



Empowering IT Teams with APIs

A PROGRESS | IPSWITCH EBOOK

If we take a step back in time, let's say 10 years or so, most software was developed to solve for a single solution. Sure, there were instances of integration with other applications, but this was, in most cases, an outlier. Apps didn't really have a way to talk to each other unless the developers of those apps made those connections. It wasn't a very agile way to develop software, and it left much to be desired in the form of functionality and seamless integration throughout the business infrastructure.

Fast forward to today, and you'll notice that the apps and services we use communicate with each other regularly. In many cases, this is in the form of an application programming interface, otherwise known as APIs. APIs are a universal way for one piece of software or service to pull or request data or functionality from another app or service seamlessly. There are a few ways to do this, but in most instances, it is done with either a RESTful (REST) API or SOAP API. More recently, REST has been the defacto API architecture due to its flexibility. Specifically, REST APIs use the JSON data-interchange format.

The most prominent example of how we use APIs on a daily basis is Google Maps, or really any map application on your mobile device. Think about all the information that is being sent to your fingertips in Google Maps. You don't download all this data when you download Google Maps. Google Maps is actually connected to a wide variety of services on the backend that feed into the user interface that you, the user, interact with. This could be where the closest gas station is, GPS, or even traffic notifications.

In the case of a businesses IT stack, think about all the ways an IT team needs to manage and monitor various apps and services that end-users interact with. These too can communicate in the form of APIs or even scripts. Of course, IT teams have the ability to integrate apps, services, and even devices together with their own scripts, whether it be with PowerShell or Python. However, it is highly beneficial when an application is built with integration in mind. That is the reason why most software today allows for communication with other apps and services via APIs.

APIs are nothing new, but the creative and compelling ways that APIs can be used is changing every day.

How APIs can Empower IT Teams

If you work in IT, APIs are obviously nothing new to you. You use them daily whether you notice it or not. But if you wanted to integrate and app or service with another, would you know how to do so? If you are a programmer, you'd probably be able to get by on your own without much help. However, there are plenty of development and IT tools available to do those integrations with much less work.

For example, let's take a look at Slack. For the uninitiated, Slack is a powerful collaboration tool. Over the past few years, Slack has risen to be the largest collaboration tool to help teams stay on track.

Whatever the size of your company, communication with others is essential. Some communicate in-person on-premises, with a large part of the working day consumed by long-winded meetings. Others use videoconferencing, intranets, a CMS or CRM solution and email to share relevant updates to team or project members. That's where Slack comes in handy.

Slack itself is an effective messaging tool, but its real strength lies in third-party app integrations. This is done by, you guessed it, APIs.

With a free limited option and hundreds of possible app integrations (only 10 on the free option), Slack could well be ideal for your company, especially if you have noticed communication problems or operational delays caused by breakdowns in communication.

By signing up for Slack, creating private and public channels of communication within your company are possible. These channels (think of them as chatrooms) should reflect your operational goals. Therefore, you can have a channel for each department, project, client, team, or whatever topic you like. You could have one for brainstorming or competitor research, for example.

The aim of Slack is to ensure that relevant people are added to each channel to maximize effective communication. Some will be members of multiple channels, and that's perfectly okay.

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There is a large ecosystem of APIs readily available for Slack integrations, but if you need something more unique, you can use a tool like Zapier or IFTTT that can make those connections for you. These tools are a more user-friendly way for apps, devices, or services to communicate with each other.

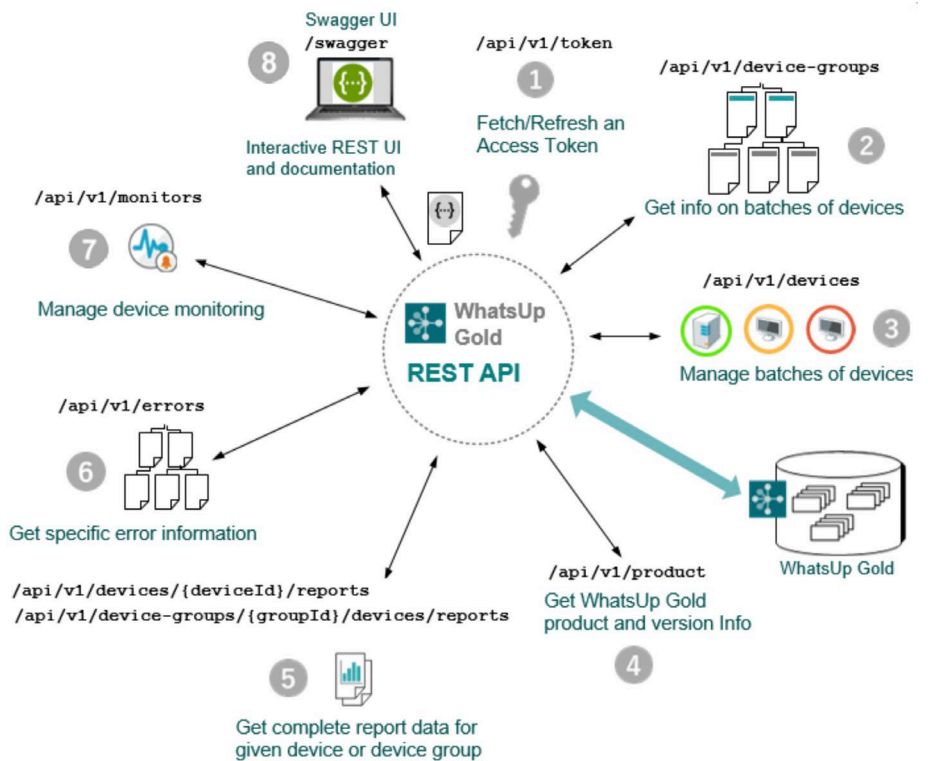
Slack and its ecosystem of available APIs is just one example of how APIs are making lives easier for IT operations and end-users everywhere. But let's look at a more focused solution with WhatsUp Gold (WUG), a powerful network monitoring tool.

The Power of APIs in Network Monitoring

WhatsUp Gold can monitor every single part of your network to give you a wealth of information on status, performance, traffic, and thousands of other metrics. WhatsUp Gold can share that information directly with any of your systems thanks to WUG's REST API.

With the WUG REST API, you can use an extensive range of REST API calls to get data from WhatsUp Gold from other systems, or input data to WhatsUp Gold or have other systems make changes. The result is a vast range of automation use cases that will help IT teams be faster and more efficient. Example use cases include the ability to automatically put devices in maintenance mode before making changes, the ability to add or remove devices, add monitors and much more.

Best of all, REST APIs are language and platform-independent, which lets them circumvent the incessant need for client-server dependency maintenance, and span any combination of environments (including IoT, mobile, and much more).



Getting Started with WhatsUp Gold's REST API

So how do you get started? First, if you don't have WhatsUp Gold, you can [start a free trial here](#).

If you've used a REST API before, then learning WhatsUp Gold's REST API should be easy. The API is exposed through Swagger, which lets you easily explore the API and its options. With Swagger, you can experiment with different API calls, and learn exactly what each API expects for input, and what it produces for output. Swagger's 'Try it out' feature will run an API against the live WUG server, so you can test each API and observe the results.

Below, we'll give you a brief overview of how you can get started with WUG's RESTful API, and how you can use Swagger to explore the API and test calls.

What You Need to Get Started

First, you'll need to know how to communicate with our REST API. In general, this RESTful API expects the following verbs: GET (query record), PUT (create record), PATCH (modify/update record), or DELETE (remove record).

You'll also need to know the following REST endpoints, and the resources they provide:

1. `/api/v1/token` lets you get, renew, or refresh a session token.
2. `/api/v1/device-groups` gives you information about a device for a given group.
3. `/api/v1/devices` lets you manage, monitor, and poll devices in WUG.
4. `/api/v1/product` will give you product and versioning information.
5. `/api/v1/devices/{deviceId}/reports/` will give a report for a given device.
`/api/v1/device-groups/{groupId}/devices/reports/` will give a report for a given group of devices.
6. `/api/v1/errors` is a utility endpoint for getting error template information.
7. `/api/v1/monitors` will let you get, configure, and apply monitor templates.
8. `/swagger` will give you live swagger UI interactive documentation.

Before you can get started with WUG's REST API, there are a few basics you need:

- The hostname for a deployed WhatsUp Gold 2019 system.
- The username and password for a user on the target WhatsUp Gold system.
- Your favorite HTTP client (the examples that follow use the cURL utility).

You'll also want these URLs:

Swagger UI: `http://<your-whatsup-gold-server>:9644/swagger/ui/index#`

Primary REST API endpoint: `https://<your-WhatsUp-Gold-server>:9644/swagger/api/v1`

Swagger API Specifications and Docs: `https://<your-WhatsUp-Gold-server>:9644/swagger/docs/v1`

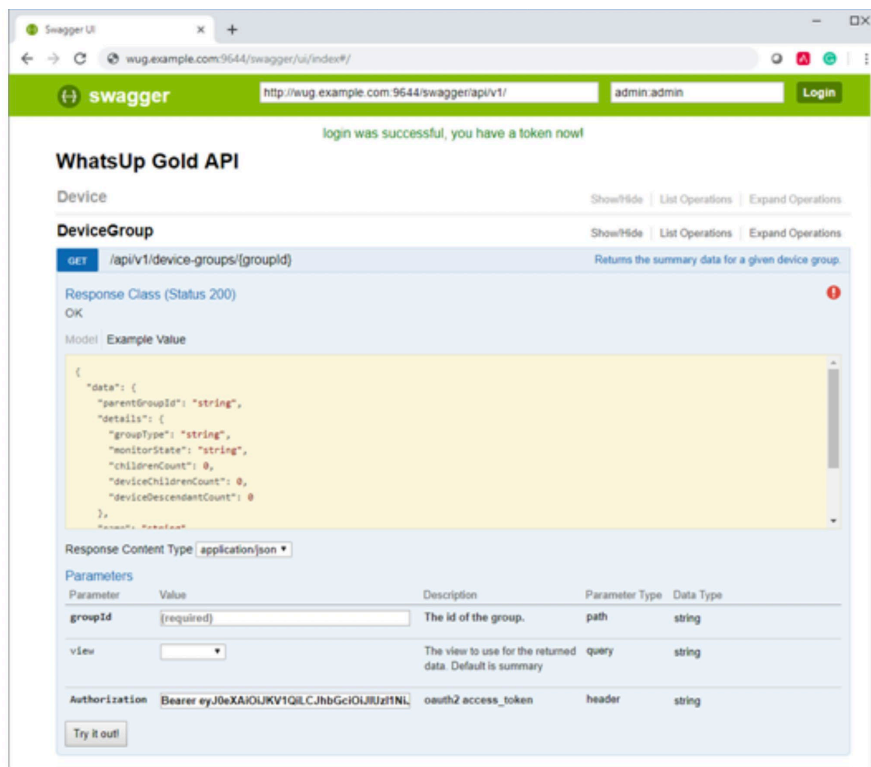
From here you can quickly check that the REST API is already listening for requests at the WhatsUp Gold host by entering **https://<your-WhatsUp-Gold-server-host>:9644/swagger/docs/v1** into your web browser (Where <your-WhatsUp-Gold-server-host> is the hostname of the WhatsUp Gold system). If this call returns a JSON object, your API is running, and you can begin the steps that follow using this hostname.

Using Swagger UI, The Interactive REST API Client

As noted above, Swagger UI provides an easy way to browse the WhatsUp Gold REST documentation with live examples, and offers a simple development client for testing WhatsUp Gold REST calls. However, it should be noted that the examples are live calls (not simulated) that run against your WhatsUp Gold Environment. If you are just testing and exploring the capabilities of the REST API for development purposes, it is best practice to run against a non-production instance of WhatsUp Gold.

To get started with Swagger, follow the steps below:

1. Open a browser to **https://my-whatsapp-gold-host:9644/swagger/** where *my-whatsapp-gold-host* is the host where you installed WhatsUp Gold
2. Click the **Login** button.
3. Browse and build queries and view JSON result objects.



Retrieving an Access Token

To set your session up with the WhatsUp Gold RESTful API, you must retrieve an access token. (Syntax, usage, and fields supported by the token endpoint are detailed in [Retrieve API Token](#) of our [RESTful API Guide](#)). Here is the request:

```
curl -k --request POST --url https://my-whatsup-gold-host:9644/api/v1/token --data "grant_type=password&username=emmacurtis&password=1a2B3cA1b2C3"
```

You should get this output, where `my-whatsup-gold-host` is the hostname where your WhatsUp Gold UI is running and where you supply values for the username and password (such as the WhatsUp Gold user you created for this RESTful client application).

```
{
  "access_token": "X03w.....dziTwmA",
  "token_type": "bearer",
  "expires_in": 86399,
  "refresh_token": "X03w.....dziTwmA"
}
```

Getting a List of Devices

From here you can pass the access token as a header argument, type "Bearer" and get your user information. Note that `my-whatsup-gold-host` is once again the hostname where your WhatsUp Gold WebUI is running. You will also have to replace the placeholder string `X03w.....dziTwmA` with your own 278 byte access token. The group ID of zero ('0') denotes the entire body of devices managed by MY NETWORK.

```
curl -X GET --header 'Accept: application/json' --header 'Authorization: Bearer X03w.....dziTwmA' 'http://my-whatsup-gold-host:9644/api/v1/device-groups/0/devices'
```

You should get the following output:

```
{
  "paging": {
    "size": 96
  },
  "data": {
    "devices": [
      {
        "hostName": "192.168.37.1",
        "networkAddress": "192.168.37.1",
        "bestState": "Up",
        "worstState": "Up",
        "name": "192.168.37.1",
        "id": "14"
      },
    ],
  }
}
```

```
{
  "hostName": "192.168.37.100",
  "networkAddress": "192.168.37.100",
  "bestState": "Maintenance",
  "worstState": "Maintenance",
  "name": "192.168.37.100",
  "id": "16"
},
[list shortened for purposes of documentation]
}
```

From here, you can set up your own scripts to use our new REST API in whatever manner you see fit.

Conclusion

We've covered how you can use APIs with WhatsUp Gold and why this is a powerful way to integrate your network monitoring with devices on your network. But the examples in this eBook are not the only way you can use WUG's REST API to help make IT processes and operations more efficient. You can even make your own API calls and integrate and pull data from sources to suit the needs of monitoring your unique business infrastructure.

Now that you have an example of how WUG uses APIs and Swagger to help test those APIs, try it out for yourself and let us know what you come up with.

For Your Free Trial of WhatsUp Gold Visit:
<https://www.ipswitch.com/forms/free-trials/whatsup-gold>

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