

IBM Resilient



Incident Response Platform Integrations

Microsoft Graph Security API Integration V1.0.3

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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](#)

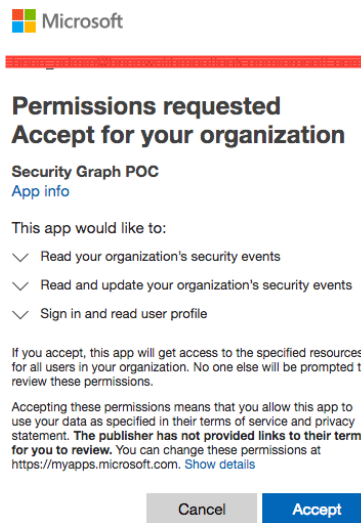
In addition, you need a Microsoft application registered to access the Microsoft Graph, as described in [Authorization and the Microsoft Graph Security API](#). The following steps are a summary of the procedures from this article. Note that any updates to the article may supersede the steps presented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

1. Create the application:
 - a. Sign in to the [Application Registration Portal](#) using your Microsoft account.
 - b. 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.
 - c. Enter an application name, and choose **Create**. (Do not choose Guided Setup.)
 - d. In the registration page for your app, copy and save the **Application ID** field. You need it later to complete the configuration process.
 - e. Under Application Secrets, choose **Generate New Password**. A new password is displayed in the New password generated dialog.
 - f. **IMPORTANT:** Copy the password. You need it later to complete the configuration process and you will not be able to see the secret again.
 - g. Under Platforms, choose **Add platform > Web**.
 - h. Under Application Permissions, add the permissions **SecurityEvents.Read.All**, and **SecurityEvents.ReadWrite.All**. See the [Microsoft Graph permissions reference](#) for more information about Graph's permission model.
 - i. Enter `http://localhost` as the Redirect URL, and then choose **Save**.
2. Give Administrator consent to view Security data:
 - a. 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.
 - b. 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
```

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.

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



- d. 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](#).

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](#).

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:

3. 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
```

4. 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
```

2. 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
```

3. Edit the resilient-circuits configuration file, as follows:
 - a. In the [resilient] section, ensure that you provide all the information required to connect to the Resilient platform.
 - b. In the [fn_microsoft_security_graph] section, edit the settings as follows. *Note the [Application Registration Portal](#) 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](#) 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'

# Query only alerts that are not resolved by default:
alert_query=filter=status ne 'resolved'

# 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
```

2. 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
```

2. 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
```

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

```
sudo chmod 664 /etc/systemd/system/resilient_circuits.service
```

4. 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.

The screenshot shows the Resilient platform interface. At the top is a navigation bar with the Resilient logo and tabs for Dashboards, Simulations, Incidents, and a highlighted Create button. Below this is a 'Customization Settings' section with a horizontal menu containing Layouts, Rules, Scripts, Workflows, Functions (which is selected), Message Destinations, Phases & Tasks, Incident Types, Breach, and Artifacts. The main content area is titled 'Functions' and features a search bar with 'Microsoft' entered. Below the search bar is a table of functions:

Name	Description	
Microsoft Security Graph Alert Search	Search across Microsoft Security Graph for alerts which match the corresponding search filters.	
Microsoft Security Graph Get Alert Details	Get the details of an alert from the Microsoft Security Graph API.	
Microsoft Security Graph Update Alert	Update an alert in the Microsoft Security Graph.	

At the bottom right of the Functions section is a 'New Function' button. At the very bottom of the page is a copyright notice: '© Copyright IBM Corporation 2018'.

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.

Customization Settings

Layouts	Rules	Scripts	Workflows	Functions	Message Destinations	Phases & Tasks	Incident Types
---------	-------	---------	-----------	------------------	----------------------	----------------	----------------

[Functions](#) / `microsoft_security_graph_alert_search`

Name *	Microsoft Security Graph Alert Search
API Name * ⓘ	<code>microsoft_security_graph_alert_search</code>
Message Destination *	Microsoft Security Graph Message Destination
Description	Search across Microsoft Security Graph for alerts which match the corresponding search filters.

Inputs

`microsoft_security_graph_alert_search_filter`

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.

Customization Settings

Layouts	Rules	Scripts	Workflows	Functions	Message Destinations	Phases & Tasks	Incident Types
---------	-------	---------	-----------	------------------	----------------------	----------------	----------------

[Functions](#) / `microsoft_security_graph_get_alert_details`

Name *	<input type="text" value="Microsoft Security Graph Get Alert Details"/>
API Name * ⓘ	<input type="text" value="microsoft_security_graph_get_alert_details"/>
Message Destination *	<input type="text" value="Microsoft Security Graph Message Destination"/>
Description	<input type="text" value="Get the details of an alert from the Microsoft Security Graph API."/>

Inputs

<input type="text" value="microsoft_security_graph_alert_id"/>
--

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`.

Customization Settings

Layouts	Rules	Scripts	Workflows	Functions	Message Destinations	Phases & Tasks	Incident Types
---------	-------	---------	-----------	------------------	----------------------	----------------	----------------

[Functions](#) / `microsoft_security_graph_update_alert`

Name *

API Name * ⓘ

Message Destination *

Description

Inputs

×

×

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.

Example Microsoft Security Graph Update Alert ×

Microsoft Security Graph Alert assignedTo	<input type="text"/>
Microsoft Security Graph Alert closedDateTime	<input type="text" value="MM/DD/YYYY HH:mm:ss Z"/>
Microsoft Security Graph Alert comment	<input type="text"/>
Microsoft Security Graph Alert feedback	<input type="text" value="—"/>
Microsoft Security Graph Alert status	<input type="text" value="unknown"/>
Microsoft Security Graph Alert tags	<input type="text"/>

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 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.

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