

## Background

In the past, our emphasis has been making our products and services available to users through [The National Map Viewer](#). This viewer integrated both map service visualization, GIS functions and product download capabilities into a single HTML-based web interface.

We are now shifting our focus to provide more robust basic web services that expose the necessary information about our products and services to enable developers to build their own solutions to satisfy a wider range of use cases.

Over this past year we have been building our own download clients around this API to fully exercise and mature the service. Our [Services List](#), [Dataset List](#), [TNM Download Client](#), [Beta Mobile Client](#) and [Beta Basic Viewer](#) leverage the information provided by the [TNMAccess API](#).

The TNMAccess API is accessible from: <http://viewer.nationalmap.gov/tnmaccess/>

The API distinguishes three major entities:

- **Products** - represent the individual pre-staged downloadable products available to users.
- **Datasets** - group products by recognizable themes and collections of data. An single product may be tagged as belonging to one or more Datasets.
- **Services** - represent primarily Web Map Services for visualization and secondarily Data services for direct access to data. Visualization services currently provide Preview and Availability/Index map services. Data services include OGC WFS services for vector datasets and OGC WCS services for only select raster datasets.

## Querying Products

The primary query method used to obtain product results is:

<http://viewer.nationalmap.gov/tnmaccess/api/products?>

With no constraints this query will return over 3 million pre-staged products currently available through The National Map.

The following table summaries the parameters available to limit the results:

Parameter	Values	Description
bbox	minx, miny, maxx, maxy	geographic longitude/latitude values expressed in decimal degrees in a comma-delimited list.
datasets	See: <a href="#">Datasets List</a> or <a href="#">JSON</a>	comma-delimited list of valid dataset tag names (sbDatasetTag)
prodFormats	See: <a href="#">Datasets List</a> or <a href="#">JSON</a>	comma-delimited list of dataset-specific formats
prodExtents	See: <a href="#">Datasets List</a> or <a href="#">JSON</a>	comma-delimited list of dataset-specific extents
q	free text	text input which can be used to filter by product titles and text descriptions.
dateType	dateCreated lastUpdated Publication	type of date to search by.
start	YYYY-MM-DD	start date
end	YYYY-MM-DD	end date (required if start date is provided)
offset	integer	offset into paginated results - default=0
max	integer	number of results returned - limited to 50 per request
outputFormat	JSON CSV	default=JSON
polyType	state huc2 huc4 huc8	Well Known Polygon Type
polyCode	state code or huc number	Well Known Polygon Code
callback		

Product Query Results are returned by default in JSON as an Object containing an Array of product items similar to the following:

```
{
  "total": 3379162,
  "messages": ["Retrieved 50 item(s) (1 through 50)"],
  "errors": [],
  "items": [
    {
      "title": "USGS 1:62500-scale Quadrangle for Mc Cune, KS 1945",
      "sourceId": "52165cdde4b0b45d6ba3787e",
      "sourceName": "ScienceBase",
      "sourceOriginId": "6006746",
      "sourceOriginName": "gda",
      "metaUrl": "https://www.sciencebase.gov/catalog/item/52165cdde4b0b45d6ba3787e",
      "publicationDate": "1945-01-01",
      "lastUpdated": "2014-08-20",
      "dateCreated": "2013-08-22",
      "sizeInBytes": 5826526,
      "extent": "15 x 15 minute",
      "format": "GeoPDF",
      "downloadURL": "http://ims.er.usgs.gov/gda_services/download?item_id=6006746",
    }
  ]
}
```

```

    "previewGraphicURL":
"http://thor-f5.er.usgs.gov/ngtoc/metadata/htmc/thumbnails/KS/62500/KS_Mc%20Cune_511973_1945_6
2500_tn.jpg",
    "datasets": [
        "Historical Topographic Maps 15 x 15 Minute Map Series",
        "Historical Topographic Maps"
    ],
    "boundingBox": {
        "minX": -95.25,
        "maxX": -95,
        "minY": 37.25,
        "maxY": 37.5
    },
    "bestFitIndex": 0,
    "prettyFileSize": "5.56 MB"
},
... repeated for each product item ...
}]

```

## Examples

***Find all the NED 1 arc-second products in ArcGrid format and 1 x 1 extent within a one degree bounding box:***

[http://viewer.nationalmap.gov/tnmaccess/api/products?datasets=National Elevation Dataset \(NED\) 1 arc-second&bbox=-95.37,-94.38&prodFormats=ArcGrid&prodExtents=1 x 1 degree](http://viewer.nationalmap.gov/tnmaccess/api/products?datasets=National Elevation Dataset (NED) 1 arc-second&bbox=-95.37,-94.38&prodFormats=ArcGrid&prodExtents=1 x 1 degree)

***Obtain a CSV output of the previous query:***

[http://viewer.nationalmap.gov/tnmaccess/api/products?datasets=National Elevation Dataset \(NED\) 1 arc-second&bbox=-95.37,-94.38&prodFormats=ArcGrid&prodExtents=1 x 1 degree&outputFormat=CSV](http://viewer.nationalmap.gov/tnmaccess/api/products?datasets=National Elevation Dataset (NED) 1 arc-second&bbox=-95.37,-94.38&prodFormats=ArcGrid&prodExtents=1 x 1 degree&outputFormat=CSV)

***Find all the US Topo Maps Published in August 2015:***

<http://viewer.nationalmap.gov/tnmaccess/api/products?datasets=US+Topo&dateType=Publication&start=2015-08-01&end=2015-08-31>

## Retrieving List of Datasets

Because Datasets represent the primary filter of available products the API exposes a queryable list that can be filtered by text, bbox and dataset code.

The primary query method used to obtain dataset results is:

<http://viewer.nationalmap.gov/tnmaccess/api/datasets?>

Without additional parameters this method returns all the available datasets represented in The

## National Map.

The following table summaries the parameters available to limit the results:

Parameter	Values	Description
bbox	minx, miny, maxx, maxy	geographic longitude/latitude values expressed in decimal degrees in a comma-delimited list.
q	free text	text input which can be used to filter by dataset names and keywords associated with the datasets.
callback		

The Datasets query returns a response similar to the following:

```
[
  {
    "title": "Boundaries - National Boundary Dataset",
    "sbDatasetTag": "National Boundary Dataset (NBD)",
    "id": "4f70b219e4b058caae3f8e19",
    "internalId": "nbd",
    "isData": true,
    "isAvailabilityLayer": false,
    "availabilityLayerUrl": "",
    "description": "Boundaries data or governmental units represent major civil areas including states, counties, Federal, and Native American lands, and incorporated places such as cities and towns. These data are useful for understanding the extent of jurisdictional or administrative areas for a wide range of applications, including managing resources, responding to natural disasters, or recreational activities such as hiking and backpacking.",
    "rank": 3,
    "refreshCycle": "Undetermined",
    "publicationDate": "",
    "metaUrl": "http://nationalmap.gov/boundaries.html",
    "dataGovUrl": "http://catalog.data.gov/dataset/usgs-national-boundary-dataset-nbd-downloadable-data-collectionbcl41",
    "infoUrl": "http://nationalmap.gov/boundaries.html",
    "thumbnailUrl": "",
    "formats": [
      "FileGDB 10.1",
      "FileGDB 9.3.1",
      "Shapefile"
    ],
    "extents": [
      "State"
    ],
    "tags": {},
    "NumOfProducts": 168,
    "AvgSize": 28645584,
    "TotalSize": 4812458156,
    "LastCreatedDate": "Apr 2, 2014",
    "LastPublishedDate": "Apr 1, 2014",
    "LastUpdatedDate": "Apr 2, 2014"
  },
  ... repeated for each dataset ...
]
```

The 'sbDatasetTag' value returned for each dataset may be used to filter the product query. The

'formats' and 'extents' arrays in the response list the valid associated domains for this dataset.