0: False* *1: True* Example *0*
offensive	Flag that determines whether or not the query *input* contains offensive words. Additional Details Domain Engine maintains a database of words considered "offensive". If a query *input* contains an offensive word, then *offensive* will have a value of 1.	Type *Integer (Boolean)* Parent Object *info* Values *0: False* *1: True* Example *0*
tags	The tags object is deprecated. Tags will be removed in a future release.	Type *Object* Parent Object *info*

Geo

Data Type: object

The *output* object of an Domain Engine response returns data fields containing geotargeting information. These fields are determined internally by Domain Engine processing logic. The data is provided to customers for tracking purposes only, and it is contained in an object called *geo*. These fields will only be populated if the search query contains a valid IP Address value for the *clientIP* parameter. If *clientIP* is not provided, then the field data will be empty or null.

The following fields are provided in the *geo* object.

Field	Description	Metadata
clientIp	The *clientIP* value provided in the query. Additional Details If the *clientIP* parameter is not included in the query, or if the value of the parameter is empty, then the value of the *clientIp* will be null.	Type *String* Parent Object *geo* Values *A valid IP Address. (If no IP Address was passed, then the value is null.)* Example *69.64.144.72*
country	The country code location of the query *clientIp.* Additional Details This value is logically determined by Domain Engine. Domain Engine will always return a two-letter ISO 3166-1 alpha-2 country code instead of the full country name. If Domain Engine cannot determine a valid country, then the value of *country* will be an empty string ("").	Type *String* Parent Object *geo* Values *An ISO 3166-1 alpha-2 country code. (If no country code can be determined, then the value is empty.)* Example *US*
region	The region code location of the query *clientIp*, contained within provided country. Additional Details This value is logically determined by Domain Engine. Domain Engine will always return a ISO 3166-1 alpha-2 region code. This value may consist of letters or numbers, but it will always be a *String* data type.	Type *String* Parent Object *geo* Values *An ISO 3166-1 alpha-2 region code. (If no region code can be determined, then the value is empty.)*

	If *region* has a value, then *country* must also have a value If Domain Engine cannot determine a valid region, then the value of *region* will be an empty string ("").	Example *WA* *11*
city	The name of the city mapped to the *clientIp*. Additional Details This value is logically determined by Domain Engine. If Domain Engine cannot determine a valid city, then the value of *city* will be an empty string ("").	Type *String* Parent Object *geo* Values *A city name.* *(If no city can be determined, then the value is empty.)* Example *Seattle*

4.2 Response Samples

This section provides examples of full Domain Engine responses for the *Recommend Domains* API command, including both successful API outputs and search requests that have output errors. Domain Engine allows you to return different versions and verbosities, depending on your needs. Below, you will find examples of outputs for all supported versions. Each version will be displayed at the highest verbosity level, allowing you to visualize all potential data that can be returned. However, we recommend using the verbosity level that best fits your needs. Version and verbosity are described in more detail in the [Request Parameters](#) section.

4.2.1 Version 1 (High Verbosity)

```
{
  "info":{
    "serviceName":"Hummingbird",
    "version":"1.46.0.851",
    "instanceName":"1-hummingbird-1",
    "command":"recommend-domains",
    "elapsedMS":17
  },
  "input":{
    "account":"domains4all",
    "usageid":"",
    "clientip":"161.149.146.201",
    "input":"searchdomains",
    "maxcount":"3",
    "minphase":"4",
    "addtlds":null,
    "removetlds":null,
    "onlytlds":null,
    "forcetlds":null,
    "usecategories":"1",
    "usegeoboosts":"1",
```

```
      "usedirectedgraph":"1",
      "allowadult":"1",
      "allowoffensive":"1",
      "allowregistered":"0",
      "allowpremium":"2",
      "allowplatinum":"2",
      "allowexactsld":"1",
      "exactsldonly":"0",
      "expandslds":"1",
      "maxprice":"0",
      "exactsldmultiplier":"3.5",
      "enhancedavailability":"0",
      "hints":"",
      "verbose":"2",
      "version":"1",
      "clientcc":"",
      "clientlocale":""
   },
   "output":{
      "person-name":0,
      "domains":{
        "count":3,
        "domains":[
           {
              "rank":1,
              "domain":"SearchDomains.forsale",
              "sld":{
                 "name":"SearchDomains",
                 "value":1,
                 "adult":0,
                 "split":"search,domains"
              },
              "tld":{
                 "name":"forsale",
                 "value":1,
                 "phase":"GA",
                 "luceneSuggestion":1,
                 "manualSuggestion":0,
                 "categorySuggestion":1
              },
              "exact":0,
              "registered":0,
              "premium":0,
              "adult":0,
              "registry":null,
              "registryOperator":null,
              "platinum":0,
              "price":0,
              "renewal":0,
              "sldValue":1,
              "tldValue":1,
              "score":1
           },
           {
              "rank":2,
              "domain":"SearchDomains.host",
              "sld":{
                 "name":"SearchDomains",
                 "value":1,
                 "adult":0,
                 "split":"search,domains"
              },
              "tld":{
                 "name":"host",
```

```
                "value":0.8638,
                "phase":"GA",
                "luceneSuggestion":1,
                "manualSuggestion":0,
                "categorySuggestion":1
            },
            "exact":0,
            "registered":0,
            "premium":0,
            "adult":0,
            "registry":null,
            "registryOperator":null,
            "platinum":0,
            "price":0,
            "renewal":0,
            "sldValue":1,
            "tldValue":0.86,
            "score":0.86
        },
        {
            "rank":3,
            "domain":"SearchDomains.directory",
            "sld":{
                "name":"SearchDomains",
                "value":1,
                "adult":0,
                "split":"search,domains"
            },
            "tld":{
                "name":"directory",
                "value":0.7144,
                "phase":"GA",
                "luceneSuggestion":1,
                "manualSuggestion":0,
                "categorySuggestion":0
            },
            "exact":0,
            "registered":0,
            "premium":0,
            "adult":0,
            "registry":null,
            "registryOperator":null,
            "platinum":0,
            "price":0,
            "renewal":0,
            "sldValue":1,
            "tldValue":0.71,
            "score":0.71
        }
    ]
  }
},
"errors":[
]
}
```

4.2.2 Version 2 (High Verbosity)

```
{
  "service":{
    "name":"Hummingbird",
    "version":"1.46.0.851",
    "instance":"1-hummingbird-2",
    "command":"recommend-domains",
    "elapsed":10
  },
  "input":{
    "account":"domains4all",
    "usageid":"",
    "clientip":"161.149.146.201",
    "input":"searchdomains",
    "maxcount":"3",
    "allowregistered":"0",
    "allowpremium":"2",
    "allowplatinum":"2",
    "clientcc":"",
    "clientlocale":""
  },
  "errors":[

  ],
  "output":{
    "domains":[
      {
        "rank":1,
        "domain":"SearchDomains.forsale",
        "sld":{
          "name":"SearchDomains",
          "value":1,
          "adult":0,
          "offensive":0
        },
        "tld":{
          "name":"forsale",
          "value":1,
          "phase":"GA",
          "lucene":1,
          "manual":0,
          "category":1,
          "geo":0,
          "graph":0
        },
        "exact":0,
        "registered":0,
        "premium":0,
        "adult":0,
        "platinum":0,
        "price":0,
        "renewal":0,
        "sld-value":1,
        "tld-value":1,
        "score":1
      },
      {
        "rank":2,
        "domain":"SearchDomains.host",
        "sld":{
          "name":"SearchDomains",
          "value":1,
```

```
      "adult":0,
      "offensive":0
    },
    "tld":{
      "name":"host",
      "value":0.8638,
      "phase":"GA",
      "lucene":1,
      "manual":0,
      "category":1,
      "geo":0,
      "graph":0
    },
    "exact":0,
    "registered":0,
    "premium":0,
    "adult":0,
    "platinum":0,
    "price":0,
    "renewal":0,
    "sld-value":1,
    "tld-value":0.86,
    "score":0.86
  },
  {
    "rank":3,
    "domain":"SearchDomains.directory",
    "sld":{
      "name":"SearchDomains",
      "value":1,
      "adult":0,
      "offensive":0
    },
    "tld":{
      "name":"directory",
      "value":0.7144,
      "phase":"GA",
      "lucene":1,
      "manual":0,
      "category":0,
      "geo":0,
      "graph":0
    },
    "exact":0,
    "registered":0,
    "premium":0,
    "adult":0,
    "platinum":0,
    "price":0,
    "renewal":0,
    "sld-value":1,
    "tld-value":0.71,
    "score":0.71
  }
],
"info":{
  "input":"searchdomains",
  "keywords":"search domains",
  "generic":0,
  "adult":0,
  "offensive":0,
  "tags":{
    "contains":[
      "unclassified"
```

```
            ],
            "only":[
              "unclassified"
            ],
            "words":{
              "searchdomains":[
                "unclassified"
              ]
            }
          }
        },
      "geo":{
        "client-ip":"161.149.146.201",
        "country":"US",
        "region":"CA",
        "city":"Los Angeles"
      }
    }
  }
}
```

4.2.3 Version 3 (High Verbosity)

```
{
  "service":{
    "name":"Hummingbird",
    "version":"1.46.0.851",
    "instance":"1-hummingbird-1",
    "command":"recommend-domains",
    "elapsed":10
  },
  "input":{
    "account":"domains4all",
    "usageid":"",
    "clientip":"161.149.146.201",
    "input":"searchdomains",
    "maxcount":"3",
    "allowregistered":"0",
    "allowpremium":"2",
    "allowplatinum":"2",
    "clientcc":"",
    "clientlocale":""
  },
  "errors":[

  ],
  "output":{
    "domains":[
      {
        "rank":1,
        "domain":"SearchDomains.forsale",
        "sld":{
          "name":"SearchDomains",
          "value":1,
          "adult":0,
          "offensive":0
        },
        "tld":{
          "name":"forsale",
          "value":1,
          "phase":"GA",
          "lucene":1,
          "manual":0,
          "category":1,
          "geo":0,
          "graph":0,
          "hints":0,
          "generic":0
        },
        "exact":0,
        "registered":0,
        "premium":0,
        "adult":0,
        "platinum":0,
        "price":0,
        "renewal":0,
        "sldValue":1,
        "tldValue":1,
        "score":1
      },
      {
        "rank":2,
        "domain":"SearchDomains.host",
        "sld":{
```

```
        "name":"SearchDomains",
        "value":1,
        "adult":0,
        "offensive":0
      },
      "tld":{
        "name":"host",
        "value":0.8638,
        "phase":"GA",
        "lucene":1,
        "manual":0,
        "category":1,
        "geo":0,
        "graph":0,
        "hints":0,
        "generic":0
      },
      "exact":0,
      "registered":0,
      "premium":0,
      "adult":0,
      "platinum":0,
      "price":0,
      "renewal":0,
      "sldValue":1,
      "tldValue":0.86,
      "score":0.86
    },
    {
      "rank":3,
      "domain":"SearchDomains.directory",
      "sld":{
        "name":"SearchDomains",
        "value":1,
        "adult":0,
        "offensive":0
      },
      "tld":{
        "name":"directory",
        "value":0.7144,
        "phase":"GA",
        "lucene":1,
        "manual":0,
        "category":0,
        "geo":0,
        "graph":0,
        "hints":0,
        "generic":0
      },
      "exact":0,
      "registered":0,
      "premium":0,
      "adult":0,
      "platinum":0,
      "price":0,
      "renewal":0,
      "sldValue":1,
      "tldValue":0.71,
      "score":0.71
    }
  ],
  "info":{
    "input":"searchdomains",
    "keywords":"search domains",
```

```
        "generic":0,
        "adult":0,
        "offensive":0,
        "tags":{
          "contains":[
            "unclassified"
          ],
          "only":[
            "unclassified"
          ],
          "words":{
            "searchdomains":[
              "unclassified"
            ]
          }
        }
      },
      "geo":{
        "clientIp":"161.149.146.201",
        "country":"US",
        "region":"CA",
        "city":"Los Angeles"
      }
    }
  }
```

4.2.4 Error (Invalid Password)

```
{
  "service":{
    "name":"Hummingbird",
    "version":"1.46.0.851",
    "instance":"1-hummingbird-1",
    "command":"recommend-domains",
    "elapsed":0
  },
  "input":{
    "account":"domains4all",
    "usageid":"",
    "clientip":"",
    "input":"searchdomains",
    "maxcount":"3",
    "allowregistered":"0",
    "allowpremium":"2",
    "allowplatinum":"2",
    "clientcc":"",
    "clientlocale":""
  },
  "errors":[
    {
      "type":"System.Exception",
      "message":"Invalid account or token key"
    },
    {
      "type":"System.Exception",
      "message":"Aborting command due to invalid user input."
    }
  ]
}
```

4.2.5 Error (Value Out of Range)

```json
{
  "service":{
    "name":"Hummingbird",
    "version":"1.46.0.851",
    "instance":"1-hummingbird-2",
    "command":"recommend-domains",
    "elapsed":0
  },
  "input":{
    "account":"domains4all",
    "usageid":"",
    "clientip":"",
    "input":"searchdomains",
    "allowregistered":"0",
    "allowpremium":"2",
    "allowplatinum":"2",
    "clientcc":"",
    "clientlocale":""
  },
  "errors":[
    {
      "type":"System.Exception",
      "message":"Parameter 'maxcount' outside of allowed range."
    },
    {
      "type":"System.Exception",
      "message":"Aborting command due to invalid user input."
    }
  ]
}
```