User Guide

ViewPoint

Planet Coops

Version 1.0.30

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Contents

Introduction

Welcome to ViewPoint, an augmented reality (AR) view of the world. Unlike some other AR applications, ViewPoint comes complete with its own worldwide database of place names, mountain/hill peaks, castles, ruins, and monuments, so when you find yourself in the middle of nowhere without internet access, ViewPoint is still able to augment the view with information from its database[†].

ViewPoint features:

- Self-contained worldwide database of place names, mountain/hill peaks, castles, ruins, and monuments[†]
- Advanced filtering by distance, bearing and marker type
- Adjustable compass
- Imperial/metric units
- Search by name
- Zoom
- Map view
- Snapshot[†]
- Custom markers[†]

The database was compiled from three open sources of information, GeoNames, OpenStreetMap and The Database of British and Irish Hills.

[†] Cities, towns, and villages are included for free. Mountain/hill peaks, castles, ruins, monuments, custom markers, and the snapshot feature are part of the premium upgrade. There are currently more than 213,000 peaks, 13,000 castles, 16,000 ruins, and 19,000 monuments in ViewPoint's database.

Overview

Figure 1 below shows the layout of the ViewPoint main display.
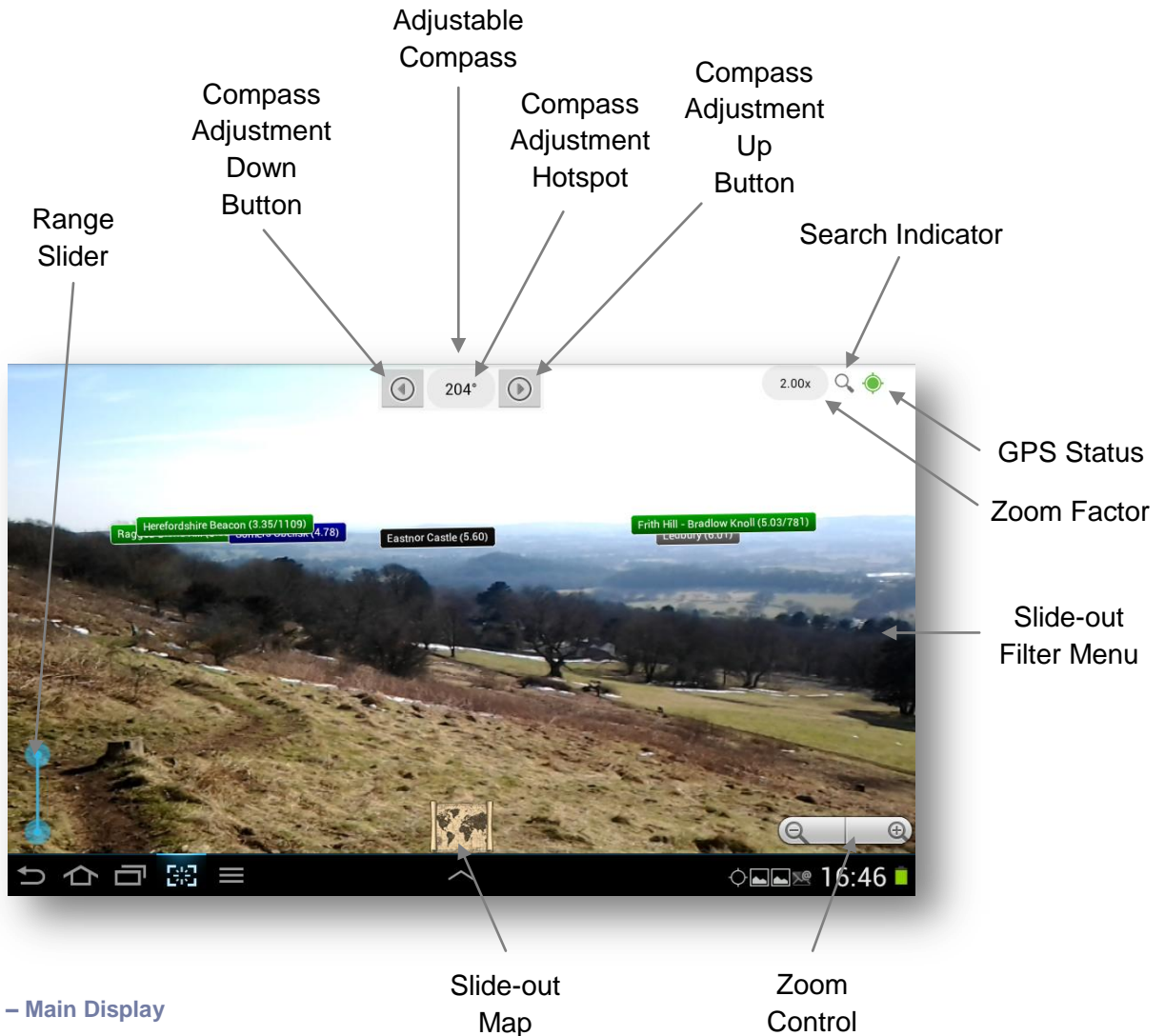
Figure 1 – Main Display

Range Slider

Use the range slider to adjust the minimum and maximum view distance. Markers that lie outside this range will not be displayed. The upper limit is calculated as the theoretical horizon distance based on the observer's height above sea level. If needed, the horizon distance can be reduced or increased using the *Maximum distance* and *Minimum distance* filter settings.

Adjustable Compass

The adjustable compass displays the direction (azimuth) in which the view is pointing in degrees clockwise from magnetic north. The magnetic sensor is susceptible to interference and calibration errors so the azimuth can be manually adjusted if required. Any compass

adjustment is cleared each time ViewPoint starts unless the *Save compass adjustment* setting is enabled.

Compass Adjustment Down Button
Touch the Compass Adjustment Down button to subtract one degree from the compass azimuth.

Compass Adjustment Up Button
Touch the Compass Adjustment Up button to add one degree to the compass azimuth.

Compass Adjustment Hotspot
Touch the Compass Adjustment hotspot to display the current compass adjustment in degrees clockwise from magnetic north. The display will revert to the compass azimuth after a few seconds.

Pitch Adjustment Down Button
Touch the Pitch Adjustment Down button to lower the position of markers on the camera view. Any adjustment made will be saved and restored each time ViewPoint starts. The button is not visible unless enabled see *Display pitch adjustment buttons*.

Pitch Adjustment Up button
Touch the Pitch Adjustment Up button to raise the position of markers on the camera view. Any adjustment made will be saved and restored each time ViewPoint starts. The button is not visible unless enabled see *Display pitch adjustment buttons*.

Zoom Factor
When zoom is active, Zoom Factor displays the view zoom magnification factor.

Search Indicator
The search indicator icon is visible when search criteria have been applied to the camera and map view see *Search*.

GPS Status
Displays the state of the GPS, see Table 1 for the meaning of each symbol.

Table 1

Quality (m)	Symbol
< 10	🟢
10 – 50	🟡
> 50	🔴
Acquiring Fix	⊕🔴*
Off	⊕

*Flashing

Zoom Control
Touch the plus button to zoom in on the view and the minus button to zoom out.

Slide-out Filter Menu

Drag from the right hand edge of the screen to open the filter menu. Touch the main display to close the filter menu.
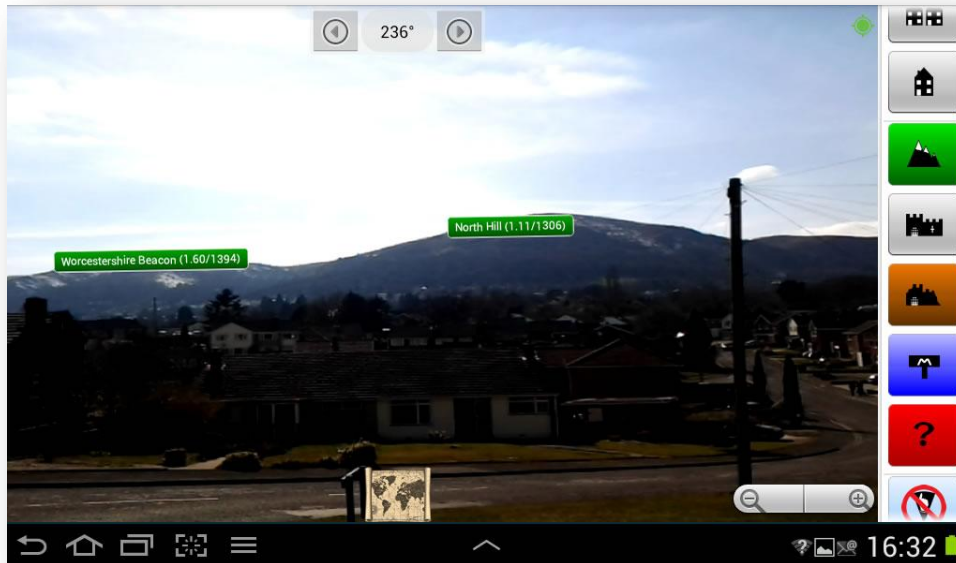
Figure 2 - Slide-out Filter Menu

Show/Hide All

The Show/Hide All button will toggle the filter state of all enabled filter buttons on or off.

Cities On/Off

The Cities On/Off button will toggle the visible state of all place name markers with a population of more than 100,000 people.

Towns On/Off

The Towns On/Off button will toggle the visible state of all place name markers with a population of between 2,001 and 100,000 people.

Villages On/Off

The Villages On/Off button will toggle the visible state of all place name markers with a population of between 101 and 2000 people.

Hamlets On/Off

The Hamlets On/Off button will toggle the visible state of all place name markers with a population of 100 people or fewer.

Peaks On/Off

The Peaks On/Off button will toggle the visible state of all peak markers.

Castles On/Off

The Castles On/Off button will toggle the visible state of all castle markers.

Ruins On/Off 🏔 🚫

The Ruins On/Off button will toggle the visible state of all ruin markers.

Monuments On/Off ⛩ 🚫

The Monuments On/Off button will toggle the visible state of all monument markers.

Custom On/Off ? 🚫

The Custom On/Off button will toggle the visible state of all custom markers.

Filter Touch ▽ 🚫

The Filter Touch button turns on or off the ability to filter the view by bearing plus or minus half the Filter Touch Angle (see Settings). When Filter Touch is on, long pressing the camera view or map view will filter the view based on the bearing of the projected touch. When Filter Touch is turned off, any filtered bearing will be cleared.

Slide-out Map

Press or drag up the map icon to open the slide-out map view. Press or drag down the map icon to close the slide-out map view.

Markers

Markers represent objects in the real world and will be displayed on the camera and map view when they are within range and when filters permit. There are nine types of marker, city, town, village, hamlet, peak, castle, ruin, monument, and custom. City, town, village and hamlet markers are collectively known as place markers. Table 2 lists the color associated with each type of marker. The camera view's marker text box and the map view's marker map pin will be a gradient of this color.

Table 2

Type	Color
Place	Gray
Peak	Green
Castle	Black
Ruin	Brown
Monument	Blue
Custom	Red

On the map view there is an additional yellow map pin 🟡 to indicate the observer's present position.

On the camera view the marker name is followed by its distance from the observer. Peak markers also convey the height of the peak above sea level. On the map view this information can be revealed by touching the marker map pin which will open the map pin's information balloon.

Custom Markers

Custom markers give you the ability to add your own markers for locations. These markers are temporary and are deleted when the application exits. To avoid being hidden, custom markers are placed in front of markers of other types.

Adding custom markers

Custom markers can be added by long pressing the camera or map view. With internet access, ViewPoint should be able to lookup height and name information for the location. Without internet access, custom markers can only be added from the map view and their height and name will be unknown. In this case the observer's height will be assumed and the marker will be named "Unknown".

Deleting custom markers

To delete a custom marker, from the map view open the custom marker's map pin balloon and long press it.

Camera View

The camera view superimposes the scene with a text box comprising the name and distance of active markers. Peak markers also include the height of the peak above sea level. Active markers are markers that lie within the minimum and maximum range and have not been filtered. The camera view can be zoomed using the Zoom Controls.

Map View
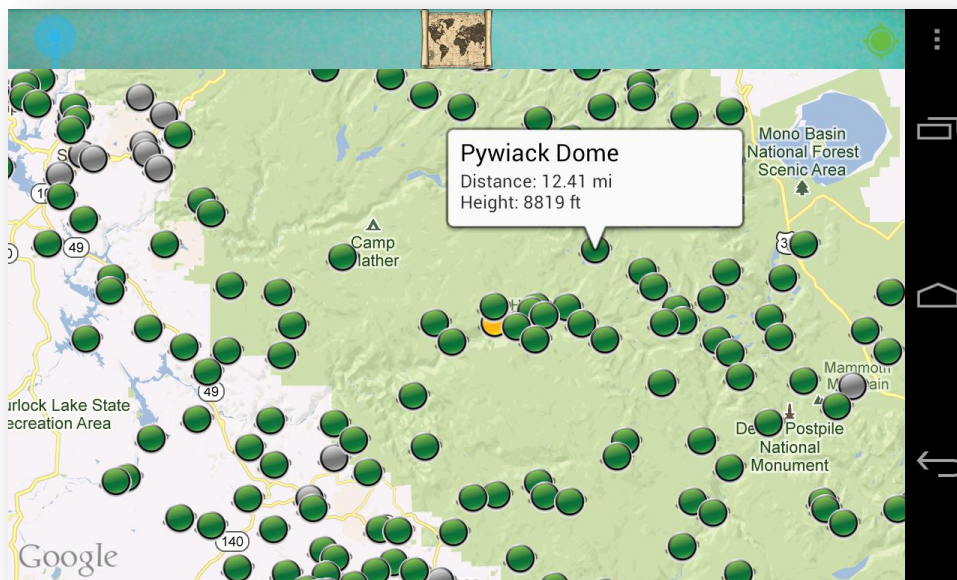
Figure 3 - Map View

The map view displays marker map pins for active markers. Active markers are markers that lie within the minimum and maximum range and have not been filtered. Shaded range circles depict the minimum and maximum limits of range and maximum distance. When filtered by bearing using a filter touch, a circle sector will show the extent of the filtered

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bearing. Note than when operating without internet access any un-cached map tiles will be blank. The map view can be zoomed using the Zoom Controls and panned by dragging the view.

Menu

Pressing the Menu button will open the application's user menu. The menu has the following options.

Upgrade

Select this option to open the Google Play Store and purchase the premium upgrade. The premium upgrade enables peaks, castles, ruins, monuments, custom markers, and the snapshot feature.

Search (by marker name)

Selecting this option opens the 'Search markers...' dialog. The dialog presents a scrollable list of markers that are within range. Markers that are not visible due to active filters are grayed-out. Selectively check the checkbox of any marker that you wish to appear on the camera and map view. Use the 'Uncheck' button to uncheck all markers and disable search criteria. Press the back key to return to the main display. The *Search Indicator* icon will be visible on the main display when search criteria are in effect.

Snapshot

Select this option to take a snapshot of the map or camera view with markers overlaid. The snapshot will be stored in the pictures folder and can be viewed via the Gallery app. This menu option is enabled after purchasing the premium upgrade.

Settings

Selecting this option will open the *Settings* menu, see Figure 4.
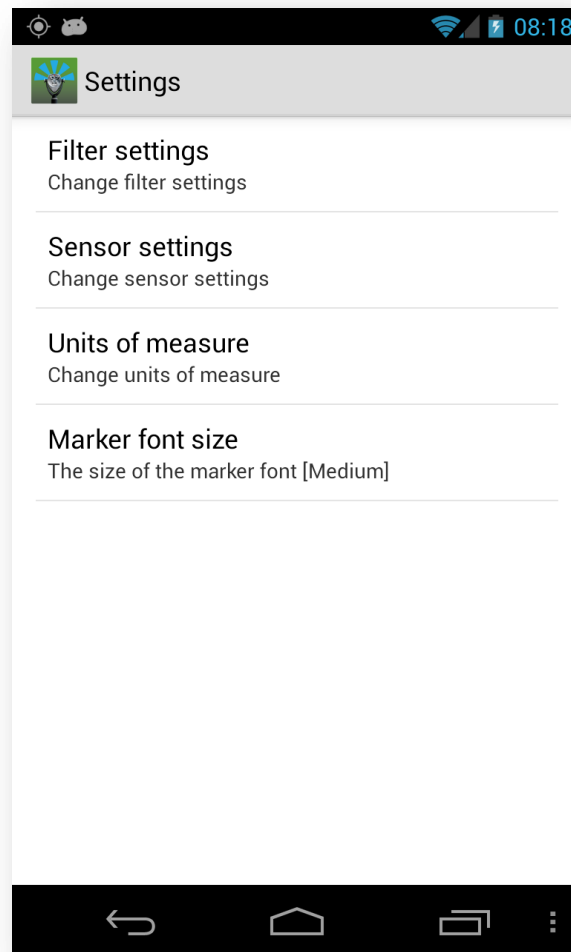
Figure 4 – Settings

Filter settings

Select this to change the following filter settings.

Minimum distance

Specify the minimum horizon distance. Choose between 0 (= off), 1, 2, 5, 10, 15, 20, 30, 40.
The units, kilometres or miles, depends on the units of measure, see *Distance* setting.
Maximum distance will take precedence over this setting.

Maximum distance

Specify the maximum distance to the horizon. Choose between 0 (= no limit), 1, 2, 5, 10, 15,
20, 30, 40, 50, 60, 70, or 80. The units, kilometres or miles, depends on the units of
measure, see *Distance* setting.

Filter touch angle

Specify the filter touch angle, see Filter Touch. Choose between 2°, 5°, 10°, 15°, 30°, 45°,
60°, or 90°.

Display place markers on map

Choose whether to display place marker map pins on the map view.

Sensor settings

Select this to change the following sensor settings.

Display pitch adjustment buttons

When checked, displays pitch adjustment buttons either side of the compass for adjusting the vertical placement of markers. Any adjustment made using these buttons is saved and restored each time ViewPoint starts.

Reset pitch adjustment

Resets any pitch adjustment made using the pitch adjustment buttons.

Save compass adjustment

When checked, saves and restores any compass adjustment when ViewPoint starts.

Use gyroscope

Check this to enable the use of the gyroscope sensor on devices that support it. Using the gyroscope sensor will generally improve ViewPoint's accuracy. This setting takes advantage of a built-in rotation vector with values which have already been damped, so enabling this setting will disable the *Sensor damping* setting.

Sensor speed

Specify the frequency of device sensor updates. Choose between slow, medium, and fast. To conserve power choose the slowest setting.

Sensor damping

Specify the degree of sensor damping. Raw sensor values tend to fluctuate wildly (jitter) and if not smoothed by damping, markers jump around on the camera view. This setting allows you to control the degree of damping and is available only when the *Use gyroscope* setting is not checked. Choose between low, medium, and high.

Initial GPS accuracy

ViewPoint relies on an accurate GPS location and altitude. After start-up, ViewPoint will wait until the GPS accuracy reaches the specified initial GPS accuracy before using the GPS location and displaying local markers. Choose from 10m, 20m, and 40m.

Use elevation service

Use an elevation service whenever possible to resolve altitude rather than GPS. Enabling this setting will improve ViewPoint's accuracy. This setting requires internet access.

Horizontal field of view

In some rare cases, devices incorrectly report their camera's horizontal and vertical field of view angles. If ViewPoint alerts you to an incorrect field of view for your device, you can specify the correct value here. To determine the field of view (this may sound complicated but don't despair, it is a one off procedure):

1. Start ViewPoint.
2. Place a ruler (or an object of known width) in front of the camera.
3. Move back from the ruler until each side of the ruler is at the left and right edge of the display, i.e. the ruler completely fills the field of view.
4. Get an assistant to measure the distance of the camera lens from the ruler.

5. The horizontal field of view angle can be calculated as:

2 x tan^{-1}((ruler_length / 2) / distance_from_lens)

e.g. if the ruler is 30cm long and the distance from the lens when it fills the view is 27cm the calculation is

2 x tan^{-1}((30 / 2) / 27) = 2 x tan^{-1}(15 / 27) = 2 x 29.055 = 58.1

Units of measure

Select this to change the following units of measure settings.

Height

Specify the units of measure for height. Choose between metres and feet.

Distance

Specify the units of measure for distance. Choose between kilometres and miles.

Marker font size

The size of the font used in the marker text box on the camera view. Choose from small, medium, large, and extra large.

About

Selecting this menu option will display an information dialog with program version, web address and email contact information. If requested by support, press the *Send Log* button to send your device's system log to support for analysis, otherwise press *OK* to cancel the dialog.

FAQ

Why is the GPS status icon always flashing?

Make sure your device has a clear view of the sky. When the "Use GPS satellites" setting is first enabled, the GPS icon in the top right of the screen will flash until it establishes a lock. This can take up to 15 minutes for a cold start and a few seconds for a warm start. A cold start refers to a situation in which the GPS must acquire all data in order to start navigation. A warm start means the GPS has most of the data it needs already in memory. Once a GPS lock has been established, the flashing will stop.

If you have a rooted phone and are having problems with GPS locks or slow locks, it is worth checking that you have the correct GPS settings in /system/etc/gps.conf for your region, see http://www.thriveforums.org/forum/dalepl-development/3090-mod-gps-fix-country-continent.html. As always, take a backup of any existing file before replacing it.

Why is the GPS status icon almost always red?

See the answer to *Why is the GPS status icon always flashing?* In our experience if the phone has a clear view of the sky and you continually receive "red" low quality position updates, rebooting the device and re-enabling GPS satellites can bring them back to "green"

high quality updates. Users with Motorola Droid X™ phones have reported that upgrading to SBF 4.5.602 has improved GPS accuracy.

I am trying to download ViewPoint from Google Play but keep getting an error. Can you help?

See http://support.google.com/googleplay/bin/answer.py?hl=en&answer=1067233

Most download errors are resolved using this step:

Make sure you've cleared the cache and data of both the Google Play Store app and the Download manager. Here's how:

1. *Visit Menu -> Settings -> Applications -> Manage applications*
2. *Tab over to "All"*
3. *Select the Google Play Store app, and then tap "Clear data" and "Clear cache" then, select Download manager and tap "Clear data" and "Clear cache"*

Google Play support can be reached via http://support.google.com/googleplay/bin/request.py?contact_type=contact_policy&policy=apps.

I have an internet connection so why does the custom marker appear as "Unknown"?

In remote areas it is not always possible for the reverse geocoding service to map a location to a place name. In this case, the marker will be named "Unknown".

Argh, there are too many markers. Help!

When you are high up, the theoretical horizon distance will be a very long way, leading to hundreds of markers being in view. This will slow down the app and make it difficult to pick out individual markers. Weather conditions and surrounding terrain may make it impossible to see anywhere near the theoretical horizon distance. In this situation, consider limiting the maximum horizon distance, see the *Maximum distance* setting. The Range Slider operates over this horizon distance, so the smaller the maximum distance, the finer control you will have using the slider to filter markers. You can also pick out individual landmarks using the *Search (by marker name)* function.

The markers are too high/low on the camera view. How can I adjust them?

Unfortunately GPS altitude accuracy is notoriously unreliable and this has the side effect of placing markers either too high or too low on the screen. Markers can be fine tuned up or down using the pitch adjustment buttons. The pitch adjustment buttons will appear either side of the compass after checking the *Menu -> Settings -> Sensor settings -> Display pitch adjustment buttons*.

Why are the markers out of horizontal alignment with the view?

See the answer to *Why is the compass out of alignment/inaccurate?* The compass can be manually adjusted using the compass adjustment buttons to compensate for any persistent compass error.

Why is the compass out of alignment/inaccurate?

You probably need to calibrate your compass. Follow this simple procedure:

1. Avoid magnetic fields and metal objects.
2. Open ViewPoint.
3. Move the device slowly and rotate it at least three full cycles around the vertical, lateral and longitudinal axis.

For an example, please see this You Tube video,
http://www.youtube.com/watch?v=Rj78YMAOhjs.

How many place names are there in the database?

There are more than 131,000 place names in the database. In theory, the database should contain every place with a population of 1,000 people or more.

Please can you add a marker for X to the database?

ViewPoint uses OpenStreetMap (OSM) as a source of information for peaks, castles, ruins, and monuments. If a marker you expected to be shown is missing, why not add it to the OSM database? Then, when we next refresh ViewPoint's database from OSM, we should automatically include it.

The OSM tags ViewPoint currently uses are natural/peak, historic/castle, historic/ruins, and historic/monument.