



# Incident Response Platform Integrations

# Microsoft Graph Security API Integration V1.0.3

Release Date: September 2020

Resilient Functions simplify development of integrations by wrapping each activity into an individual workflow component. These components can be easily installed, then used and combined in Resilient workflows. The Resilient platform sends data to the function component that performs an activity then returns the results to the workflow. The results can be acted upon by scripts, rules, and workflow decision points to dynamically orchestrate the security incident response activities.

This guide describes the Microsoft Graph Security API Integration.

Overview

The Microsoft Graph Security API functions contain the ability to call multiple security endpoints within the Microsoft Graph, while the Alert Polling Integration allows for creation of new incidents in the Resilient platform from alerts.

This document describes the Microsoft Graph Security API integration, its customization options, and how to configure them in custom workflows.

Prerequisites

Before installing, verify that your environment meets the following prerequisites:

* Resilient platform is version 35 or later.
* You have a Resilient account to use for the integrations. This can be any account that has the permission to view and modify administrator and customization settings, and read and update incidents. You need to know the account username and password.
* You have access to a Resilient integration server where you will deploy and run the functions code. If not, you need to install and configure the server as described in the [Integration Server Guide](https://github.com/ibmresilient/resilient-reference/blob/master/developer_guides/Integration%20Server%20Guide.pdf)

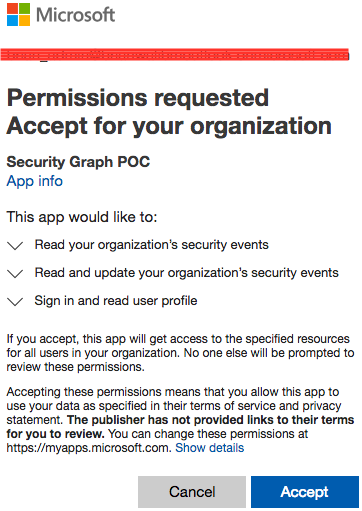
In addition, you need a Microsoft application registered to access the Microsoft Graph, as described in [Authorization and the Microsoft Graph Security API](https://aka.ms/graphsecurityauth). The following steps are a summary of the procedures from this article. Note that any updates to the article may supersede the steps presented here.

1. Create the application:
   1. Sign in to the [Application Registration Portal](https://apps.dev.microsoft.com/) using your Microsoft account.
   2. Under My applications, choose **Add an app**. If you are using an Office 365 account and see two categories listed (Converged or Azure AD only), choose **Add an app** for the Converged applications section.
   3. Enter an application name, and choose **Create**. (Do not choose Guided Setup.)
   4. In the registration page for your app, copy and save the **Application ID** field. You need it later to complete the configuration process.
   5. Under Application Secrets, choose **Generate New Password**. A new password is displayed in the New password generated dialog.
   6. **IMPORTANT**: Copy the password. You need it later to complete the configuration process and you will not be able to see the secret again.
   7. Under Platforms, choose **Add platform > Web**.
   8. Under Application Permissions, add the permissions **SecurityEvents.Read.All**, and **SecurityEvents.ReadWrite.All**.See the [Microsoft Graph permissions reference](https://developer.microsoft.com/en-us/graph/docs/concepts/permissions_reference) for more information about Graph's permission model.
   9. Enter http://localhost as the Redirect URL, and then choose **Save**.
2. Give Administrator consent to view Security data:
   1. Provide to your Microsoft Administrator account your Application ID and the Redirect URI that you used in the previous steps. The organization’s Administrator (or other user authorized to grant consent for organizational security resources) is required to grant consent to the application.
   2. As the tenant Admin with Security Administrator privileges for your organization, open a browser window and craft the following URL in the address bar:

[https://login.microsoftonline.com/common/adminconsent?client\_id=APPLICATION\_ID&state=12345](https://login.microsoftonline.com/common/adminconsent?client_id=APPLICATION_ID&state=12345&redirect_uri=REDIRECT_URL)

Where APPLICATION\_ID is the application ID value from the App V2 registration portal, which you can view after clicking on your application to view its properties.

* 1. After logging in, the tenant Admin is presented with a dialog similar to the following:



* 1. When the tenant Admin agrees to this dialog, the administrator is granting consent for all users of their organization to use this application.

For more details about the authorization flow, read the [Authorization and the Microsoft Graph Security API](https://aka.ms/graphsecurityauth).

Installation

Before installing, verify that your environment meets the following prerequisites:

* Resilient platform is version 35 or later.
* You have a Resilient account to use for the integrations. This can be any account that has the permission to view and modify administrator and customization settings as well as read and update incidents. You need to know the account username and password.
* You have access to the command line of the Resilient appliance, which hosts the Resilient platform; or to a separate integration server where you will deploy and run the functions code. If using a separate integration server, you must install Python version 2.7.10 or later, or version 3.6 or later, and “pip”. (The Resilient appliance is preconfigured with a suitable version of Python.)

**Installation on App Host**

When installing the Microsoft Security Graph integration onto the Resilient platform with App Host, be sure to use the package in .zip format. The .zip packaging contains critical data for the integration to successfully install via App Host.

For a complete guide on how to configure App Host for Resilient and install apps, please reference the Resilient Apps [Knowledge Center](https://www.ibm.com/support/knowledgecenter/SSBRUQ).

**Installation on an Integration Server**

When installing the Microsoft Security Graph integration onto the Resilient platform with an integration server, be sure to use the package provided in .tar.gz format.

Perform the procedures in each of the following sections.

Install the Python components

The functions package contains Python components that are called by the Resilient platform to execute the functions during your workflows. These components run in the Resilient Circuits integration framework.

The package also includes Resilient customizations that will be imported into the platform later.

Complete the following steps to install the Python components:

1. Ensure that the environment is up-to-date, as follows:

sudo pip install --upgrade pip

sudo pip install --upgrade setuptools

sudo pip install --upgrade resilient-circuits

1. Run the following command to install the package:

sudo pip install --upgrade fn\_microsoft\_security\_graph-1.0.0.zip

If this is a zip package with a tar.gz file inside, change step 2 to this:

To install the package, you must first unzip it then install the package as follows:

sudo pip install --upgrade fn\_microsoft\_security\_graph-1.0.0.tar.gz

Configure the Python components

The Resilient Circuits components run as an unprivileged user, typically named integration. If you do not already have an integration user configured on your appliance, create it now.

Complete the following steps to configure and run the integration:

1. Using sudo, switch to the integration user, as follows:

sudo su - integration

1. NOTE: Current Microsoft Security Graph Integration users running versions prior to v1.0.2: the app.config [fn\_microsoft\_security\_graph] has changed. Please save your current [fn\_microsoft\_security\_graph] section of your app.config file to another file and delete that section and then run this command to get the new section:

resilient-circuits config -u

Then edit values of tenant\_id, client\_id, client\_secret and any other customizations back into the [fn\_microsoft\_security\_graph] section.

NOTE: First time users of the Microsoft Security Graph integration follow this directions:

Use one of the following commands to create or update the resilient-circuits configuration file. Use –c for new environments or –u for existing environments.

resilient-circuits config -c

or

resilient-circuits config -u

1. Edit the resilient-circuits configuration file, as follows:
   1. In the [resilient] section, ensure that you provide all the information required to connect to the Resilient platform.
   2. In the [fn\_microsoft\_security\_graph] section, edit the settings as follows. *Note the*[*Application Registration Portal*](https://apps.dev.microsoft.com/) *is where you can find the client\_id (Application ID) and client\_secret (Application Secret), while you tenant\_id (Directory ID) can be found* [*here*](https://portal.azure.com/) *and going to Azure Active Directory > Properties and scrolling down to Directory ID*:

#

# Note that the microsoft\_graph\_token\_url below contains a placeholder {tenant} for the tenant ID.

# Do not place the tenant id in the place holder as the integration will do this at run time.

# Do not place '/' at the end of the url strings.

# In most cases the only required edits are replacing xxx with the Microsoft App credentials.

#

microsoft\_graph\_token\_url=https://login.microsoftonline.com/{tenant}/oauth2/v2.0/token

microsoft\_graph\_url=https://graph.microsoft.com/v1.0

tenant\_id=xxx

client\_id=xxx

client\_secret=xxx

## Polling options  
# How often polling should happen. Value is in seconds. To disable polling, set this to zero.  
msg\_polling\_interval=0

# Location of jinja template file to escalate incidents.

# If not set, default template is used.

incident\_template=

# String query to apply to the alert polling component. This will be added to the end of the url

# when searching for alerts. The example shown below would make the whole search url equal to

# https://graph.microsoft.com/v1.0/security/alerts/?$filter=assignedTo eq 'analyst@m365x594651.onmicrosoft.com' and severity eq 'high'

# This query string is full OData so alert query can start with 'top=', 'skip=', 'filter=', etc. Do not add a '$' at the start

# of the value as that character is reserved for environment variables

# alert\_query=filter=assignedTo eq 'analyst@m365x594651.onmicrosoft.com' and severity eq 'high'

alert\_query=

# Alert Time range sec - Optional value in seconds to set the start dateTime values for the createdDateTime field when filtering alerts.

# This is calculated by adding to the filter 'createdDateTime ge (current\_dateTime - alert\_time\_range\_sec)

# alert\_time\_range\_sec=3600

alert\_time\_range=

Deploy customizations to the Resilient platform

The package contains function definitions that you can use in workflows, and includes example workflows and rules that show how to use these functions. Also includes a custom incident field.

1. Use the following command to deploy these customizations to the Resilient platform:

resilient-circuits customize

1. Respond to the prompts to deploy functions, message destinations, workflows and rules. The following data will be imported.

Incident fields:  
 microsoft\_security\_graph\_alert\_id  
Action fields:  
 microsoft\_security\_graph\_alert\_assignedto  
 microsoft\_security\_graph\_alert\_closeddatetime  
 microsoft\_security\_graph\_alert\_comment  
 microsoft\_security\_graph\_alert\_feedback  
 microsoft\_security\_graph\_alert\_status  
 microsoft\_security\_graph\_alert\_tags  
 microsoft\_security\_graph\_query\_end\_datetime  
 microsoft\_security\_graph\_query\_start\_datetime  
Function inputs:  
 microsoft\_security\_graph\_alert\_data  
 microsoft\_security\_graph\_alert\_id  
 microsoft\_security\_graph\_alert\_search\_query  
Message Destinations:  
 microsoft\_security\_graph\_message\_destination  
Functions:  
 microsoft\_security\_graph\_alert\_search  
 microsoft\_security\_graph\_get\_alert\_details  
 microsoft\_security\_graph\_update\_alert  
Workflows:  
 example\_microsoft\_security\_graph\_alert\_search  
 example\_microsoft\_security\_graph\_get\_alert\_details  
 example\_microsoft\_security\_graph\_resolve\_alert  
 example\_microsoft\_security\_graph\_update\_alert  
Rules:  
 Example Microsoft Security Graph Update Alert  
 Example: Microsoft Security Graph Alert Search  
 Example: Microsoft Security Graph Get Details  
 Example: Microsoft Security Graph Resolve Alert

Scripts:

Convert json to rich text

Run the integration framework

To test the integration package before running it in a production environment, you must run the integration manually with the following command:

resilient-circuits run

The resilient-circuits command starts, loads its components, and continues to run until interrupted. If it stops immediately with an error message, check your configuration values and retry.

Configure Resilient Circuits for restart

For normal operation, Resilient Circuits must run continuously. The recommend way to do this is to configure it to automatically run at startup. On a Red Hat appliance, this is done using a systemd unit file such as the one below. You may need to change the paths to your working directory and app.config.

1. The unit file must be named resilient\_circuits.service To create the file, enter the following command:

sudo vi /etc/systemd/system/resilient\_circuits.service

1. Add the following contents to the file and change as necessary:

[Unit]  
Description=Resilient-Circuits Service  
After=resilient.service  
Requires=resilient.service

[Service]  
Type=simple  
User=integration  
WorkingDirectory=/home/integration  
ExecStart=/usr/local/bin/resilient-circuits run  
Restart=always  
TimeoutSec=10  
Environment=APP\_CONFIG\_FILE=/home/integration/.resilient/app.config  
Environment=APP\_LOCK\_FILE=/home/integration/.resilient/resilient\_circuits.lock

[Install]  
WantedBy=multi-user.target

1. Ensure that the service unit file is correctly permissioned, as follows:

sudo chmod 664 /etc/systemd/system/resilient\_circuits.service

1. Use the systemctl command to manually start, stop, restart and return status on the service:

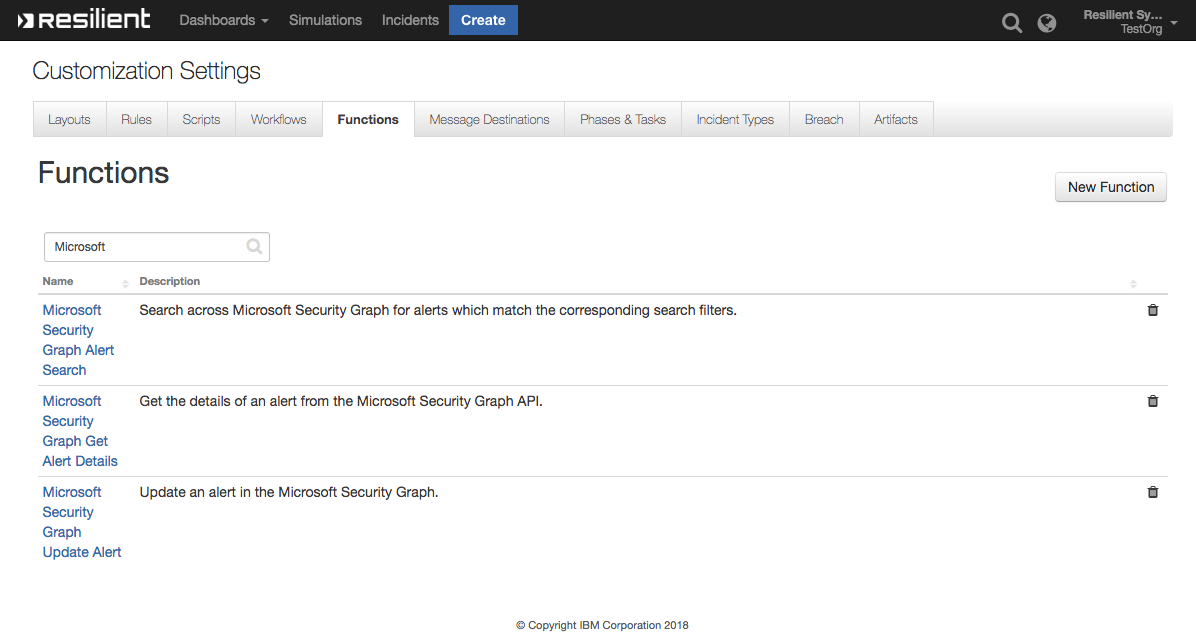
sudo systemctl resilient\_circuits [start|stop|restart|status]

You can view log files for systemd and the resilient-circuits service using the journalctl command, as follows:

sudo journalctl -u resilient\_circuits --since "2 hours ago"

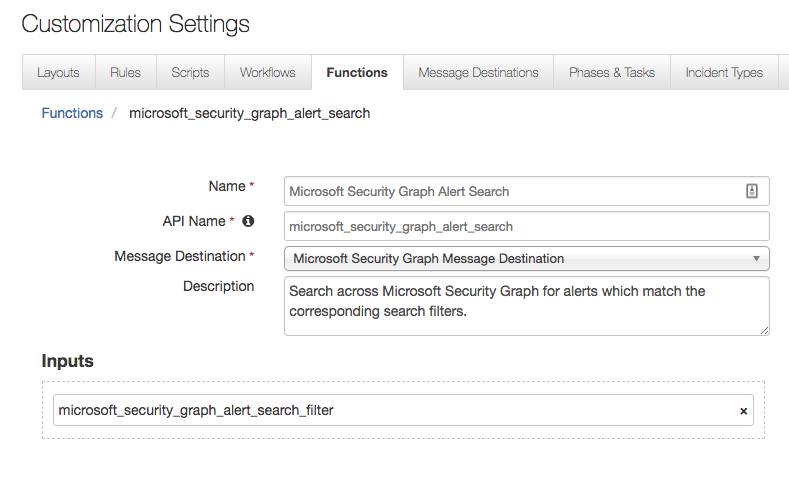
Function Descriptions

Once the function package deploys the function(s), you can view them in the Resilient platform Functions tab, as shown below. The package also includes example workflows and rules that show how the functions can be used. You can copy and modify these workflows and rules for your own needs.



Microsoft Security Graph Alert Search

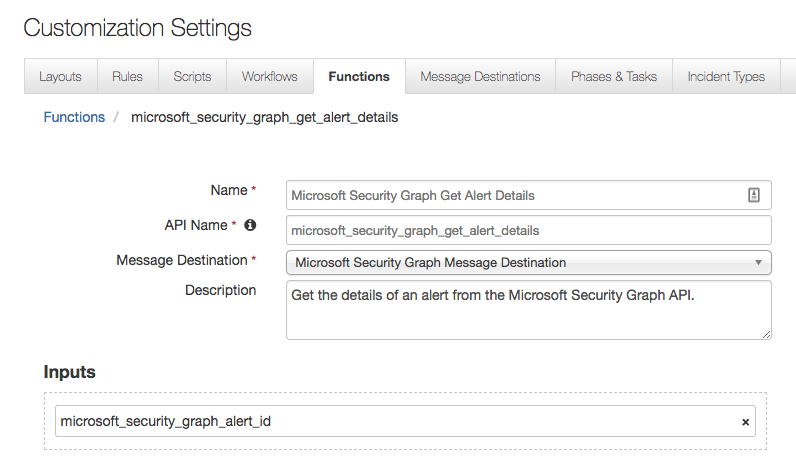
The Microsoft Security Graph Alert Search function allows for alerts to be searched for across the tenant’s data in the Microsoft Graph. The function accepts one optional input microsoft\_security\_graph\_alert\_search\_query which is an OData query string to return alerts back.



The default workflow for this function is run against an artifact and searches for all other alerts with a similar artifact value in a specified time range.

Microsoft Security Graph Get Alert Details

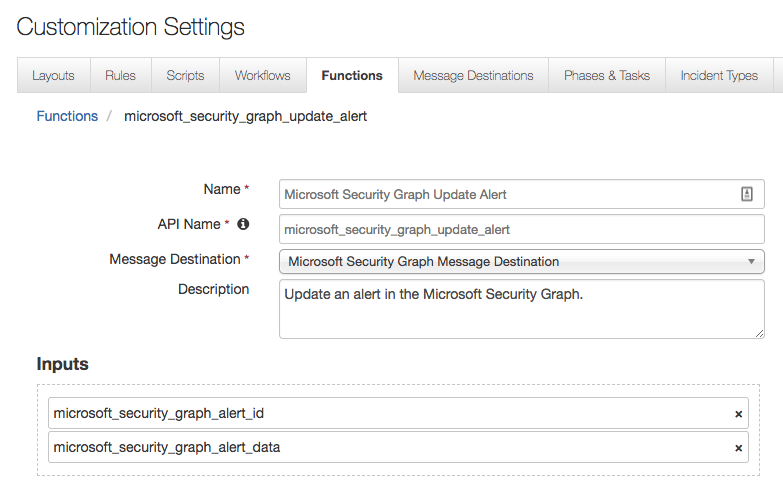
The Microsoft Security Graph Get Alert Details function returns back all details for a specific alert. This function takes one input microsoft\_security\_graph\_alert\_id which is the id specific of the alert to return details on.



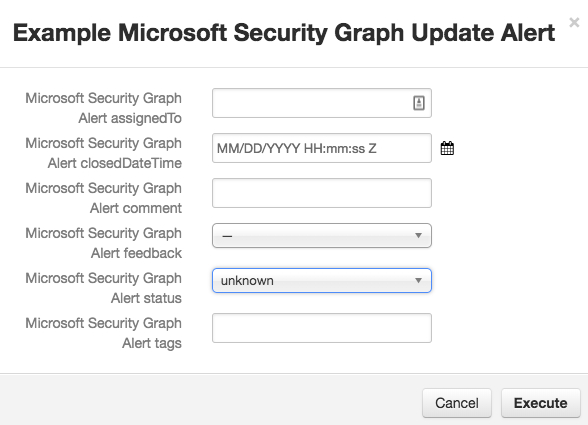
The default workflow for this function is run against an incident which has the custom incident field microsoft\_security\_graph\_alert\_id set and potential artifacts to the incident.

Microsoft Security Graph Update Alert

The Microsoft Security Graph Update Alert function is used to update an alert in the Microsoft Graph from the Resilient platform. The function accepts two inputs, the alert’s unique id microsoft\_security\_graph\_alert\_id and a JSON string of the data to update an alert with microsoft\_security\_graph\_alert\_data.



The default workflows for this function include being triggered from an incident to update the alert based on a number of fields from a pop up shown below, and another one is triggered when the incident is closed and sets the alert status to resolved.



Alert Polling Integration Description

When loaded and set to poll, the alert polling integration spawns a new thread to handle all the polling and creation of incidents. For this to happen, set msg\_polling\_interval to a positive integer within the app.config file. This is enables Microsoft Security Graph polling and sets the polling interval in seconds, to disable polling set this to an integer less than 1. incident\_template can be set to the location of a jinja template used to create incident data, if this is not set, the integration will default to using the default packaged template.

When the component is loaded and msg\_polling\_interval is a positive integer, a new thread is created. This thread reaches out to the Microsoft Graph and returns a list of alerts, narrowing results down when alert\_query is set. Since alert\_query is full OData this can start with filter=, top=, skip=, etc; just do not start it with $ as that character is reserved for environment variables. From here, this list is cross-referenced with active incident within the Resilient platform. If the alert already exists as an active incident in the Resilient platform, it moved on to the next alert; otherwise, a new incident is created in the Resilient platform based on the alert data.

When the incident is created, the Microsoft Security Graph Alert ID custom field is set to the ID of the alert in the Microsoft Graph to ensure the connection between alerts and incidents.

The incident template field can be edited to meet custom needs. The suggested way of accomplishing this is copying the default template that comes with the integration to a new directory and editing it from there. This template can be found at: <python\_env>/lib/<python\_version>/site-packages/fn\_microsoft\_security\_graph/data/templates/. The template utilizes jinja. More documentation can be found at something. Once the custom template is finished, set its location in the config file at: incident\_template=<location\_of\_template>.

Troubleshooting

There are several ways to verify the successful operation of a function.

* Resilient Action Status

When viewing an incident, use the Actions menu to view Action Status. By default, pending and errors are displayed. Modify the filter for actions to also show Completed actions. Clicking on an action displays additional information on the progress made or what error occurred.

* Resilient Scripting Log

A separate log file is available to review scripting errors. This is useful when issues occur in the pre-processing or post-processing scripts. The default location for this log file is: /var/log/resilient-scripting/resilient-scripting.log.

* Resilient Logs

By default, Resilient logs are retained at /usr/share/co3/logs. The client.log may contain additional information regarding the execution of functions.

* Resilient-Circuits

The log is controlled in the .resilient/app.config file under the section [resilient] and the property logdir. The default file name is app.log. Each function will create progress information. Failures will show up as errors and may contain python trace statements.

Support

For additional support, contact [support@resilientsystems.com](mailto:support@resilientsystems.com).

Including relevant information from the log files will help us resolve your issue.