AccuWeather

>hack KU

February 7-9, 2020

Take the AccuWeather Challenge!

- Build a unique product that uses our **AccuWeather API's**

- Be creative. It can be a product to solve a real-world issue, something to help make our lives easier, or simply make our lives more fun!

- The winning team will receive: **AccuWeather swag bags filled with useful items and a $50 gift card**

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AccuWeather API Developer Portal

Documentation: *developer.accuweather.com*

Your AccuWeather API Key

get your free limited trial
https://developer.accuweather.com/packages

- This API Key is case sensitive.
- You will need this key for authorization to our API during HackKU.
- You do NOT need to purchase your own key!

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Your API Access

- Locations
- Current Conditions
- Up to 24-Hours of Historical Current Conditions
- Up to 15-Days of Daily Forecasts
- Up to 120-Hours of Hourly Forecasts
- Up to 15-Days of Daily Indices
- Up to 15-Days of Weather Alarms
- Translations
- Tropical
- Imagery

These are the individual API's offered to you. If you are not authorized for a certain endpoint, or your URL syntax is incorrect, you will see an "Unauthorized" response from the API or an error.
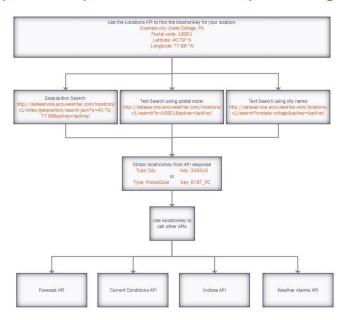
If something returns an "Unauthorized" response, or error, first verify your syntax to ensure that your URL is correct using our documentation page. If you still have questions, please let us know. Our team will be present at different times during the event.

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How Our API Works – Flow Diagram

https://developer.accuweather.com/api-flow-diagram

1. Find your location
2. Pull the Location Key
3. Use the Key to access API content

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How Our API Works – 1 of 3

http://dataservice.accuweather.com/locations/v1/search?q=State College&apikey=XXXX

- **Pull Location "Key"**
- **"Key" = 335315**

In this example, we called "State College", and found the response for the "State College" in Pennsylvania. The Location "Key" noted at the top is "335315".

```
- {
      Version: 1,
      Key: "335315",
      Type: "City",
      Rank: 55,
      LocalizedName: "State College",
      EnglishName: "State College",
      PrimaryPostalCode: "16801",
    - Region: {
          ID: "NAM",
          LocalizedName: "North America",
          EnglishName: "North America"
      },
    - Country: {
          ID: "US",
          LocalizedName: "United States",
          EnglishName: "United States"
      },
    - AdministrativeArea: {
          ID: "PA",
          LocalizedName: "Pennsylvania",
          EnglishName: "Pennsylvania",
```

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How Our API Works – 2 of 3

http://dataservice.accuweather.com/currentconditions/v1/335315?apikey=XXXX

```
[
  - {
        LocalObservationDateTime: "2018-10-05T11:22:00-04:00",
        EpochTime: 1538752920,
        WeatherText: "Cloudy",
        WeatherIcon: 7,
        IsDayTime: true,
      - Temperature: {
          - Metric: {
                Value: 11.1,
                Unit: "C",
                UnitType: 17
            },
          - Imperial: {
                Value: 52,
                Unit: "F",
                UnitType: 18
            }
        },
        MobileLink: "http://m.accuweather.com/en/us/state-college-pa/16801/current-weather/335315?lang=en-us",
        Link: "http://www.accuweather.com/en/us/state-college-pa/16801/current-weather/335315?lang=en-us"
    }
]
```

Using the Location "Key" for State College (335315), you can access other content – like Current Conditions. Check the documentation at developer.accuweather.com for examples with other API endpoints like Hourly Forecasts, Daily Forecasts, Lifestyle Indices, etc. In a similar way, you will use the Location Key in the different API URLs to access the data you want.

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How Our API Works – 3 of 3

http://dataservice.accuweather.com/currentconditions/v1/335315?apikey=XXXX&details=true

Adding "details=true"
shows additional content
on most API responses

On most APIs, adding "details=true" shows additional data content. If the "details" parameter is not appended on the URL, the default "details" response is "false", and you will receive an abbreviated response with only core content.

This is important to know based on the product you are building. Showing less "details" reduces the payload of the response, which is important for data consumption on certain products. However, some content is only exposed when "details=true", so feel free to use whatever works best for your product.

```
- {
      LocalObservationDateTime: "2018-10-05T11:11:00-04:00",
      EpochTime: 1538752260,
      WeatherText: "Cloudy",
      WeatherIcon: 7,
      IsDayTime: true,
    - Temperature: {
        - Metric: {
              Value: 11.1,
              Unit: "C",
              UnitType: 17
          },
        - Imperial: {
              Value: 52,
              Unit: "F",
              UnitType: 18
          }
      },
    - RealFeelTemperature: {
        - Metric: {
              Value: 12,
              Unit: "C",
              UnitType: 17
          },
        - Imperial: {
              Value: 54,
              Unit: "F",
              UnitType: 18
          }
      },
    - RealFeelTemperatureShade: {
        - Metric: {
```

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Best Practices

https://developer.accuweather.com/best-practices

- Randomization
- GZIP Compression
- Expires Headers

1. Randomization is key. Do not make batched data requests (ex: do not update everything at the top of the hour).

2. GZIP compression makes payload sizes smaller and more efficient.

3. The Expires Header tells you if/when an API response is "old", and can help reduce unnecessary data requests that will simply return the same response. Therefore, content does not need to be updated every minute. Use the Expires Header information to determine if a data refresh is necessary.

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Caching – How Often Should You Update?

- Alerts API = 1-5 min
- Current Conditions API = 5-10 min
- Forecast API = 20-30 min
- Indices API = 20-30 min
- Weather Alarms API = 20-30 min
- Locations API = 24 hrs

It is important to keep coding efficiencies in mind. This will be considered in judging. It is not recommended to build something that updates 100K locations or more in a second. This can cause a poor user experience. Instead, follow our Best Practices under the "**General Info**" tab of our site, and use randomization and **Expires Header** information. The Expires Header tells you if/when an API response is "old", and can help reduce unnecessary data requests that will simply return the same response.

If you hit our limit of 100,000 calls per minute, you will receive a message as follows in the Header of the message:

RateLimit-Limit: 100000
RateLimit-Remaining: 99996

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FAQ 1: Can we reuse the Location Key pulled from the Locations API, or do we need to call the Locations API every time we request other weather data?

Answer: The Location "Key" can be cached and reused for multiple API requests over extended periods of time. The Locations API does NOT need to be called every time you wish to request other API content like Current Conditions or Forecasts for the same location. The Locations API response is cached for 24 hours, and the location metadata does not change often within a short period.

However, if you were hypothetically building a product for your company for real world use in the market, it is important to remember that data such as time zone information, or administrative area details can change over time – especially outside the US. So Location "Keys" should not be stored forever. As an example, some clients store Location "Keys" for beyond 24 hours, sometimes a week or more. But they should be refreshed at randomized times during product use. Randomization can be set using user driven activity. Feel free to ask us if you have any questions about this. But no need to sweat these details for the proof of concept models being built during this event. Have fun!

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FAQ 2: What is the difference between the Alerts API and Weather Alarms API?

Answer: The Weather Alarms API and Alerts API are two separate and independent products. The Weather Alarms API is an AccuWeather created product based on the AccuWeather forecast. The Alerts API provides severe weather alert information from official Meteorological Agencies for various countries around the world. Here are some more details:

The Weather Alarms API provides a response when a location has a forecasted weather condition that exceeds a specific threshold. A link for the "Weather Alarm Thresholds" can be found under the "General Info" tab on the documentation page. So, for example, if a location is forecasted to receive more than a half inch of rain, a Weather Alarm will exist for that location. AccuWeather provides this Weather Alarm information for all global locations.

The Alerts API provides a response when any official Government Meteorological Agency or global weather alert provider issues an alert. For example, the National Weather Service in the US. AccuWeather currently has coverage for 60 countries and territories due to direct agreements with multiple global Government Meteorological Agencies. These 60 countries and territories are noted on the next page.

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Severe Weather Alert Availability

Available in 60 countries/territories:

- American Samoa
- Andorra
- Austria
- Belgium
- Bosnia and Herzegovina
- Brazil
- Bulgaria
- Canada
- China
- Croatia
- Cyprus
- Czechia
- Denmark
- England
- Estonia
- Federated States of Micronesia
- Finland
- France
- Germany
- Greece
- Guam
- Hungary
- Iceland
- Ireland
- Israel
- Italy
- Japan
- Korea
- Kosovo
- Latvia
- Liechtenstein
- Lithuania
- Luxembourg
- Macedonia
- Malta
- Marshall Islands
- Moldova
- Monaco
- Montenegro
- Netherlands
- Northern Mariana Islands
- Norway
- Palau
- Philippines
- Poland
- Portugal
- Puerto Rico
- Romania
- San Marino
- Scotland
- Serbia
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- United States
- US Virgin Islands
- Vatican City
- Wales

Alerts API: AccuWeather holds the largest coverage of official Government provided Severe Weather Alerting - formed by direct agreement with official Government Meteorological Agencies from around the world.

As a quick verification of whether Alerts are supported for a specific location, refer to the "DataSets" parameter output within the Locations API response. It notes whether content like Alerts are supported for that location.

Example:

DataSets: [
  "Alerts",
  "DailyAirQualityForecast",
  "DailyPollenForecast",
],

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FAQ 3: What are Historical Current Conditions?

Answer: Historical Current Conditions are the top of the hour observations for the previous 24 or 6 hours, depending on the specific API request made. This allows you to view the full Current Conditions API output, and all the noted weather information, for the past 24 hours. This can be useful for the sake of comparing weather from the previous 24 hours. Also, you will note we provide Temperature and Precipitation "Summaries" within the Current Conditions API response. These parameters provide useful info for analyzing temperature or precipitation data.

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FAQ 4: Is there Historical Climatology data?

Answer: We currently do not grant access to our Climo API with our AccuWeather API Developer Portal. However, if you have an idea that would benefit from the use of Climo data, please let us know. We will consider the potential use and benefit of Climo data when choosing a winner for the AccuWeather Challenge.

FAQ 5: Is there Air Quality Data?

Answer: AccuWeather currently provides an "Air and Pollen" Forecast within the Daily Forecast API. This is available when the "details=true" parameter is used in the Daily Forecast API Request. Please note, this feature is currently only supported for locations within the US.

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