GEOnet Names Server (GNS) How To
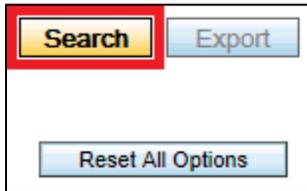
Compose a Query and Export Data

To access the GNS query and export functions, visit GNS at http://geonames.nga.mil/gns/html/ and select the **GNS Search - Text Based Page** option (http://geonames.nga.mil/namesgaz/). The query page defaults to search, indicated by an active search button having a yellowish background tint and bold text.

Active search button.

Compose a Query - display results to the screen:

There are many ways to compose a GNS query, from the simple to the complex. The simplest query is for a name[1] against the entire content of the database. Search qualifiers include **Starts With**, **Exact Match**, **Contains**, and **Ends With**. Multiple name input is possible by selecting the **Multiple Name Search** radio button below the country name list box. Up to 500 lines of individual names (one name per line) can be included for search types Starts With, Exact Match, and Ends With, and up to 100 lines of individual names (one name per line) can be included for search type Contains. The query is executed by clicking on any of the **Search Database** buttons scattered over the page.

Select Multiple Name Search and the Name input widget expands to show the ability to accommodate more than one name.

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[1] The use of the term **name** is synonymous with the term **feature name**.

The database stores feature names in both **Reading Order**[2] (**Mount Everest**) and **Reversed Generic**[3] (**Everest, Mount**) fields encoded in Unicode UTF-8. The database also converts and stores these feature names in fields called **SORT_NAME_RO** for reading order and **SORT_NAME_RG** for reversed generic.

A sort name is a form of the full name that allows for alphabetical sorting of the data into gazetteer sequence. For Roman script names, all character/diacritic combinations and special characters are substituted with QWERTY (visible U.S. English keyboard) characters, all characters are upper-cased, numerals are converted to lower-case characters (0-9 = a-j), spaces and hyphens are stripped out, and finally commas replaced with a space. Additionally, for non-roman script names in languages using Arabic based letters, vowel markings/pointers are removed.

The search function converts user input to sort name and looks at matching the search string against both sort name fields.

Wild card searches are possible by using percent (**%**), which stands for zero (0) or more characters, or underline (**_**), which stands for a single character. All search qualifiers by default employ a percent (**%**) wild card with the exception of Exact Match:

Starts With: Search String**%**

Exact Match: Search String

Contains: **%**Search String**%**

Ends With: **%**Search String

An option is provided to view the composed query prior to executing it by selecting **Show Me My Query**, located below the **Search** and **Export** buttons under **Tools/Misc**. Once selected, and besides showing the query parameters, it provides an option to cancel out of the query so its parameters can be further fine-tuned.

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[2] Reading Order names are useful for, to name a few examples, maps, graphics, papers, publications, databases, and mobile application.

[3] Reversed Generic names are useful for, to name a few examples, gazetteers and databases.
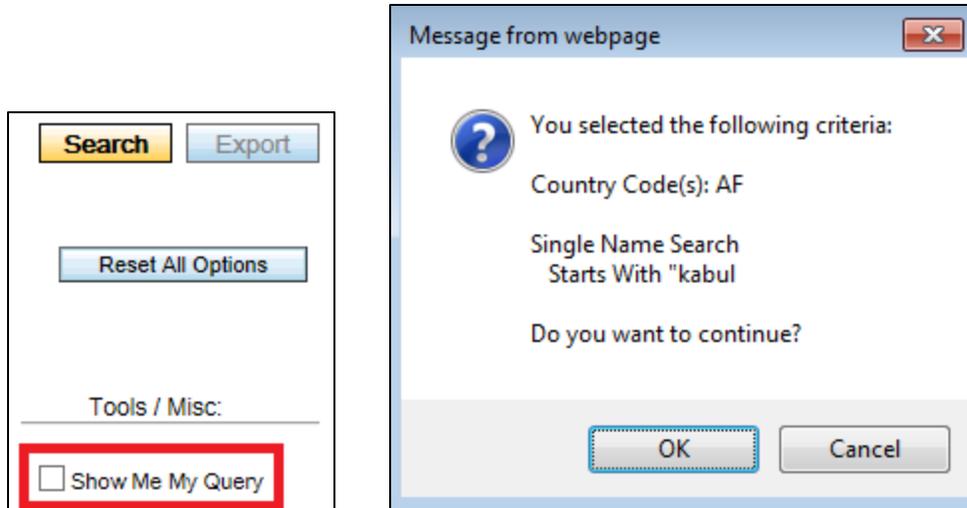
Show Me My Query selection box and resulting dialogue box when a query is executed.

There is a master reset button for the entire page which sets all selections back to default values; the **Reset All Options** button located under the **Search** and **Export** buttons. There are section reset buttons, normally located to the right of each section, which can be used to reset each individual section to its default values.
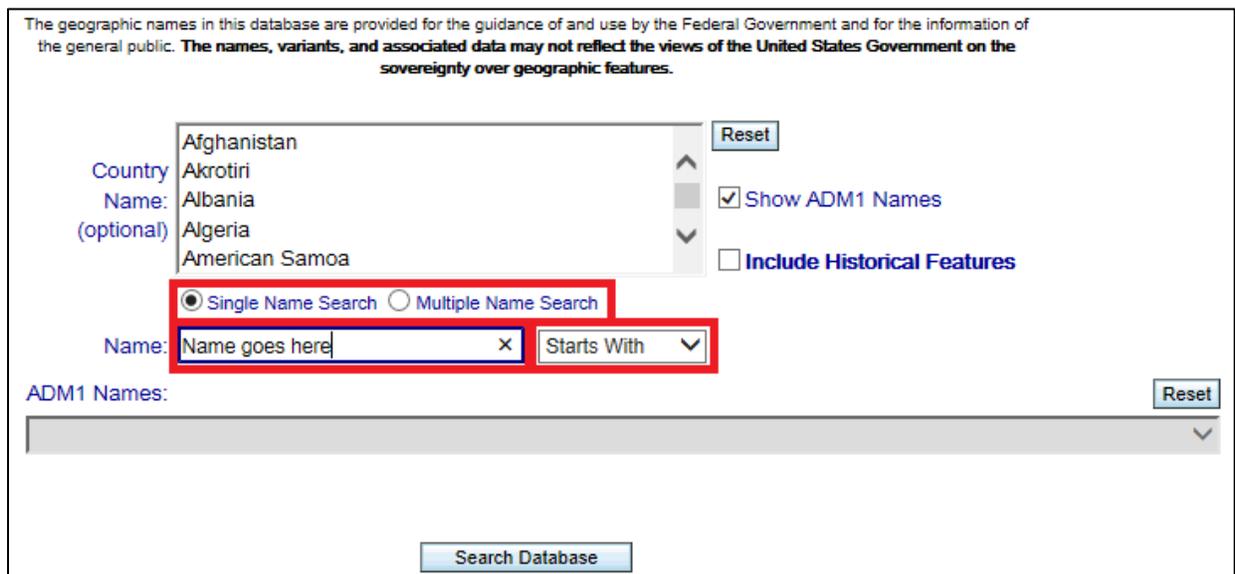
Initial GNS query page where user can select single or multiple names to search for and the type of string matching - defaults to Starts With.

Complexity can be add to a query by including a country[4] - which activates the first-order administrative division list (ADM1 Names), name type, a particular scale range, feature designation (feature type), and/or a spatial extent using either a bounding box or a radius, to name a few. The more elements selected the more complex the query; the more complex the query, the longer it will take to execute but will produce a narrower set of returned data.

If searching against multiple countries, it might be wise to uncheck the Show **ADM1 Names** box to improve speed of selection.

A Historical Feature[5] is defined as a "**feature known to no longer exist, or evidence of the feature can no longer be found**." These features are not included in any GNS search or export results by default. If exposing such features is desired, activate the **Include Historical Features** selection box. When this selection is made, two more fields will be exposed in the search results window; **Effective** and **Termination Date**s. The presence of a date in the Termination Date field indicates a historical feature.

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[4] FIPS PUB 10-4 was withdrawn by the National Institute of Standards and Technology on September 2, 2008 based on Public Law 104-113 (codified OMB Circular A-119 and the National Technology Transfer and Advancement Act of 1995). The National Geospatial-Intelligence Agency (NGA), as the maintenance agency for FIPS PUB 10-4, has continued to maintain and provide regular updates to its content in a document known as Geopolitical Entities and Codes (GEC) (Formerly FIPS PUB 10-4).

The Geopolitical Entities, Names, and Codes (GENC) Standard, the US Government profile of ISO 3166, has subsequently been designated as the replacement standard for FIPS PUB 10-4. The GENC Standard will provide a list of the basic geopolitical entities in the world, together with the principal divisions that comprise each entity. The names of the political entities are derived from official meeting records of the Foreign Names Committee of the US Board on Geographic Names (US BGN). GENC Edition 1 was published on 27 November 2012 and only includes codes at the country level. GENC Edition 2 was published on 31 March 2014. The GENC Standard may be found online at: https://nsgreg.nga.mil/. The GENC content may be found in the GENC Registry online at: https://nsgreg.nga.mil/genc/discovery.

NGA has discontinued maintenance of Geopolitical Entities and Codes (Formerly FIPS PUB 10-4) as of 31 December 2014. Updates to the GEC content will no longer be posted. The GNS will internally continue to use GEC-like codes for the near future. Once implementation of GENC codes begins, there will likely be a transition period during which both GEC-like (FIPS 10-4) and GENC codes are available to the GNS user.

In this context, the use of **country** is synonymous with **geopolitical entity**.

[5] In the NGA/BGN Geographic Names Database, a historical feature is a feature known to no longer exist, or evidence of the feature can no longer be found.

A termination date field is employed in the Geographic Names Database to identify historical features. This field is exposed on GNS when the **Include Historical Features** option is selected. The presence of a date in this field indicates a historical feature.

This policy applies only to the NGA/BGN Geographic Names Database of foreign place-name information.

Show ADM1 Names is selected by default where Include Historical Features is not.

Effective Date and Termination Date fields are shown in the query results when Include Historical Features is selected.

Selecting a country activates the first-order administrative division list (ADM1 Names). Select more than one country and/or more than one ADM1 Name using the Ctrl key and the left mouse button.

Custom Search Criteria

Return Selected Name Type(s):

Reset

| Conventional |
| Approved |
| Unverified |
| Provisional |
| Variant |

Approved Names

Select All

Unselect All

⦿ *Match Any of the Selected Name Types* ○ *Exactly Match the Combination of Selected Name Types*

Sort Order: ⦿ Unique Feature Id ○ Coordinate ○ Feature Designation

Search Database

All Name Type(s) are selected by default. Select one using the left mouse button, or select any combination using the CTRL key and the left mouse button, or use the provided selection buttons.

Advanced Search

Unique Feature Id: [   ]

Modified On or After: [   ] (YYYY-MM-DD)

Map Scale Range:
| All Scales |
| 25,999 or Larger Scale |
| 26,000 - 67,999 |
| 68,000 - 150,999 |

JOG Reference: [   ]

MGRS Coordinate: [   ]

Language Code: [   ]

Name Rank: [   ]

Reset

Search Database

Limit the query by modify date, scale range, etc.

⊟ Feature Designations

Populated Places   Reset

PPL,populated place
PPLA,seat of a first-order administrative division
PPLA2,seat of a second-order administrative division
PPLA3,seat of a third-order administrative division
PPLA4,seat of a fourth-order administrative division

☐ Select All   Search Database   ☐ Exclude All

Administrative Regions   Reset

ADM1,first-order administrative division
ADM1H,historical first-order administrative division
ADM2,second-order administrative division
ADM2H,historical second-order administrative division
ADM3,third-order administrative division

☐ Select All   Search Database   ☐ Exclude All

Areas/Localities   Reset

AGRC,agricultural colony
AREA,area

Limit the query by feature designation (feature type). Selecting none returns all; selecting one or more excludes non-selected.

Limit the query using a bounding box.

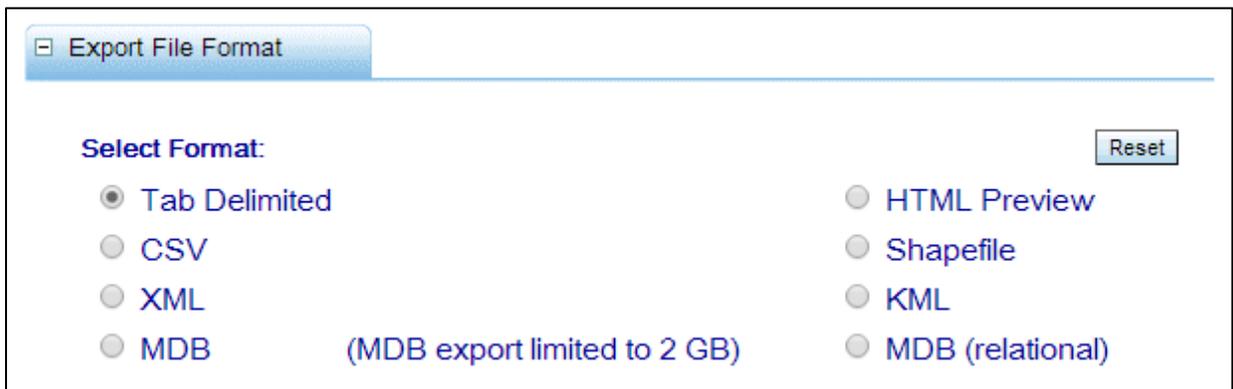*Or limit the query using a radius.*

Compose a Query - export results to a file:

To export a query, activate the export function by selecting the **Export** button. An active export button will have a yellowish tint and bold text, and will present a few more options:

- Export data in **Reading Order** (**default**)
- Export data in **Reverse Generic**
- **Export File Format** tab
- **Export Fields** tab
- **Export File Names**

Export function active.

Export File Format selection tab.

Export Fields selection tab. If the Effective & Termination Date option is selected, then historical features will be included.

After activating the **Export** button, follow the same process for composing a query, make a selection for the output file as reading order or reversed generic, and finally select the file format and desired fields.

Once a name is provided for the query in the **Export File Name** dialogue box (*file name cannot contain spaces or special characters; **a-z, A-Z,** and **0-9** combinations are valid for the file name*), submit the query using any of the **Search Database** buttons scattered throughout the page. A progress dialogue box pops up showing current activity and will provide a download link to the file when the process completes - **Click to download**.

Export File Names dialog box.

Your file is ready for download. Click on the link to download the file.

✓

[Click to download]

This window will auto close in 8 seconds after you click on the download option.
Larger files will take a few minutes to start the download.
This window will close but the download will still take place. Please be patient.

If you do not want to wait for the timer to complete, you can close this window and check back later using the **Download File** option (left pane under Tools/Misc). You need this file name: **MyExport.zip**

Dialogue box indicating that the export file is ready for download.

Example Scenarios

Can be queried or exported

Find this named feature - name *Starts With* Kabul; other name search operators include *Exact Match*, *Contains*, and *Ends With*.

Find all these named features - name *Starts With* Kabul or name *Starts With* Kandahar.

The geographic names in this database are provided for the guidance of and use by the Federal Government and for the information of the general public. **The names, variants, and associated data may not reflect the views of the United States Government on the sovereignty over geographic features.**

Country Name: (optional)
- Afghanistan
- Akrotiri
- Albania
- Algeria
- American Samoa

Reset

☑ Show ADM1 Names

☐ Include Historical Features

● Single Name Search ○ Multiple Name Search

Name: kabul   Starts With ▾

ADM1 Names: Reset

AF00 Afghanistan (general)
AF01 Badakhshān
AF02 Bādghīs
AF03 Baghlān

Find this named feature in this country or list of countries - name *Starts with* Kabul in Afghanistan.

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Country Name: (optional)
- Iran
- Iraq
- Ireland
- Isle of Man
- Israel

Reset

☑ Show ADM1 Names

☐ Include Historical Features

● Single Name Search ○ Multiple Name Search

Name: kabul   Starts With ▾

ADM1 Names: Reset

-------- (AF) --------
AF00 Afghanistan (general)
AF01 Badakhshān
AF02 Bādghīs

Search Database

⊟ Feature Designations *

Populated Places   Reset

PPL,populated place
PPLA,seat of a first-order administrative division
PPLA2,seat of a second-order administrative division
PPLA3,seat of a third-order administrative division
PPLA4,seat of a fourth-order administrative division

Find this named feature in this country or list of countries having this feature type - name *Starts With* Kabul in Afghanistan or Iran having a feature type of populated place (PPL).

When multiple countries are selected, the **ADM1 Names** listing starts with each selected country's name, alphabetically, surrounded by dashes.

Find all named features that fall within this bounding box.

Find all named feature that fall within this radius from this center point coordinate.

Find all instances of this named feature within this radius from this other named feature - all instances of a name that *Starts With* Kandahar (**Secondary Name**) within a 15KM radius from a name that *Starts With* Kabul (**Primary Name**) - returns limited to 15 features, so there is a possibility the query might need to be restricted further, by introducing a country and/or other parameters, to arrive at that magic number.

Results of such a radial search, **Find all instances of this named feature within this radius from this other named feature**, would display the following types of information:

Primary Name	Country	Latitude/Longitude	Feature Type	Matches

Primary Name: The Primary feature Name used to anchor the search.

Country: The country of the primary feature name - can include multiple countries for shared features.

Latitude/Longitude: Geographic location of feature.

Feature Type: Type of feature located - feature designation code.

Matches: The number of secondary feature names that matched the search criteria - this number is a link that will open another window listing the matched record set when selected.

A zero count (0) under the **Matches** field indicates found matches to the primary feature name string with no matches to the secondary feature name string.

Searching for any feature name that starts with **Umm** (secondary) that falls within a radius of 200KM from a feature name that starts with **Doha** (primary) will yield results similar to the following:

GeoNames Radial Primary Results

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Primary Name	Country	Latitude/Longitude	Feature Type	Matches
Dohat az Zekrit (Variant)	Qatar	25° 30' 03" N 050° 49' 35" E	bay(s)	435

Primary Name	Country	Latitude/Longitude	Feature Type	Matches
Dohat al Usainad (Variant)	Qatar	25° 48' 00" N 050° 58' 00" E	bay(s)	431

Primary Name	Country	Latitude/Longitude	Feature Type	Matches
Dohat as Salwa (Variant)	Bahrain (BA), Qatar (QA), Saudi Arabia (SA)	25° 20' 48" N 050° 38' 40" E	bay(s)	451

Primary Name	Country	Latitude/Longitude	Feature Type	Matches
Dohat al Hussain (Variant)	Qatar	25° 34' 03" N 050° 53' 28" E	bay(s)	434

Primary Name	Country	Latitude/Longitude	Feature Type	Matches
Doḥat Faishshākh (Variant)	Qatar	25° 36' 30" N 050° 57' 54" E	bay(s)	431

Primary Name	Country	Latitude/Longitude	Feature Type	Matches
Doha Harbour (Variant)	Qatar	25° 18' 00" N 051° 32' 00" E	harbor(s)	403

Primary Name	Country	Latitude/Longitude	Feature Type	Matches
Doha (Conventional)	Qatar	25° 17' 12" N 051° 32' 00" E	capital of a political entity	403

Primary Name	Country	Latitude/Longitude	Feature Type	Matches
Doha (Variant)	Qatar	25° 18' 00" N 051° 30' 00" E	first-order administrative division	403

The entry second from the bottom, **Doha** (Conventional, capital of a political entity), indicates 403 matches to the secondary feature name that starts with **UMM**. Clicking on the number under **Matches** will display a list of the matching record set.

GeoNames Radial Secondary Results

Primary Name: Doha

403 Matches

Records 1 through 200

Page 1 ▼   Next ▶▶

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Secondary Name	Country	Latitude/Longitude	Feature Type	Distance (KM)
Umm Kharurah (Approved)	Bahrain	25° 39' 46" N 050° 46' 28" E	island	87
`Ayn Umm Jidr (Approved)	Bahrain	25° 54' 08" N 050° 34' 27" E	water well(s)	118
Umm Yadar (Variant)	Bahrain	25° 54' 08" N 050° 34' 27" E	water well(s)	118
Umm Jidr as Summan (Approved)	Bahrain	25° 53' 34" N 050° 33' 54" E	area	118
Nakhl Umm `Abd Allah (Approved)	Bahrain	26° 09' 00" N 050° 35' 00" E	grove	135
Umm `Abd Allah (Approved)	Bahrain	26° 09' 00" N 050° 35' 00" E	locality	135
Umm Jidr (Approved)	Bahrain	26° 00' 40" N 050° 31' 34" E	populated place	129
Ras Umm al Hassam (Variant)	Bahrain	26° 11' 43" N 050° 35' 35" E	point(s)	138
Ra's Umm al Hassam (Approved)	Bahrain	26° 11' 43" N 050° 35' 35" E	point(s)	138
`Ayn Umm ash Sh`um (Variant)	Bahrain	26° 12' 26" N 050° 35' 34" E	spring(s)	139
		26° 12' 26" N		

Besides displaying the secondary feature name and name type, country, latitude/longitude, and feature type, the secondary feature name record set also includes the **Distance** (strait line) away from the primary feature name for each match, in the units selected - Kilometers (KM) or Miles. This **Distance** value only appears for searches and export to HTML; it's not included in any of the other export formats.