

# Tile API

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## About this API

Tile API and [Coverage API](#) are the first widely available APIs that follow a [new standard for Nearmap APIs](#).

### Should I be using this API?

If you have not used our APIs before then yes, this is the right Tile API for you to use. If you are already using the Nearmap [TMS \(Tile\) API](#), you should consider switching to this version of the API. This version is more feature rich and will allow you to do more with Nearmap content, such as:

- Control over tile upscaling
- Ability to hide low resolution satellite background imagery
- Ability to request JPG or PNG tiles
- Ability to request relative dates (e.g. show imagery that is at least one year old)
- Richer metadata
- Explicit survey tile requests

## Introduction

Nearmap provides access to its Vertical and [Panorama Imagery](#) via a Tile API using [Google Maps Tile Coordinates](#), also known as [Slippy Tilenames](#). They map into a pyramid of 256x256-pixel map tiles at multiple zoom levels. An application typically downloads a collection of adjacent tiles to cover a given region.

Only the Web Mercator projection is supported, as per the de-facto web mapping standard (EPSG:3857; also known as EPSG:3785 and EPSG:900913). Nearmap's [Web Map Service \(WMS\)](#) is recommended for other projections.

There are two ways you can use this API to retrieve tiles:

- [Retrieve tiles](#) for a specified location
- [Retrieve tiles of a specified survey](#) for a specified location

You can use the [Coverage API](#) in conjunction with the Tile API to retrieve coverage (surveys):

- [Retrieve Coverage for a Given Polygon](#)
- [Retrieve Coverage for a Given Point](#)
- [Retrieve Coverage for a Given Tile Coordinate](#)

## Authentication

Access to Nearmap imagery is only available to authenticated subscribers. Tiles may be requested from Nearmap servers with an **API Key**. Please refer to the [API Key Authentication](#) guide for details on how to obtain and use an API Key.

Note: If you have been using the previous version of our [Nearmap Tile API \(TMS\)](#), your existing API key might not work with the new API. If this is the case, please [create a new API key](#) to utilise this API. Note that your existing applications will be affected if you delete and re-create your existing API Key.

## Panorama Imagery

Nearmap Panorama imagery is an orthorectified mosaic of 45 degree imagery from each cardinal direction (North, South, East, West), intended for visualisation use only.

The intended use of the Tile API for Panorama imagery is integration of Panorama imagery in a third-party web application, also for visualisation only.

Because it is created by combining many images, metadata that is normally associated with oblique imagery (such as pose and calibration), is not available. All the metadata available for panorama imagery is described under [Coverage API](#).

## Availability

*The Panorama imagery is only available to customers with a Nearmap Panorama or Nearmap Oblique product.*

*Integration of Panorama tiles into a mapping application is complex. You will need to have significant experience with coordinate system geometry and map projections, and experience developing non-trivial mapping applications with a mapping framework such as OpenLayers or Leaflet.*

## URL Requests

Nearmap's Tile API is designed to be accessed by an application in an automated fashion via URL requests. We recommend that you use a mapping framework designed to consume tiled maps, such as [OpenLayers](#), [Leaflet](#), [Google Maps JavaScript API](#), etc.

## Rate Limit

Nearmap's Tile API has a [rate limit](#), meaning that there is a restriction on the number of requests that can be made against an endpoint.

## Retrieve Tiles

This API retrieves vertical or panorama tiles for a specified location. Use this API to add a Nearmap basemap to your application, with optional date control.

## API URL Format

```
https://api.nearmap.com/tiles/v3/{tileResourceType}/{z}/{x}/{y}.{format}?apikey={YOUR_API_KEY}
```

Read more about the [API URL format](#).

## Filter Surveys

By adding a filter, you can restrict the surveys which are considered for rendering. You can filter by date or by tag or by a combination of both, for a more powerful restriction.

### Filter by date

Use the `Since` and `Until` parameters to restrict surveys by a date range.

### Filter by tag

Use the `Include` and `Exclude` parameters to filter on tags. Tags are additional metadata attributes **available for a small number of surveys** that were flown after select events.

While each tag must have a `type` and a `name`, you can filter on any or both `type` and `name`. For example, post catastrophe captures are tagged with `type="disaster"` with the name corresponding to the nature of the event, e.g. "hurricane", "tornado", etc.

Example tags:

- `disaster:hurricane`
- `disaster:tornado`
- `disaster:misc` (Property damage for other reasons)

The `include` and `exclude` parameters only filter on tags, not on any other metadata.

For example:

```
/tiles/v3/Vert/10/940/613.img?include=disaster&exclude=disaster:fire
```

Only includes surveys that have a `disaster` type with at least one disaster name, but exclude surveys with a disaster name `fire`.

## Parameters

Required	Name	API / query	Type	Description
✓	tileResourceType	API	string	<p>The resource type for the requested tiles. The available values are:</p> <ul style="list-style-type: none"> <li>• <b>Vert</b> - for vertical imagery</li> <li>• <b>North</b> - for North panorama imagery</li> <li>• <b>South</b> - for South panorama imagery</li> <li>• <b>East</b> - for East panorama imagery</li> <li>• <b>West</b> - for West panorama imagery</li> </ul> <p>Note: the <b>tileResourceType</b> values are case sensitive.</p>
✓	z	API	integer	<p>The zoom level. Uses the <a href="#">Google Maps Tile Coordinates</a>.</p> <p>Note: the maximum zoom level is available from the <a href="#">Coverage API</a>.</p>
✓	x	API	integer	The X tile coordinate (column). Uses the <a href="#">Google Maps Tile Coordinates</a> .
✓	y	API	integer	The Y tile coordinate (row). Uses the <a href="#">Google Maps Tile Coordinates</a> .
✓	format	API	string	<p>The format of the tile output.</p> <p>The available values are:</p> <ul style="list-style-type: none"> <li>• <b>jpg</b> - always JPEG</li> <li>• <b>png</b> - always PNG</li> <li>• <b>img</b> - JPEG by default, PNG when the tile is partial</li> </ul> <p>Note that imagery is stored on Nearmap's servers as JPEG, so switching to PNG does not result in improvement in quality, however it will increase the size of the response.</p>
✓	apikey	query	string	Your API key. See <a href="#">API Key Authentication</a> for more information.
✗	tertiary	query	string	<p>The tertiary map to return when a Nearmap tile is not found.</p> <p>The available values are:</p> <ul style="list-style-type: none"> <li>• <b>none</b> (default) - no tertiary imagery in the background</li> <li>• <b>satellite</b> - use our current tertiary backdrop</li> </ul> <p>Note: returned tiles will always be blended with tiles from another survey. Tertiary tiles will only be blended when tertiary parameter is not 'none'.</p>
✗	since	query	string	<p>The first day from which to retrieve the tiles (inclusive).</p> <p>The two possible formats are:</p> <ul style="list-style-type: none"> <li>• For a specific date: <b>YYYY-MM-DD</b>, e.g. 2015-10-31 to retrieve imagery since this date.</li> <li>• For a relative date: <b>xxY</b>, <b>xxM</b>, or <b>xxD</b>, e.g. 5M to retrieve imagery since 5 months ago.</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>• If specified, the <b>since</b> parameter controls the earliest imagery that is returned. If there are multiple captures after the date specified by the <b>since</b> parameter, the latest imagery is returned.</li> <li>• If the <b>mosaic</b> parameter is set to <b>earliest</b>, the imagery on or after the date specified by the <b>since</b> parameter is returned.</li> <li>• If neither <b>since</b> nor <b>until</b> are specified, the request returns the latest imagery.</li> </ul>
✗	until	query	string	<p>The last day from which to retrieve the tiles (inclusive).</p> <p>The two possible formats are:</p> <ul style="list-style-type: none"> <li>• For a specific date: <b>YYYY-MM-DD</b>, e.g. 2015-10-31 to retrieve imagery until this date.</li> <li>• For a relative date: <b>xxY</b>, <b>xxM</b>, or <b>xxD</b>, e.g. 5M to retrieve imagery until 5 months ago.</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>• If specified, and imagery at that location at that date exists, the request returns the imagery.</li> <li>• If specified, and imagery at that location at that date does not exist, the request returns imagery of the next available date <b>before</b> the specified date.</li> <li>• If neither <b>since</b> nor <b>until</b> are specified, the request returns the latest imagery.</li> </ul>
✗	mosaic	query	string	<p>Specifies the order in which the surveys covering the specified area are prioritised.</p> <p>The available values are:</p> <ul style="list-style-type: none"> <li>• <b>latest</b> - the imagery with the later capture date is prioritised</li> <li>• <b>earliest</b> - imagery with the earlier capture date is prioritised</li> </ul> <p>If the <b>mosaic</b> parameter is not specified, the imagery with the later capture date is prioritised.</p> <p>To return imagery on or after a specified date, use mosaic=earliest in combination with the <b>since</b> parameter.</p>

✘	include	query	string	<p>Filters surveys so that only those tagged with the type and name specified are returned.</p> <p>Tags are a type:name combination. You can also filter on type and name separately. By comma separating you can include multiple tags, types and/or names.</p> <ul style="list-style-type: none"> <li>• <b>type:name</b>, e.g. disaster:hurricane</li> <li>• <b>type</b>, e.g. disaster</li> <li>• <b>name</b>, e.g. hurricane</li> </ul> <p>Refer to <a href="#">Coverage API - Filter Surveys</a> for further detail on tags.</p>
✘	exclude	query	string	<p>Filters surveys so that only those not tagged with the type and name specified are returned.</p> <p>Tags are a type:name combination. You can also filter on type and name separately. By comma separating you can include multiple tags, types and/or names.</p> <ul style="list-style-type: none"> <li>• <b>type:name</b>, e.g. disaster:hurricane</li> <li>• <b>type</b>, e.g. disaster</li> <li>• <b>name</b>, e.g. hurricane</li> </ul> <p>Refer to <a href="#">Coverage API - Filter Surveys</a> for further detail on tags.</p>

## Examples

These examples use a demo API key. Replace this API key with your own when using the Tile API.

### Australia

```
https://api.nearmap.com/tiles/v3/Vert/21/1855981/1265938.jpg?
apikey=Yzc2MjEzMWUtY2Q4YS00NTM2LTgyMDgtMDIjZjI2YTdhMTMz
```

The following example shows a URL request that specifies the dates for which to retrieve the imagery using the *until* optional parameter:

```
https://api.nearmap.com/tiles/v3/Vert/21/1855981/1265938.jpg?
apikey=Yzc2MjEzMWUtY2Q4YS00NTM2LTgyMDgtMDIjZjI2YTdhMTMz&until=2018-08-01
```

### US

```
https://api.nearmap.com/tiles/v3/Vert/19/119799/215845.jpg?
apikey=ZGE4MTdmNWYtZTdiNS00ZDRkLTg3MzItYjYwMzAyMzM5MjI0
```

## Responses

The possible HTTP response status codes to the URL request are:

Code	Description
200	OK. Tile image in JPEG or PNG format.
400	Bad Request. Returned when the request is invalid. This means either the format is wrong, or a value is out of range.
401	Unauthorized. Returned when the API key is invalid.
403	Forbidden. Returned when not allowed to access the requested location.
404	Not Found. Returned when cannot find any tiles for the requested condition.
429	Too Many Requests. Returned when the <a href="#">rate limit</a> is reached.
5XX	Server Error. Returned when something is wrong in the server side.

## Retrieve Tiles of a Specified Survey

This API retrieves vertical or panorama tiles of a specified survey for a specified location. Use this API to retrieve imagery for a single survey.

## API URL Format

`https://api.nearmap.com/tiles/v3/surveys/{surveyid}/{contentType}/{z}/{x}/{y}.{format}?apikey={YOUR_API_KEY}`

Read more about the [API URL format](#).

This API will retrieve tiles up to the maximum zoom level of that tile set. To allow to zoom beyond the resolution at which the survey was captured in your application, we recommend you investigate client side up-scaling. Some of the popular applications and mapping frameworks support this functionality.

The advantage of doing this is that it allows the app to be more bandwidth efficient and to upscale on the client. This is more responsive and will consume less network traffic (and less usage for users).

## Parameters

Required	Name	API / query	Type	Description
✓	surveyid	API	string	The survey ID in the format of UUID. Only tiles of the specified survey will be returned. You can use the ID from the survey object returned by the <a href="#">Coverage API</a> .
✓	contentType	API	string	The content type for the requested tiles. The available values are: <ul style="list-style-type: none"> <li>• <b>Vert</b> - for vertical imagery</li> <li>• <b>North</b> - for North panorama imagery</li> <li>• <b>South</b> - for South panorama imagery</li> <li>• <b>East</b> - for East panorama imagery</li> <li>• <b>West</b> - for West panorama imagery</li> </ul> Note: the tileResourceType values are case sensitive.
✓	z	API	integer	The zoom level. The highest resolution is typically 21. Uses the <a href="#">Google Maps Tile Coordinates</a> .
✓	x	API	integer	The X tile coordinate (column). Uses the <a href="#">Google Maps Tile Coordinates</a> .
✓	y	API	integer	The Y tile coordinate (row). Uses the <a href="#">Google Maps Tile Coordinates</a> .
✓	format	API	string	The format of the tile output. The <i>available values are</i> : <ul style="list-style-type: none"> <li>• <b>jpg</b> - always JPEG</li> <li>• <b>png</b> - always PNG</li> <li>• <b>img</b> - JPEG by default, PNG when the tile is partial</li> </ul> Note that imagery is stored on Nearmap's servers as JPEG, so switching to PNG does not result in improvement in quality, however it will increase the size of the response.
✓	apikey	query	string	Your API key. See <a href="#">API Key Authentication</a> for more information.

## Examples

### Australia

```
https://api.nearmap.com/tiles/v3/surveys/100-4c51ffe8-ab52-11e8-9b7a-b3f8ca0bcb81/Vert/16/57999/39561.jpg?apikey=Yzc2MjEzMWUtY2Q4YS00NTM2LTgyMDgtMDIjZjI2YTdhMTMz
```

### US

```
https://api.nearmap.com/tiles/v3/surveys/88f1c072-0bdd-11ea-b266-130e886a3ec4/Vert/19/119799/215845.jpg?apikey=ZGE4MTdmNWYtZTdiNS00ZDRkLTg3MzItYjYwMzAyMzM5MjI0
```

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429	Too Many Requests. Returned when the <a href="#">rate limit</a> is reached.
5XX	Server Error. Returned when something is wrong in the server side.

## Panorama Coordinate Systems

Please refer to [Panorama Coordinate Systems](#) to get more background about Nearmap's tile interface, including important tiling parameters.