



ExtraHop 7.1

ExtraHop REST API Guide

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For more documentation, see <https://docs.extrahop.com/>.

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Introduction to ExtraHop REST API

The ExtraHop REST application programming interface (API) enables you to automate administration and configuration tasks on your ExtraHop appliances. You can send requests to the ExtraHop API through a Representational State Transfer (REST) interface, which is accessed through resource URIs and standard HTTP methods.

You can automate administration tasks such as registering a new license or replacing the SSL certificate. And, on the Discover and Command appliances, you can automate configuration tasks, such as creating alerts, or writing triggers.

When a REST API request is sent over HTTPS to an ExtraHop appliance, that request is authenticated and then authorized through an API key. After authentication, the request is submitted to the ExtraHop system and the operation completes.

Each ExtraHop appliance provides access to the built in ExtraHop API Explorer tool, which enables you to view all of the available system resources, methods, properties, and parameters. The API Explorer tool also enables you to test out API calls directly on your ExtraHop appliance.



Note: This guide is intended for an audience that has a basic familiarity with software development and the ExtraHop system.

ExtraHop API requirements

Before you can begin coding against the ExtraHop REST API or performing operations through the ExtraHop API Explorer, you must meet the following requirements:

- Your ExtraHop appliance must be configured to allow API key generation for the type of user you are (remote or local).
- You must have a user account with appropriate privileges set for the type of tasks you want to perform.
- You must have access to the ExtraHop appliance.

Get started

If you have a user account for your ExtraHop appliance, you can connect to the ExtraHop API Explorer and begin browsing through the available resources.

1. From the ExtraHop Web UI, click the User icon, and then select **API Access**.
2. On the API Access page, click **ExtraHop API Explorer**.
3. Locate a resource you want and click **List Operations** to view all operations that you can perform on that resource.
4. Click an operation name to view implementation information such as parameters, response class and messages, and JSON model and schema that are applicable to the operation.

Next steps

[Access and authenticate to the ExtraHop REST API](#)


[Enable CORS for the ExtraHop REST API](#)

[Learn about the ExtraHop API Explorer](#)

[Learn about the ExtraHop REST API](#)

Access and authenticate to the ExtraHop REST API

Administrators, or users with full system privileges, control whether users can generate API keys. For example, you can prevent remote users from generating keys or you can disable API key generation entirely. When this functionality is enabled, API keys are generated by users and can be viewed only by the user who generated the key.

 **Note:** Administrators set up user accounts, and then users generate their own API key. Users can delete API keys for their own account, and users with full system privileges can delete API keys for any user. For more information, see the [Users](#) section in the [ExtraHop Admin UI Guide](#).

After you generate an API key, you must append the key to your request headers. The following example shows a request that would retrieve all of the alerts set on the ExtraHop system:

```
curl -i -X GET --header "Authorization: ExtraHop apikey=39284639207" \
--header "Accept: application/json" \
"https://<hostname-or-IP-of-your-ExtraHop-appliance>/api/v1/alerts"
```

Permission levels

A user's permission levels determine which ExtraHop Web UI and ExtraHop Admin UI tasks the user can perform through the ExtraHop REST API.

Permissions levels are set through the `granted_roles` property available from the following operations:

- POST /users
- PATCH /users/{username}

You can view the permission levels for users through the `granted_roles` and `effective_roles` properties returned by the following operations:

- GET /users
- GET /users/{username}

The `granted_roles` and `effective_roles` properties support the following values:

- "system": "full"
- "system": null
- "write": "full"
- "write": "limited"
- "write": "personal"
- "write": null
- "metrics": "full"
- "metrics": "restricted"
- "metrics": null
- "packets": "full"
- "packets": null

The following table describes what actions you can perform on the ExtraHop appliance at each permission level:

| Permission level | Actions allowed |
|------------------|--|
| "system": "full" | <ul style="list-style-type: none"> • Enable or disable API key generation for the ExtraHop appliance. • Generate an API key. |

| Permission level | Actions allowed |
|-------------------------|--|
| | <ul style="list-style-type: none"> View the last four digits and description for any API key on the system. Delete API keys for any user. View and edit cross-origin resource sharing. Transfer ownership of any non-system dashboard to another user. Perform any Admin UI task available through the REST API. Perform any Web UI task available through the REST API. |
| "write": "full" | <ul style="list-style-type: none"> Generate your own API key. View or delete your own API key. Change your own password, but you cannot perform any other Admin UI tasks through the REST API. Perform any Web UI task available through the REST API. |
| "write": "limited" | <ul style="list-style-type: none"> Generate an API key. View or delete their own API key. Change your own password, but you cannot perform any other Admin UI tasks through the REST API. Perform all GET operations through the REST API. Modify the sharing status of dashboards that you are allowed to edit. Delete dashboards and activity maps that you own. Perform metric and record queries. |
| "write": "personal" | <ul style="list-style-type: none"> Generate an API key. View or delete your own API key. Change your own password, but you cannot perform any other Admin UI tasks through the REST API. Perform all GET operations through the REST API. Delete dashboards and activity maps that you own. Perform metric and record queries. |
| "metrics": "full" | <ul style="list-style-type: none"> Generate an API key. View or delete your own API key. Change your own password, but you cannot perform any other Admin UI tasks through the REST API. View dashboards and activity maps shared with you. Perform metric and record queries. |
| "metrics": "restricted" | <ul style="list-style-type: none"> Generate an API key. View or delete your own API key. Change your own password, but you cannot perform any other Admin UI tasks through the REST API. View dashboards and activity maps shared with you. |
| "packets": "full" | <ul style="list-style-type: none"> View and download packets from an ExtraHop Discover appliance through the <code>GET/packetcaptures/{id}</code> operation. <p>This is an add-on privilege that can be granted to a user with one of the following permission levels:</p> |

| Permission level | Actions allowed |
|------------------|---|
| | <ul style="list-style-type: none"> • "write": "full" • "write": "limited" • "write": "personal" • "write": null • "metrics": "full" • "metrics": "restricted" |

Manage API key access

Users with full system privileges can manage which users are able to generate API keys on the ExtraHop appliance.

1. Log in to the ExtraHop Admin UI through the following URL: `https://<hostname-or-IP-of-your-ExtraHop-appliance>/admin`
2. In the Access Settings section, click **API Access**.
3. In the Manage Access section, select one of the following options:
 - **Allow All User Generated API Keys:** Local and remote users can generate API keys.
 - **Local Users Only:** Only local users can generate API keys.
 - **No API Keys Allowed:** No API keys can be generated by any user.
4. Click **Save Settings**.

Generate an API key

After you log into the Admin UI on the ExtraHop appliance, if API key generation is enabled, you can generate an API key.

Before you begin

Make sure the ExtraHop appliance and your user account are [enabled to generate API keys](#).

1. In the Access Settings section, click **API Access**.
2. In the Generate an API Key section, type a description for the new key, and then click **Generate**.
3. Scroll down to the API Keys section, and copy the API key that matches your description.

You can paste the key into the ExtraHop API Explorer or append the key to a request header.

Delete an API Key

You can delete an API key from the ExtraHop appliance.

1. In the Access Settings section, click **API Access**.
2. In the Keys section, click the delete (X) icon next to the API key you want to delete.
3. Click **OK**.

Enable CORS for the ExtraHop REST API

Cross-origin resource sharing (CORS) allows you to access the ExtraHop REST API across domain-boundaries and from specified web pages without requiring the request to travel through a proxy server.

You can configure one or more allowed origins or you can allow access to the ExtraHop REST API from any origin. Only administrative users with full system privileges can view and edit CORS settings.

View CORS settings

In the Access Settings section, click **API Access**.

The CORS Settings section displays the following settings:

- The list of URLs that can access the REST API.
- The status of the **Allow API requests from any Origin** option.

Add an allowed origin

You can configure one or more allowed origins or you can allow access to the ExtraHop REST API from any origin.

1. In the **Access Settings** section, click **API Access**.
2. In the CORS Settings section, specify one of the following access configurations.
 - To add a specific URL, type an origin URL in the text box, and then click the plus (+) icon or press ENTER.

The URL must include a scheme, such as `HTTP` or `HTTPS`, and the exact domain name. You cannot append a path; however, you can provide a port number.
 - To allow access from any URL, select the **Allow API requests from any Origin** checkbox.



Note: Allowing REST API access from any origin is less secure than providing a list of explicit origins.

3. Click **Save Settings** and then click **Done**.

Delete an allowed origin

You can delete a URL from the list of allowed origins or disable access from all origins.

1. In the Access Settings section, click **API Access**.
2. In the CORS Settings section, modify one of the following access configurations.
 - To delete a specific URL, click the delete (X) icon next to the origin you want to delete.
 - To disable access from any URL, clear the **Allow API requests from any Origin** checkbox.
3. Click **Save Settings**.

Learn about the ExtraHop API Explorer

The ExtraHop API Explorer is a web-based tool that enables you to view detailed information about the ExtraHop REST API resources, methods, parameters, properties, and error codes. Code samples are available in Python, cURL, and Ruby for each resource. You also can perform operations directly through the tool, which are performed on your ExtraHop and return information about your network.



Note: Be cautious when clicking the **Try it out!** button, because the operation is performed on your ExtraHop appliance.

View resource information

Click on any resource group in the ExtraHop API Explorer to view information about the available operations and the expected URL syntax for the resource.

The following options enable you to manage the information displayed on the main page.

- **Show/Hide:** Expands and collapses information about the resource.
- **List Operations:** Expands information about the resource operations.
- **Expand Operations:** Expands information about all of the resource operations. Clicking the method or path of the expanded operation will collapse the additional information.

View operation information

From the ExtraHop API Explorer, you can click on any operation to view additional configuration information for the resource.

The following table provides information about the sections available for resources in the API Explorer. Section availability varies by HTTP method; not all methods have all of the sections listed in the table.

| Section | Description |
|----------------------|---|
| Implementation Notes | Provides all of the fields for the request body and supported values for each field. |
| Response Class | Provides the response code and type for successful requests. |
| Parameters | Provides information about the available query parameters. |
| Response Messages | Provides additional information about the possible HTTP status codes for the resource. |
| Model | Provides the JSON body objects and descriptions. |
| Model Schema | Provides the JSON body schema. Red text indicates user-defined text values. Green text indicates Boolean and number values. |

GET requests

GET requests retrieve information about the objects in the associated resource. You can request information about all of the objects in a resource or you can specify an object ID to retrieve detailed information about only that object.

GET example: Retrieve a list of devices

Retrieve a list of devices on the ExtraHop system through the ExtraHop API Explorer.

1. Click **Device**, and then click **GET /devices**.
2. In the Parameters section, modify the fields to build your query. For example, the default limit parameter restricts the number of devices returned to 100.
3. Click the **Try it out!** button. A successful GET request returns a response body with the number of devices specified in the limit parameter. A failed GET request returns the response body with an error.

GET example: Retrieve specific device information

Retrieve information only about a specific device. You must have a device ID, which you can retrieve from the previous example.

1. Click **Device**, and then click **GET /devices/{id}**.
2. In the Parameters section, in the **id** field, type the device ID.
3. Click the **Try it out!** button. A successful GET request returns a response body with information about the specified device. A failed GET request returns the response body with an error.

POST requests

POST requests create objects and queries for the associated resource.

POST example: Create a custom dynamic FTP device group

Create a custom dynamic FTP device group on the ExtraHop system through the ExtraHop API Explorer.

1. Click **Device Group**, and then click **POST /devicegroups**.
2. Click on **Model** to see descriptions for optional and required fields.
3. Click on **Model Schema**, and then click in the box to automatically add the schema to the body parameter.
4. Edit the JSON fields. In the following example, the dynamic parameter is set to true, the field parameter is set to type and the value parameter is set to `/^extrahop.device.ftp_server$/`.

```
{
  "description": "FTP Example",
  "dynamic": true,
  "field": "type",
  "include_custom_devices": true,
  "name": "",
  "value": "/^extrahop.device.ftp_server$/"}

```

5. Click **Try it out!**



Note: To see available parameter options, perform a GET request on the resource. The response body for the GET request displays possible values for the fields.

A 201 status is returned upon success, there is no response body, and the response headers display the location URL (`/api/v1/devicegroups/151`) and ID (151) for the device group as follows:

```
{
  "date": "Mon, 30 Nov 2015 19:00:28 GMT",
  "via": "1.1 localhost",
  "server": "Apache",
  "content-type": "text/plain; charset=utf-8",
  "location": "/api/v1/devicegroups/151",
  "cache-control": "private, max-age=0",
  "connection": "Keep-Alive",
}
```

```
"keep-alive": "timeout=45, max=99",
"content-length": "0"
}
```

PATCH requests

PATCH requests update existing objects with modified or missing information.

PATCH example: Modify a device group

Modify a custom dynamic FTP device group on the ExtraHop system through the ExtraHop API Explorer.

1. Click **Device Group** and then click **PATCH /devicegroups/{id}**.
2. In the id parameter, type the ID for the device group. From the POST example above, the device group ID is 151.
3. Add and modify only the fields that you want to change to the body parameter. For example, to add a name for the device group that was created in the example above, type:

```
{
  "name": "FTP Servers"
}
```

4. Click **Try it out!**

DELETE requests

DELETE requests remove objects from the system. You must have an object ID to perform a DELETE operation.

DELETE example: Delete a device group

Delete a custom dynamic FTP device group on the ExtraHop system through the ExtraHop API Explorer.

1. Click **Device Group**, and then click **DELETE /devicegroups/{id}**.
2. In the id parameter, type the ID of the device group you want to delete. In the POST example above, the device group ID is 151.
3. Click **Try it out!**

The device group is deleted from your ExtraHop appliance. A status code of 204 is returned upon success.

PUT requests

For limited operations, you can erase and replace the content in a resource with a PUT request.

PUT example: Overwrite a product key

Erase and replace the license product key on the ExtraHop system through the ExtraHop API Explorer.

1. Click **Licenses** and then click **PUT /licenses/productkey**.
2. Click in the **Model Schema** box to add the schema to the product_key parameter.
3. Replace the string with your product key.
4. Click **Try it out!**

A status code of 204 is returned upon success.

Learn about the ExtraHop REST API

The ExtraHop REST API enables you to automate tasks for the ExtraHop Web UI and Admin UI. In addition, you can view and try all of the available resources through the ExtraHop API Explorer and perform operations directly on your ExtraHop appliance.

[Identify objects on the ExtraHop system](#)

[View ExtraHop REST API examples](#)

ExtraHop API resources

You can perform operations on the following resources through the ExtraHop REST API. You also can view more detailed information about these resources, such as available HTTP methods, query parameters, and object properties in the ExtraHop API Explorer.

Activity group

Activity groups classify devices automatically based on their network traffic.

You can retrieve IDs for all activity groups and then perform additional operations on a group that is associated with a single ID.

For example, activity group IDs can be added to Metric queries to retrieve metrics simultaneously for a group of devices.

For more information, see [Activity groups](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|-------------------------------------|---|
| GET /activitygroups | Retrieve all activity groups from the ExtraHop appliance. |
| GET /activitygroups/{id}/dashboards | Retrieve all dashboards related to a specific activity group. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Activity Map

An activity map is a dynamic visual representation of the L4-L7 protocol activity between devices in your network. Create a 2D or 3D layout of device connections in real-time to learn about the traffic flow and relationships between devices.

Here are some important considerations about activity maps:

- Any device, including custom devices, can appear in an activity map. However, L2 devices, custom devices, and devices in limited analysis cannot be the origin of an activity map. You can only create activity maps for active devices with L4-L7 protocol metrics associated with them. This protocol activity is the basis for creating the first step of the connection.
- Active L3 devices without any protocol activity for the selected time interval cannot be viewed in an activity map. Change the time interval or your device selections and try again.
- You can create an activity map in a Command appliance to view device connections across all of your Discover appliances. However, connected Discover appliances must be upgraded to firmware version 7.0.

To learn about configuring and navigating activity maps, see [Activity maps concepts](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|----------------------------------|---|
| GET /activitymaps | Retrieve all activity maps. |
| POST /activitymaps | Create a new activity map. |
| POST /activitymaps/query | Perform a network topology query, which returns activity map data in flat file content. |
| DELETE /activitymaps/{id} | Delete a specific activity map. |
| GET /activitymaps/{id} | Retrieve a specific activity map. |
| PATCH /activitymaps/{id} | Update a specific activity map. |
| POST /activitymaps/{id}/query | Perform a topology query for a specific activity map, which returns activity map data in flat file content. |
| GET /activitymaps/{id}/sharing | Retrieve the users and their sharing permissions for a specific activity map. |
| PATCH /activitymaps/{id}/sharing | Update the users and their sharing permissions for a specific activity map. |
| PUT /activitymaps/{id}/sharing | Replace the users and their sharing permissions for a specific activity map. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Alert

Alerts are system notifications that are generated upon specified alert criteria. Default alerts are available in the system, or you can create a custom alert.

Anomaly and threshold alerts can be set to alert you if a metric crosses the value defined in the alert. Trend alerts cannot be configured through the REST API.

For more information, see [Alerts concepts](#).

The following table displays all of the operations you can perform this resource:

| Operation | Description |
|--|--|
| GET /alerts | Retrieve all alerts. |
| POST /alerts | Create a new alert with specified values. |
| DELETE /alerts{id} | Delete a specific alert. |
| GET /alerts{id} | Retrieve a specific alert. |
| PATCH /alerts{id} | Apply updates to a specific alert. |
| GET /alerts{id}/applications | Retrieve all applications that have a specific alert assigned. |
| POST /alerts{id}/applications | Assign and unassign a specific alert to applications. |
| DELETE /alerts{id}/applications/{child-id} | Unassign an application from a specific alert. |
| POST /alerts{id}/applications/{child-id} | Assign an application to a specific alert. |

| Operation | Description |
|---|---|
| GET /alerts/{id}/devicegroups | Retrieve all device groups that have a specific alert assigned. |
| POST /alerts/{id}/devicegroups | Assign and unassign a specific alert to device groups. |
| DELETE /alerts/{id}/devicegroups/{child-id} | Unassign a device group from a specific alert. |
| POST /alerts/{id}/devicegroups/{child-id} | Assign a device group to a specific alert. |
| GET /alerts/{id}/devices | Retrieve all devices that have a specific alert assigned. |
| POST /alerts/{id}/devices | Assign and unassign a specific alert to devices. |
| DELETE /alerts/{id}/devices/{child-id} | Unassign a device from a specific alert. |
| POST /alerts/{id}/devices/{child-id} | Assign a device to a specific alert. |
| GET /alerts/{id}/emailgroups | Retrieve all email groups that have a specific alert assigned. |
| POST /alerts/{id}/emailgroups | Assign and unassign a specific alert to email groups. |
| DELETE /alerts/{id}/emailgroups/{child-id} | Unassign a email group from a specific alert. |
| POST /alerts/{id}/emailgroups/{child-id} | Assign a email group to a specific alert. |
| GET /alerts/{id}/exclusionintervals | Retrieve all exclusion intervals that have a specific alert assigned. |
| POST /alerts/{id}/exclusionintervals | Assign and unassign a specific alert to exclusion intervals. |
| DELETE /alerts/{id}/exclusionintervals/{child-id} | Unassign an exclusion interval from a specific alert. |
| POST /alerts/{id}/exclusionintervals/{child-id} | Assign an exclusion interval to a specific alert. |
| GET /alerts/{id}/networks | Retrieve all networks that have a specific alert assigned. |
| POST /alerts/{id}/networks | Assign and unassign a specific alert to networks. |
| DELETE /alerts/{id}/networks/{child-id} | Unassign a network from a specific alert. |
| POST /alerts/{id}/networks/{child-id} | Assign a network to a specific alert. |
| GET /alerts/{id}/stats | Retrieve all additional statistics for a specific alert. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

APIKey

An API key enables a user to perform operations through the ExtraHop REST API.

You can generate the initial API key for the setup user account through the REST API. All other API keys are generated through the API Access page in the ExtraHop Admin UI.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|----------------------|--|
| GET /apikeys | Retrieve all API keys. |
| POST /apikeys | Create the initial API key for the setup user account. |
| GET /apikeys/{keyid} | Retrieve information about a specific API key. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Appliance

The ExtraHop system consists of a network of connected appliances that perform tasks such as monitoring traffic, analyzing data, storing data, and detecting anomalies.

You can retrieve information about ExtraHop appliances connected to the local appliance and establish new connections to remote ExtraHop appliances.



Note: You can only establish a connection to a remote ExtraHop appliance that is licensed for the same edition as the local ExtraHop appliance.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|----------------------|---|
| GET /appliances | Retrieve all remote ExtraHop appliances connected to the local appliance. |
| POST /appliances | Establish a new connection to a remote ExtraHop appliance. |
| GET /appliances/{id} | Retrieve a specific remote ExtraHop appliance connected to the local appliance. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Application

Applications are user-defined groups that collect metrics identified through triggers across multiple types of traffic.

The default All Activity application contains all collected metrics.

The following table displays all of the operations you can perform on the application resource:

| Operation | Description |
|---------------------------------|---|
| GET /applications | Retrieve all applications that were active within a specific timeframe. |
| POST /applications | Create a new application. |
| GET /applications/{id} | Retrieve a specific application. |
| PATCH /applications/{id} | Update a specific application. |
| GET /applications/{id}/activity | Retrieve all activity for a specific application. |

| Operation | Description |
|--|--|
| GET /applications/{id}/alerts | Retrieve all alerts that are assigned to a specific application. |
| POST /applications/{id}/alerts | Assign and unassign alerts to a specific application. |
| DELETE /applications/{id}/alerts/{child-id} | Unassign an alert from a specific application. |
| POST /applications/{id}/alerts/{child-id} | Assign an alert to a specific application. |
| GET /applications/{id}/dashboards | Retrieve all dashboards related to a specific application. |
| GET /applications/{id}/flexgrids | Retrieve all flex grids that are assigned to a specific application. |
| POST /applications/{id}/flexgrids | Assign and unassign flex grids to a specific application. |
| DELETE /applications/{id}/flexgrids/{child-id} | Unassign a flex grid from a specific application. |
| POST /applications/{id}/flexgrids/{child-id} | Assign a flex grid to a specific application. |
| GET /applications/{id}/geomaps | Retrieve all geomaps that are assigned to a specific application. |
| POST /applications/{id}/geomaps | Assign and unassign geomaps to a specific application. |
| DELETE /applications/{id}/geomaps/{child-id} | Unassign a geomap from a specific application. |
| POST /applications/{id}/geomaps/{child-id} | Assign a geomap to a specific application. |
| GET /applications/{id}/pages | Retrieve all pages that are assigned to a specific application. |
| POST /applications/{id}/pages | Assign and unassign pages to a specific application. |
| DELETE /applications/{id}/pages/{child-id} | Unassign a page from a specific application. |
| POST /applications/{id}/pages/{child-id} | Assign a page to a specific application. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Audit log

The audit log displays a record of all recorded system administration and configuration activity, such as the time of the activity, the user who performed the activity, the operation, operation details, and system component.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|---------------|----------------------------------|
| GET /auditlog | Retrieve all audit log messages. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Bundle

Bundles are JSON-formatted documents that contain information about selected system configuration, such as triggers, dashboards, applications, or alerts.

You can create a bundle and then transfer those configurations to another ExtraHop appliance, or save the bundle as a backup. Bundles can also be downloaded from [ExtraHop Solution Bundles](#) and applied through the REST API.

For more information, see [Bundles concepts](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--------------------------|--|
| GET /bundles | Retrieve metadata about all bundles on the ExtraHop appliance. |
| POST /bundles | Upload a new bundle to the ExtraHop appliance. |
| DELETE /bundles/{id} | Delete a specific bundle. |
| GET /bundles/{id} | Retrieve a specific bundle export. |
| POST /bundles/{id}/apply | Apply a saved bundle to the ExtraHop appliance. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Custom device

You can create a custom device by defining a set of rules.

For example, you can create a custom device that has an IP address on a specified VLAN. By default, all IP addresses outside of the locally-monitored broadcast domains are aggregated behind a router. To identify devices that are behind that router, you can create a custom device, and then collect metrics from the device.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--|--|
| GET /customdevices | Retrieve all custom devices. |
| POST /customdevices | Create a custom device. |
| DELETE /customdevices/{id} | Delete a specific custom device. |
| GET /customdevices/{id} | Retrieve a specific custom device. |
| PATCH /customdevices/{id} | Update a specific custom device. |
| GET /customdevices/{id}/criteria | Retrieve all criteria from the specific custom device. |
| POST /customdevices/{id}/criteria | Create a new criterion for a specific custom device. |
| DELETE /customdevices/{id}/criteria/{child-id} | Delete a criterion for a specific custom device. |
| GET /customdevices/{id}/criteria/{child-id} | Retrieve a single custom device criterion. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Customization

The Customization resource enables you to manage backup files on the ExtraHop Discover or Command appliance. You must have full system privileges to perform operations on this resource.

Backup files contain both customizations and systems resources. Customizations are user-defined objects, such as alerts, dashboards, triggers, and custom metrics. System resources are items such as bundles, local users and groups, and the appliance SSL certificate. For more information, see [Backup and Restore](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|------------------------------------|--|
| GET /customizations | Retrieve all backup files. |
| POST /customizations | Create a backup file. |
| DELETE /customizations/{id} | Delete a specific backup file. |
| GET /customizations/{id} | Retrieve a specific backup file. |
| POST /customizations/{id}/apply | Restore only customizations from a specific backup file. |
| POST /customizations/{id}/download | Download a specific backup file. |


Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Dashboards

Dashboards are built-in or customized views of your ExtraHop metrics information.

For more information, see [Dashboards concepts](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--------------------------------|--|
| GET /dashboards | Retrieve all dashboards. |
| DELETE /dashboards/{id} | Delete a specific dashboard. |
| GET /dashboards/{id} | Retrieve a specific dashboard. |
| PATCH /dashboards/{id} | Update ownership of a specific dashboard. |
| GET /dashboards/{id}/reports | Retrieve scheduled reports that contain a specific dashboard. |
| |  Important: This operation is only available from an ExtraHop Command appliance. |
| GET /dashboards/{id}/sharing | Retrieve the users and their sharing permissions for a specific dashboard. |
| PATCH /dashboards/{id}/sharing | Update the users and their sharing permissions for a specific dashboard. |
| PUT /dashboards/{id}/sharing | Replace the users and their sharing permissions for a specific dashboard. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Device

Devices are objects on your network that have been identified and classified by your ExtraHop appliance.

For more information, see [Devices](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--|--|
| GET /devices | Retrieve all devices that were active within a specific time period. |
| GET /devices/{id} | Retrieve a specific device. |
| PATCH /devices/{id} | Update a specific device. |
| GET /devices/{id}/activity | Retrieve all activity for a device. |
| GET /devices/{id}/alerts | Retrieve all alerts that are assigned to a specific device. |
| POST /devices/{id}/alerts | Assign and unassign a specific device to alerts. |
| DELETE /devices/{id}/alerts/{child-id} | Unassign an alert from a specific device. |
| POST /devices/{id}/alerts/{child-id} | Assign an alert to a specific device. |
| GET /devices/{id}/dashboards | Retrieve all dashboards related to a specific device. |
| GET /devices/{id}/devicegroups | Retrieve all device groups that are assigned to a specific device. |
| POST /devices/{id}/devicegroups | Assign and unassign a specific device to device groups. |
| DELETE /devices/{id}/devicegroups/{child-id} | Unassign a device group from a specific device. |
| POST /devices/{id}/devicegroups/{child-id} | Assign a device group to a specific device. |
| GET /devices/{id}/flexgrids | Retrieve all flex grids that are assigned to a specific device. |
| POST /devices/{id}/flexgrids | Assign and unassign a specific device to flex grids. |
| DELETE /devices/{id}/flexgrids/{child-id} | Unassign a flex grid from a specific device. |
| POST /devices/{id}/flexgrids/{child-id} | Assign a flex grid to a specific device. |
| GET /devices/{id}/pages | Retrieve all pages that are assigned to a specific device. |
| POST /devices/{id}/pages | Assign and unassign a specific device to pages. |
| DELETE /devices/{id}/pages/{child-id} | Unassign a page from a specific device. |
| POST /devices/{id}/pages/{child-id} | Assign a page to a specific device. |
| GET /devices/{id}/tags | Retrieve all tags that are assigned to a specific device. |
| POST /devices/{id}/tags | Assign and unassign a specific device to tags. |
| DELETE /devices/{id}/tags/{child-id} | Unassign a tag from a specific device. |

| Operation | Description |
|--|---|
| POST /devices/{id}/tags/{child-id} | Assign a tag to a specific device. |
| GET /devices/{id}/triggers | Retrieve all triggers that are assigned to a specific device. |
| POST /devices/{id}/triggers | Assign and unassign a specific device to triggers. |
| DELETE /devices/{id}/triggers/{child-id} | Unassign a trigger from a specific device. |
| POST /devices/{id}/triggers/{child-id} | Assign a trigger to a specific device. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Device group

Device groups can be either static or dynamic.

A static device group is user-defined; you create a device group and then manually identify and assign each device to that group. A dynamic device group is defined and automatically managed by a set of configured rules.

For example, you can create a device group and then set a rule to classify all devices within a certain IP address range to be added to that group automatically.

For more information, see [Device groups](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--|---|
| GET /devicegroups | Retrieve all device groups that were active within a specific time period. |
| POST /devicegroups | Create a new device group. |
| DELETE /devicegroups/{id} | Delete a device group. |
| GET /devicegroups/{id} | Retrieve a specific device group. |
| PATCH /devicegroups/{id} | Update a specific device group. |
| GET /devicegroups/{id}/alerts | Retrieve all alerts that are assigned to a specific device group. |
| POST /devicegroups/{id}/alerts | Assign and unassign a specific device group to alerts. |
| DELETE /devicegroups/{id}/alerts/{child-id} | Unassign an alert from a specific device group. |
| POST /devicegroups/{id}/alerts/{child-id} | Assign an alert to a specific device group. |
| GET /devicegroups/{id}/dashboards | Retrieve all dashboards related to a specific device group. |
| GET /devicegroups/{id}/devices | Retrieve all devices in the device group that are active within a specific time window. |
| POST /devicegroups/{id}/devices | Assign and unassign a devices to a specific static device group. |
| DELETE /devicegroups/{id}/devices/{child-id} | Unassign a device from a specific static device group. |

| Operation | Description |
|--|---|
| POST /devicegroups/{id}/devices/{child-id} | Assign a device to a specific static device group. |
| GET /devicegroups/{id}/flexgrids | Retrieve all flex grids that are assigned to a specific device group. |
| POST /devicegroups/{id}/flexgrids | Assign and unassign a specific device group to flex grids. |
| DELETE /devicegroups/{id}/flexgrids/{child-id} | Unassign a flex grid from a specific device group. |
| POST /devicegroups/{id}/flexgrids/{child-id} | Assign a flex grid to a specific device group. |
| GET /devicegroups/{id}/pages | Retrieve all pages that are assigned to a specific device group. |
| POST /devicegroups/{id}/pages | Assign and unassign a specific device to pages group. |
| DELETE /devicegroups/{id}/pages/{child-id} | Unassign a page from a specific device group. |
| POST /devicegroups/{id}/pages/{child-id} | Assign a page to a specific device group. |
| GET /devicegroups/{id}/tags | Retrieve all tags that are assigned to a specific device group. |
| POST /devicegroups/{id}/tags | Assign and unassign a specific device group to tags. |
| DELETE /devicegroups/{id}/tags/{child-id} | Unassign a tag from a specific device group. |
| POST /devicegroups/{id}/tags/{child-id} | Assign a tag to a specific device group. |
| GET /devicegroups/{id}/triggers | Retrieve all triggers that are assigned to a specific device group. |
| POST /devicegroups/{id}/triggers | Assign and unassign a specific device group to triggers. |
| DELETE /devicegroups/{id}/triggers/{child-id} | Unassign a trigger from a specific device group. |
| POST /devicegroups/{id}/triggers/{child-id} | Assign a trigger to a specific device group. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Email group

You can add individual or group email addresses to an email group and assign them to a system alert. When that alert is triggered, the system sends an email to all of the addresses in the email group.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--------------------------|---|
| GET /emailgroups | Retrieve all email groups. |
| POST /emailgroups | Create a new email group. |
| DELETE /emailgroups/{id} | Delete a email group by a unique identifier. |
| GET /emailgroups/{id} | Retrieve a specific email group by a unique identifier. |

| Operation | Description |
|-------------------------|--|
| PATCH /emailgroups/{id} | Apply updates to a specific email group. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Exclusion intervals

An exclusion interval can be created to set a time period to suppress an alert.

For example, if you do not want to be notified about alerts after hours or on the weekends, an exclusion interval can create a rule to suppress the alert during that time period.

For more information, see [Alerts concepts](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|---------------------------------|---|
| GET /exclusionintervals | Retrieve all exclusion intervals. |
| POST /exclusionintervals | Create a new exclusion interval. |
| DELETE /exclusionintervals/{id} | Delete a specific exclusion interval. |
| GET /exclusionintervals/{id} | Retrieve a specific exclusion interval. |
| PATCH /exclusionintervals/{id} | Apply updates to a specific exclusion interval. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

ExtraHop

This resource provides metadata about the ExtraHop appliance, such as the firmware version or if the appliance is a Command appliance.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|---|---|
| GET /extrahop | Retrieve metadata about the firmware running on the ExtraHop appliance. |
| GET /extrahop/idrac | Retrieve the iDRAC IP address of the ExtraHop appliance. |
| GET /extrahop/platform | Retrieve the platform name of the ExtraHop appliance. |
| GET /extrahop/processes | Retrieve a list of processes running on the ExtraHop appliance. |
| POST/extrahop/processes/{process}/restart | Restart a process running on the ExtraHop appliance. |
| POST /extrahop/sslcert | Regenerate the SSL certificate on the ExtraHop appliance. |
| PUT /extrahop/sslcert | Replace the SSL certificate on the ExtraHop appliance. |

| Operation | Description |
|-----------------------|---|
| GET /extrahop/version | Retrieve the version of the firmware running on the ExtraHop appliance. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Flex Grid

A Flex Grid provides a table view of metrics information about devices.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--|--|
| GET /flexgrids | Retrieve all flex grids. |
| GET /flexgrids/{id}/applications | Retrieve all applications that have a flex grid assigned. |
| POST /flexgrids/{id}/applications | Assign and unassign a specific flex grid to applications. |
| DELETE /flexgrids/{id}/applications/{child-id} | Unassign an application from a specific flex grid. |
| POST /flexgrids/{id}/applications/{child-id} | Assign an application to a specific flex grid. |
| GET /flexgrids/{id}/devicegroups | Retrieve all device groups that are assigned to a flex grid. |
| POST /flexgrids/{id}/devicegroups | Assign and unassign a specific flex grid to device groups. |
| DELETE /flexgrids/{id}/devicegroups/{child-id} | Unassign a device group from a specific flex grid. |
| POST /flexgrids/{id}/devicegroups/{child-id} | Assign a device group to a specific flex grid. |
| GET /flexgrids/{id}/devices | Retrieve all devices that have a flex grid assigned. |
| POST /flexgrids/{id}/devices | Assign and unassign a specific flex grid to devices. |
| DELETE /flexgrids/{id}/devices/{child-id} | Unassign a device from a specific flex grid. |
| POST /flexgrids/{id}/devices/{child-id} | Assign a device to a specific flex grid. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Geomap

Geomaps display metrics across a global map, which indicates where metrics activity has occurred.

For more information, see [Geomaps concepts](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|---------------|-----------------------|
| GET /geomaps | Retrieve all geomaps. |
| POST /geomaps | Create a geomap. |

| Operation | Description |
|--|---|
| DELETE /geomaps/{id} | Delete a single geomap by unique identifier. |
| GET /geomaps/{id} | Retrieve a single geomap by unique identifier. |
| PATCH /geomaps/{id} | Update a single geomap by unique identifier. |
| GET /geomaps/{id}/applications | Retrieve all applications that are assigned to a specific geomap. |
| POST /geomaps/{id}/applications | Assign and unassign a specific geomap to applications. |
| DELETE /geomaps/{id}/applications/{child-id} | Unassign an application from a specific geomap. |
| POST /geomaps/{id}/applications/{child-id} | Assign an application to a specific geomap. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

License

This resource enables you to retrieve and set product keys or to retrieve and set a license.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|-------------------------|---|
| GET /license | Retrieve the license applied to this ExtraHop appliance. |
| PUT /license | Apply and register a new license to the ExtraHop appliance. |
| GET /license/productkey | Retrieve the product key to this ExtraHop appliance. |
| PUT /license/productkey | Apply the specified product key to the ExtraHop appliance and register the license. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Metrics

Metrics information is collected about every object identified by the ExtraHop appliance.

Note that metrics are retrieved through the POST method, which creates a query to collect the requested information through the API.

For more information, see [Metrics concepts](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|-------------------------|--|
| POST /metrics | Perform a metric query. |
| GET /metrics/next/{xid} | Retrieve the next chunked results from a metrics query request. This request is only valid on a Command appliance. |

| Operation | Description |
|-----------------------------|---|
| POST /metrics/total | Perform a metric query for total values. |
| POST /metrics/totalbyobject | Perform a metric query for total values that are grouped by object. |

For example, if you want to see all HTTP responses that occurred on the network in the last 30 seconds, enter the following request schema into the `POST /metrics` operation:

```
{
  "cycle": "auto",
  "from": -1800000,
  "metric_category": "http",
  "metric_specs": [
    {
      "name": "rsp"
    }
  ],
  "object_ids": [
    0
  ],
  "object_type": "application",
  "until": 0
}
```

The response body returns a list of HTTP responses and the time of each event, similar to the following output:

```
{
  "stats": [
    {
      "oid": 0,
      "time": 1494539640000,
      "duration": 30000,
      "values": [
        354
      ]
    },
    {
      "oid": 0,
      "time": 1494539640000,
      "duration": 30000,
      "values": [
        354
      ]
    },
    {
      "oid": 0,
      "time": 1494539640000,
      "duration": 30000,
      "values": [
        354
      ]
    }
  ],
  "cycle": "30sec",
  "node_id": 0,
  "clock": 1494541440000,
  "from": 1494539640000,
  "until": 1494541440000
}
```

```
}

```

Enter the same request schema into the `POST /metrics/total` operation to retrieve a count of all HTTP responses that occurred on the network in the last 30 seconds. The response body is similar to the following output:

```
{
  "stats": [
    {
      "oid": -1,
      "time": 1494541380000,
      "duration": 1800000,
      "values": [
        33357
      ]
    }
  ],
  "cycle": "30sec",
  "node_id": 0,
  "clock": 1494541440000,
  "from": 1494539640000,
  "until": 1494541440000
}
```

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Network

Networks are correlated to the network interface card that receives input from all of the objects identified by the ExtraHop appliance.

On an ExtraHop Command appliance, each connected appliance is identified as a network capture that is looking at the traffic for each ExtraHop Discover appliance that is connected to the Command appliance.

For more information, see [Networks](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|---|--|
| GET /networks | Retrieve all networks. |
| GET /networks/{id} | Retrieve a specific network by ID. |
| PATCH /networks/{id} | Update a specific network by ID. |
| GET /networks/{id}/alerts | Retrieve all alerts that are assigned to a specific network. |
| POST /networks/{id}/alerts | Assign and unassign alerts to a specific network. |
| DELETE /networks/{id}/alerts/{child-id} | Unassign an alert from a specific network. |
| POST /networks/{id}/alerts/{child-id} | Assign an alert to a specific network. |
| GET /networks/{id}/pages | Retrieve all pages that are assigned to a specific network. |
| POST /networks/{id}/pages | Assign and unassign pages to a specific network. |
| DELETE /networks/{id}/pages/{child-id} | Unassign a page from a specific network. |
| POST /networks/{id}/pages/{child-id} | Assign a page to a specific network. |

| Operation | Description |
|--------------------------|--|
| GET /networks/{id}/vlans | Retrieve all VLANS assigned to a specific network. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Network locality entry

You can manage a list that specifies the network locality of IP addresses.

For example, you can create an entry in the network locality list that specifies that an IP address or CIDR block is internal or external.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|------------------------------|---|
| GET /networklocality | Retrieve all network locality entries. |
| POST /networklocality | Create a network locality entry. |
| DELETE /networklocality/{id} | Delete a network locality entry. |
| GET /networklocality/{id} | Retrieve a specific network locality entry. |
| PATCH /networklocality/{id} | Apply updates to a specific network locality entry. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Node

A node is defined by its relationship to an ExtraHop Command appliance. The environment which contains Discover nodes and a Command appliance is called a Command cluster.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|-------------------|--|
| GET /nodes | Retrieve all Discover nodes connected to this Command appliance. |
| GET /nodes/{id} | Retrieve a specific Discover node that is connected to this Command appliance. |
| PATCH /nodes/{id} | Update a specific Discover node that is connected to this Command appliance. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Packet capture

Packet captures store packets from a network traffic flow.

You must write a trigger to identify the information you want to generate. For example, you can write a trigger to collect all of the packets going to a particular device that is generating a high volume of errors. Then, you can download or delete that information.

For more information, see [Packets concepts](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|-----------------------------|--|
| GET /packetcaptures | Retrieve metadata about all packet captures stored on this ExtraHop appliance. |
| DELETE /packetcaptures/{id} | Permanently remove a specific packet capture from the ExtraHop appliance. |
| GET /packetcaptures/{id} | Download a specific packet capture in PCAP format. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Page

Pages provide a template for creating a customized view of built-in metrics or metrics collected from triggers.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--|--|
| GET /pages | Retrieve all pages. |
| POST /pages | Create a page. |
| DELETE /pages/{id} | Delete a single page. |
| GET /pages/{id} | Retrieve a single page. |
| PATCH /pages/{id} | Update a single page. |
| GET /pages/{id}/applications | Retrieve all applications that have a specific page assigned. |
| POST /pages/{id}/applications | Assign and unassign a specific page to applications. |
| DELETE /pages/{id}/applications/{child-id} | Unassign an application from a specific page. |
| POST /pages/{id}/applications/{child-id} | Assign an application to a specific page. |
| GET /pages/{id}/devicegroups | Retrieve all device groups that are assigned to a specific page. |
| POST /pages/{id}/devicegroups | Assign and unassign a specific page to device groups. |
| DELETE /pages/{id}/devicegroups/{child-id} | Unassign a device group from a specific page. |
| POST /pages/{id}/devicegroups/{child-id} | Assign a device group to a specific page. |
| GET /pages/{id}/devices | Retrieve all devices that have a specific page assigned. |
| POST /pages/{id}/devices | Assign and unassign a specific page to devices. |
| DELETE /pages/{id}/devices/{child-id} | Unassign a device from a specific page. |
| POST /pages/{id}/devices/{child-id} | Assign a device to a specific page. |

| Operation | Description |
|--|---|
| GET /pages/{id}/networks | Retrieve all networks that have a specific page assigned. |
| POST /pages/{id}/networks | Assign and unassign a specific page to networks. |
| DELETE /pages/{id}/networks/{child-id} | Unassign a network from a specific page. |
| POST /pages/{id}/networks/{child-id} | Assign a network to a specific page. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Record Log

Records are structured flow and transaction information about events on your network. After you connect an ExtraHop Discover appliance to an ExtraHop Explore appliance, you can generate and send record information to the Explore appliance for storage, and you can query records to retrieve stored information about any object on your network.

For more information, see [Records concepts](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|------------------------------|--|
| GET /records/cursor/{cursor} | Retrieve records starting at a specified cursor. |
| POST /records/search | Perform a record log query. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Report

A report is a PDF file of a dashboard that you can schedule for email delivery to one or more recipients. You can specify how often the report email is delivered and the time interval for dashboard data included in the PDF file.

 **Important:** You can only schedule reports from an ExtraHop Command appliance.

Here are some important considerations about scheduled reports:

- You can only create a report for dashboards that you own or have been shared with you. Your ability to create a report is determined by your user privileges. Contact your ExtraHop administrator for help.
- Each report can only link to one dashboard.
- If you created a report for a dashboard that was later deleted or became inaccessible to you, the scheduled email will continue to be sent to recipients. However, the email will not include the PDF file and will instead notify recipients that the dashboard is unavailable to the report owner.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|----------------------|---------------------------|
| GET /reports | Retrieve all reports. |
| POST /reports | Create a report. |
| DELETE /reports/{id} | Delete a specific report. |

| Operation | Description |
|--|--|
| GET /reports/{id} | Retrieve a specific report. |
| PATCH /reports/{id} | Update a specific report. |
| GET /reports/{id}/contents | Retrieve the contents of a specific report. |
| PUT /reports/{id}/contents | Replace the contents of a specific report. |
| POST /reports/{id}/emailgroups | Change the email group assigned to a specific scheduled report. |
| GET /reports/{id}/emailgroups | Retrieve a list of email groups assigned to a specific scheduled report. |
| DELETE /reports/{id}emailgroups/{group-id} | Remove an email group from a specific scheduled report. |
| POST /reports/{id}emailgroups/{group-id} | Add an email group to a specific scheduled report. |
| POST /reports/{id}/queue | Immediately generate and send a specific report. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Running config

The running configuration file is a JSON document that contains core system configuration information for the ExtraHop appliance.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--------------------------|---|
| GET /runningconfig | Retrieve the current running configuration file. |
| PUT /runningconfig | Replace the current running configuration file. Configuration file changes are not automatically saved. |
| POST /runningconfig/save | Save the current changes to the running configuration file. |
| GET /runningconfig/saved | Retrieve the saved running configuration file. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

SSL decrypt key

This resource enables you to add a decryption key for your network traffic.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|-----------------------------|--|
| GET /ssldecryptkeys | Retrieve all SSL decryption keys. |
| POST /ssldecryptkeys | Create a new SSL decryption key. |
| DELETE /ssldecryptkeys/{id} | Remove an SSL key from the ExtraHop appliance. |

| Operation | Description |
|--|---|
| GET /ssldecryptkeys/{id} | Retrieve an SSL PEM and metadata. |
| PATCH /ssldecryptkeys/{id} | Update an existing SSL decryption key. |
| GET /ssldecryptkeys/{id}/protocols | Retrieve all protocols assigned to an SSL decryption key. |
| POST /ssldecryptkeys/{id}/protocols | Create a new protocol for an SSL decryption key. |
| DELETE /ssldecryptkeys/{id}/protocols/{child-id} | Delete a protocol from an SSL decryption key. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Support pack

A support pack is a file that contains configuration adjustments provided by ExtraHop Support.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|------------------------------|--|
| GET /supportpacks | Retrieve metadata about all support packs. |
| POST /supportpacks/execute | Run a new support pack. |
| GET /supportpacks/queue/{id} | Check on the status of an in-progress, running support pack. |
| GET /supportpacks/{filename} | Download an existing support pack by filename. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Tag

Device tags enable you to associate a device or group of devices by some characteristic. For example, you might tag all of your HTTP servers or tag all of the devices that are in a common subnet.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--------------------------------------|---|
| GET /tags | Retrieve all tags. |
| POST /tags | Create a a new tag. |
| DELETE /tags/{id} | Delete a specific tag. |
| GET /tags/{id} | Retrieve a specific tag. |
| PATCH /tags/{id} | Apply updates to a specific tag. |
| GET /tags/{id}/devices | Retrieve all devices that are assigned to a specific tag. |
| POST /tags/{id}/devices | Assign and unassign a specific tag to devices. |
| DELETE /tags/{id}/devices/{child-id} | Unassign a device from a specific tag. |

| Operation | Description |
|------------------------------------|------------------------------------|
| POST /tags/{id}/devices/{child-id} | Assign a device to a specific tag. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Trigger

Triggers are custom scripts that perform an action upon a pre-defined event.

For example, you can write a trigger to record a custom metric every time an HTTP request occurs, or classify traffic for a particular server as an Application server. For more information, see the [Trigger API Reference](#). For supplemental implementation notes about advanced options, see [Advanced trigger options](#).

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|---|---|
| GET /triggers | Retrieve all triggers. |
| POST /triggers | Create a new trigger. |
| DELETE /triggers/{id} | Delete a specific identifier. |
| GET /triggers/{id} | Retrieve a specific trigger by unique identifier. |
| PATCH /triggers/{id} | Update an existing trigger. |
| GET /triggers/{id}/devicegroups | Retrieve all device groups that are assigned to a specific trigger. |
| POST /triggers/{id}/devicegroups | Assign and unassign a specific trigger to device groups. |
| DELETE /triggers/{id}/devicegroups/{child-id} | Unassign a device group from a specific trigger. |
| POST /triggers/{id}/devicegroups/{child-id} | Assign a device group to a specific trigger. |
| GET /triggers/{id}/devices | Retrieve all devices that are assigned to a specific trigger. |
| POST /triggers/{id}/devices | Assign and unassign a specific trigger to devices. |
| DELETE /triggers/{id}/devices/{child-id} | Unassign a device from a specific trigger. |
| POST /triggers/{id}/devices/{child-id} | Assign a device to a specific trigger. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

User

The user resource enables you to create and manage the list of users who have access to the ExtraHop appliance and the permission levels for those users.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|------------|---------------------|
| GET /users | Retrieve all users. |

| Operation | Description |
|---------------------------------------|---|
| POST /users | Create a new user. |
| DELETE /users/{username} | Delete a specific user. |
| GET /users/{username} | Retrieve a specific user. |
| PATCH /users/{username} | Update settings for a specific user. |
| GET /users/{username}/apikeys | Retrieve all API keys for a specific user. |
| GET /users/{username}/apikeys/{keyid} | Retrieve information about a specific API key and user. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

User group

The user group resource enables you to manage and update groups of users and their dashboard sharing associations.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|--------------------------------------|---|
| GET /usergroups | Retrieve all user groups. |
| POST /usergroups/refresh | Query LDAP for the most recent user memberships for all remote user groups. |
| GET /usergroups/{id} | Retrieve a specific user group. |
| PATCH /usergroups/{id} | Update a specific user group. |
| DELETE /usergroups/{id}/associations | Delete all dashboard sharing associations with a specific user group. |
| GET /usergroups/{id}/members | Retrieve all members of a specific user group. |
| POST /usergroups/{id}/refresh | Query LDAP for the most recent user membership of a specific remote user group. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

VLAN

Virtual LANs are logical groupings of traffic or devices on the network.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|-------------------|-------------------------|
| GET /vlans | Retrieve all VLANs |
| PATCH /vlans/{id} | Update a specific VLAN. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Whitelist

A whitelist prioritizes devices that are added after the device limit is reached. When the device limit is reached, any new devices that are added are placed in limited analysis mode.

If you want to prioritize a device, you can add that device to the whitelist. Devices are removed from the ExtraHop device list based on seniority; the latest devices are removed first.

The following table displays all of the operations you can perform on this resource:

| Operation | Description |
|-------------------------------|---|
| DELETE /whitelist/device/{id} | Remove a device from the whitelist. |
| POST /whitelist/device/{id} | Add a device to the whitelist. |
| GET /whitelist/devices | Retrieve all devices that are in the whitelist. |
| POST /whitelist/devices | Add or remove devices from the whitelist. |

Implementation information and instructions for each operation are documented in the ExtraHop API Explorer. You can click on any operation in the ExtraHop API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.

Identify objects on the ExtraHop system

Objects on the ExtraHop system can be identified by any unique value, such as the IP address, MAC address, name, or system ID. To perform API operations on a specific object, you must locate the object ID.

You can locate an object ID through the following methods:

- The object ID is provided in the headers returned from a POST request. For example, if you send a POST request to create a page, the response headers display a location URL, such as:

```
{
  "date": "Wed, 25 Nov 2015 17:39:06 GMT",
  "via": "1.1 localhost",
  "server": "Apache",
  "content-type": "text/plain; charset=utf-8",
  "location": "/api/v1/pages/221",
  "cache-control": "private, max-age=0",
  "connection": "Keep-Alive",
  "keep-alive": "timeout=45, max=89",
  "content-length": "0"
}
```

The location for the newly created page is /api/v1/pages/221 and the ID for the page is 221.

- The object ID is provided for all objects returned from a GET request. For example, if you perform a GET request on all devices, the response body contains information for each device, including the ID.

The following response body displays an entry for a single device, with an ID of 10212:

```
{
  "mod_time": 1448474346504,
  "node_id": null,
  "id": 10212,
  "extrahop_id": "test0001",
  "description": null,
  "user_mod_time": 1448474253809,
  "discover_time": 1448474250000,
  "vlanid": 0,
}
```

```

"parent_id": 9352,
"macaddr": "00:05:G3:FF:FC:28",
"vendor": "Cisco",
"is_l3": true,
"ipaddr4": "10.10.10.5",
"ipaddr6": null,
"device_class": "node",
"default_name": "Cisco5",
"custom_name": null,
"cdp_name": "",
"dhcp_name": "",
"netbios_name": "",
"dns_name": "",
"custom_type": "",
"analysis_level": 1
},

```

To perform further requests on a specific device, add the ID in the request for that device.

- The object ID is provided in the URL for most objects. For example, in the ExtraHop Web UI, click on Metrics, and then Devices. Select any device. The URL for that device page displays an OIDD=<number>, such as:

```

https://10.10.10.205/extrahop/#/Devices?details=true&device
Oid=10180&from=6&interval_type=HR&until=0&view=l2stats

```

To perform further requests for that device, add 10180 to the id field in the ExtraHop API Explorer or to the body parameter in your request.


The URL for dashboards displays a short_code, which appears after /Dashboard. When you add the short_code to the ExtraHop API Explorer or to your request, you must prepend a tilde to the short code.

In the following example, kmC9Y is the short_code:

```

https://10.10.10.205/extrahop/#/Dashboard/~kmC9Y/?from=6&interval_
type=HR&until=0

```

You can also find the short_code in Dashboard Properties in the command menu  from any dashboard.

View ExtraHop REST API implementation notes

This section contains supplemental implementation notes to the ExtraHop REST API. These notes provide additional conceptual or reference information to help you configure certain parameters or options.

The following implementation notes are available:

- [Advanced trigger options](#)
- [Supported time units](#)
- [Operand values in record queries](#)

Advanced trigger options

Advanced trigger options are configuration options that you can set depending on the system events associated with the trigger. For example, you can configure the number of payload bytes to buffer on HTTP request events.

Advanced options are contained in the `hints` object of the trigger resource as shown in the following example:

```
"hints": {
  "flowClientPortMin": null,
  "flowClientBytes": 16384,
  "flowClientPortMax": null,
  "flowServerBytes": 16384,
  "flowPayloadTurn": true,
  "flowServerPortMin": 135,
  "flowServerPortMax": 49155
}
```

The following table describes available advanced options and applicable events:

| Option | Description | Applicable events |
|---------------------------------------|---|--|
| <code>"snaplen": string</code> | Specifies the number of bytes to capture per packet. Capture starts with the first bytes in the packet. Specify this option only if the trigger script performs packet capture. A value of 0 specifies that the capture should collect all bytes in each packet. | All events except: <ul style="list-style-type: none"> • ALERT_RECORD_COMMIT • METRIC_CYCLE_BEGIN • METRIC_CYCLE_END • FLOW_REPORT • NEW_APPLICATION • NEW_DEVICE • SESSION_EXPIRE |
| <code>"payloadBytes": number</code> | Specifies the minimum number of payload bytes to buffer. | <ul style="list-style-type: none"> • CIFS_REQUEST • CIFS_RESPONSE • HTTP_REQUEST • HTTP_RESPONSE • ICA_TICK |
| <code>"clipboardBytes": number</code> | Specifies the number of bytes to buffer on a Citrix clipboard transfer. | <ul style="list-style-type: none"> • ICA_TICK |

| Option | Description | Applicable events |
|-----------------------------------|---|--|
| "cycle": [30sec, 5min, 1hr, 24hr] | Specifies the length of the metric cycle, expressed in seconds. | <ul style="list-style-type: none"> METRIC_CYCLE_BEGIN METRIC_CYCLE_END METRIC_RECORD_COMMIT |
| "metricTypes": string | Specifies the metric type by the raw metric name such as <code>extrahop.device.http_server</code> . | <ul style="list-style-type: none"> ALERT_RECORD_COMMIT METRIC_RECORD_COMMIT |
| "flowPayloadTurn": boolean | <p>Enables packet capture on each flow turn.</p> <p>Per-turn analysis continuously analyzes communication between two endpoints to extract a single payload data point from the flow.</p> <p>If this option is enabled, any values specified for the <code>flowClientString</code> and <code>flowServerString</code> options are ignored.</p> | <ul style="list-style-type: none"> SSL_PAYLOAD TCP_PAYLOAD |
| "flowClientPortMin": number | <p>Specifies the minimum port number of the client port range.</p> <p>Valid values are 0 to 65535.</p> <p>A value of 0 specifies matching of any port.</p> | <ul style="list-style-type: none"> SSL_PAYLOAD TCP_PAYLOAD UDP_PAYLOAD |
| "flowClientPortMax": number | <p>Specifies the maximum port number of the client port range.</p> <p>Valid values are 0 to 65535.</p> <p>Any value specified for this option is ignored if the value of the <code>flowClientPortMin</code> option is 0.</p> | <ul style="list-style-type: none"> SSL_PAYLOAD TCP_PAYLOAD UDP_PAYLOAD |
| "flowClientBytes": number | <p>Specifies the number of client bytes to buffer.</p> <p>The value of this option cannot be set to 0 if the value of the <code>flowServerBytes</code> option is also set to 0.</p> | <ul style="list-style-type: none"> SSL_PAYLOAD TCP_PAYLOAD |
| "flowClientString": string | <p>Specifies the format string of client data to process.</p> <p>Any value specified for this option is ignored if the <code>flowPayloadTurn</code> option is enabled.</p> | <ul style="list-style-type: none"> SSL_PAYLOAD TCP_PAYLOAD UDP_PAYLOAD |
| "flowServerPortMin": number | <p>Specifies the minimum port number of the server port range.</p> <p>Valid values are 0 to 65535.</p> | <ul style="list-style-type: none"> SSL_PAYLOAD TCP_PAYLOAD |

| Option | Description | Applicable events |
|-------------------------------------|---|---|
| | A value of 0 specifies matching of any port. | <ul style="list-style-type: none"> • UDP_PAYLOAD |
| "flowServerPortMax": number | <p>Specifies the maximum port number of the server port range.</p> <p>Valid values are 0 to 65535.</p> <p>Any value specified for this option is ignored if the value of the flowServerPortMin option is 0.</p> | <ul style="list-style-type: none"> • SSL_PAYLOAD • TCP_PAYLOAD • UDP_PAYLOAD |
| "flowServerBytes": number | <p>Specifies the number of server bytes to buffer.</p> <p>The value of this option cannot be set to 0 if the value of the flowClientBytes option is also set to 0.</p> | <ul style="list-style-type: none"> • SSL_PAYLOAD • TCP_PAYLOAD |
| "flowServerString": string | <p>Specifies the format string of server data to process. Returns the entire packet upon a string match.</p> <p>Any value specified for this option is ignored if the flowPayloadTurn option is enabled.</p> | <ul style="list-style-type: none"> • SSL_PAYLOAD • TCP_PAYLOAD • UDP_PAYLOAD |
| "flowUdpAll": boolean | Enables capture of all UDP datagrams. | <ul style="list-style-type: none"> • UDP_PAYLOAD |
| "flowClassifyOnExpiration": boolean | Enables running the event upon expiration in order to accumulate metrics for flows that were not classified before expiring. | <ul style="list-style-type: none"> • FLOW_CLASSIFY |

Supported time units

For most parameters, the default unit for time measurement is milliseconds. Some parameters in GET and POST operations return or accept alternative time units such as minutes and hours.

The following table displays supported time units:

| Time unit | Unit suffix |
|-----------|-------------|
| Year | y |
| Month | M |
| Week | w |
| Day | d |
| Hour | h |
| Minute | m |

| Time unit | Unit suffix |
|-------------|-------------|
| Second | s |
| Millisecond | ms |

To specify a time unit other than milliseconds for a parameter, append the unit suffix to the value. For example, to request devices active in the last 30 minutes, specify the following parameter value:

```
GET /api/v1/devices?active_from=-30m
```

The following example specifies a search for HTTP records created between 1 and 2 hours ago:

```
{
  "from": "-2h",
  "until": "-1h",
  "types": [ "~http" ]
}
```

Operand values in record queries

The `operand` field in the `POST /records/search` method specifies the value that a record query attempts to match. You can specify only the value, or you can specify both the data type and the value. If you specify only the value, the query will refer to the record format associated with the `field` parameter to determine the data type of the value.

For example, if you want to search for an IP address, you can specify an IP address data type, and then provide the actual address as the value.

The following example explicitly specifies the data type and value of the operand:

```
{
  "from": -1000,
  "filter": {
    "field": "senderAddr",
    "operator": "=",
    "operand": { "type": "ipaddr4", "value": "1.2.3.4" }
  }
}
```

The following example specifies only the value of the operand:

```
{
  "from": -1000,
  "filter": {
    "field": "senderAddr",
    "operator": "=",
    "operand": "1.2.3.4"
  }
}
```

You can explicitly specify the following data types in the `operand` field:

- ipaddr4
- ipaddr6
- device
- application
- string

- number
- boolean

The `operand` field supports CIDR notation when filtering by IP addresses; the `operator` field must be set to "=" or "!=".

Alert severity levels

The severity level you specify for an alert is displayed in the Alert History, email notifications, and SNMP traps.

The following severity levels are supported. Severity levels 0-2 require immediate attention.

| Value | Name | Description |
|-------|-----------|---|
| 0 | Emergency | System functionality is unavailable. |
| 1 | Alert | Immediate action is required. |
| 2 | Critical | Critical conditions are occurring. |
| 3 | Error | Error conditions are occurring. |
| 4 | Warning | Warning conditions are occurring. |
| 5 | Notice | Normal operations are occurring with significant conditions, such as a restart. |
| 6 | Info | Normal operations are occurring with process updates. |
| 7 | Debug | Debug-level messages are available. |

View ExtraHop REST API examples

The following examples are available:

- [Example 1: Set up an SSL certificate](#)
- [Example 2: Create and assign a device tag](#)
- [Example 3: Query for metrics about a specific device](#)
- [Example 4: Create, retrieve, and delete an object](#)
- [Example 5: Query the record log](#)

Example 1: Set up an SSL certificate

Before making requests to an ExtraHop appliance with a self-signed certificate, you must set up an SSL certificate for each user who will access the ExtraHop appliance from a particular computer.

In each of the following examples, replace {HOST} with the hostname of your ExtraHop system and replace {API KEY} with a valid API key from your ExtraHop system.



Note: The SSL certificate applies only to the user performing the command. Each user must run the command with their login credentials to set up the SSL certificate.

Set up SSL through Windows Powershell

```
Invoke-WebRequest "http://{HOST}/public.cer" -OutFile ($env:USERPROFILE +
"\ex.cer"); Import-Certificate ($env:USERPROFILE + "\ex.cer")
-CertStoreLocation Cert:\CurrentUser\Root
```

Set up SSL through OS X

```
curl -O http://{HOST}/public.cer; security add-trusted-cert -r trustRoot -k
~/Library/Keychains/login.keychain public.cer
```

Example 2: Create and assign a device tag

The following example shows how you can create a device tag and then assign that tag to all of the devices in a specified subnet.

```
#!/usr/bin/env python

import httplib
import urllib
import json
import sys

# Configuration Options:
host = "{HOST}"
apikey = "{API KEY}"
tag_name = "MyTestTag"
subnet = "10.20.0.[0-9]+"
batch_limit = 100
headers = {'Accept': 'application/json',
           'Authorization': "ExtraHop apikey=%s" % apikey}
conn = httplib.HTTPSConnection(host)
def execute_req(method, path, expected_code, failure_message, body=None):
```

```

"""
    Returns the body of a successful request,
    otherwise prints error and terminates
"""

conn.request(method, "/api/v1" + path, headers=headers, body=body)
resp = conn.getresponse()
if resp.status is not expected_code:
    print(failure_message)
    print(resp.read())
    sys.exit(1)
return resp

def execute_get(path, expected_code, failure_message):
    resp = execute_req("GET", path, expected_code, failure_message)
    return json.loads(resp.read())

def execute_create(path, body, expected_code, failure_message):
    """Returns ID of newly created resource"""
    resp = execute_req("POST", path, expected_code, failure_message, body)
    resp.read() # drain the response
    return int(resp.getheader("location").split("/")[-1])

# First, search for the specified tag, by name
resp = execute_get("/tags", 200, "Unable to retrieve tags from ExtraHop")
tags = [tag for tag in resp if tag["name"] == tag_name]

if not tags:
    # tag is not found, create it
    body = json.dumps({"name": tag_name})
    tag_id = execute_create('/tags', body, 201, "Unable to create tag")
else:
    tag_id = tags[0]["id"]

query_params = {'limit': batch_limit,
                'search_type': 'ip address',
                'value': subnet}
query_string = urllib.urlencode(query_params)

# Paginate device results, building up a list of all devices to assign
device_ids = []
offset = 0

while True:
    path = "/devices?" + query_string + ("&offset=%d" % offset)
    resp = execute_get(path, 200, "Unable to retrieve devices")
    if not resp:
        break

    device_ids += [device["id"] for device in resp]
    offset += batch_limit

# Perform the assignments
resp = execute_req("POST", "/tags/%d/devices" % tag_id,
                  204, "Unable to perform assignments",
                  body=json.dumps({"assign": device_ids}))
resp.read() # drain the response

# Check that assignments were successful
resp = execute_get("/tags/%d/devices" % tag_id,
                  200, "Unable to retrieve tag assignments")
assigned_device_ids = [device["id"] for device in resp]

successful = set(device_ids).issubset(set(assigned_device_ids))

```

```

if successful:
    print("%d devices assigned to tag" % len(device_ids))
else:
    print("Unable to assign all devices to tag")

```

Example 3: Query for metrics about a specific device

The following request example shows how you can query for metrics from an HTTP client device with the ID 9363 and print the response.

```

import httplib

headers = {'Content-Type': 'application/json',
          'Accept': 'application/json',
          'Authorization': 'ExtraHop apikey={API KEY}'}
body = r"""{
  "cycle": "auto",
  "from": -1800000,
  "until": 0,
  "metric_category": "http_client",
  "metric_specs": [
    {
      "name": "req"
    }
  ],
  "object_ids": [
    9363
  ],
  "object_type": "device"
}"""
conn = httplib.HTTPSConnection('{HOST}')
conn.request('POST', '/api/v1/metrics', headers=headers, body=body)
resp = conn.getresponse()
print resp.status, resp.reason
print resp.read()

```

The following response shows entries for the device with ID 9363:

```

{
  "date": "Thu, 19 Nov 2015 23:20:07 GMT",
  "via": "1.1 localhost",
  "server": "Apache",
  "vary": "Accept-Encoding",
  "content-type": "application/json; charset=utf-8",
  "cache-control": "private, max-age=0",
  "connection": "Keep-Alive",
  "content-encoding": "gzip",
  "keep-alive": "timeout=45, max=44",
  "content-length": "277"
}

{
  "stats": [
    {
      "oid": 9363,
      "time": 1447973460000,
      "duration": 30000,
      "values": [
        2
      ]
    }
  ],
}

```

```
{
  "oid": 9363,
  "time": 1447973490000,
  "duration": 30000,
  "values": [
    0
  ]
},
{
  "oid": 9363,
  "time": 1447973520000,
  "duration": 30000,
  "values": [
    1
  ]
},
{
  "oid": 9363,
  "time": 1447973550000,
  "duration": 30000,
  "values": [
    2
  ]
}
```

Example 4: Create, retrieve, and delete an object

This example shows how you can create and successfully retrieve information about a device tag. Then, after the device tags are deleted, the example shows how an attempt to retrieve information subsequently fails.

The following example shows how to create a device tag called `my_test_tag`.

```
curl -i -X POST --header "Content-Type: application/json" \
--header "Accept: application/json" \
--header "Authorization: ExtraHop apikey={API KEY}" \
-d "{
  \"name\": \"my_test_tag\"
}" "https://{HOST}/api/v1/tags"
```

A 201 status returns upon success with the following response headers, which display that the tag was created, and provides the device tag location and ID of `/api/v1/tags/1`.

```
{
  "date": "Wed, 18 Nov 2015 20:24:13 GMT",
  "via": "1.1 localhost",
  "server": "Apache",
  "content-type": "text/plain; charset=utf-8",
  "location": "/api/v1/tags/1",
  "cache-control": "private, max-age=0",
  "connection": "Keep-Alive",
  "keep-alive": "timeout=45, max=88",
  "content-length": "0"
}
```

Next, the ID (1) is added to the following GET request, which returns a 200 status upon success and the JSON representation of the retrieved tag:

```
curl -i -X GET --header "Accept: application/json" \
--header "Authorization: ExtraHop apikey={API KEY}" \
```

```
"https://{HOST}/api/v1/tags/1"
{
  "mod_time": 1447878253953,
  "id": 1,
  "name": "my_test_tag"
}
```

Next, the following example shows a DELETE request to remove the device tag from the system, which returns a 204 status upon success:

```
curl -i -X DELETE --header "Accept: application/json" \
--header "Authorization: ExtraHop apikey={API KEY}" \
"https://{HOST}/api/v1/tags/1"
```

Finally, when another GET request is sent for that deleted device tag, the operation fails, and a 404 status is returned upon failure, indicating that the tag is no longer available.

```
curl -i -X GET --header "Accept: application/json" \
--header "Authorization: ExtraHop apikey={API KEY}" \
"https://{HOST}/api/v1/tags/1"
```

Example 5: Query the record log

The following example shows how you can query the record log to retrieve 100 HTTP records where the method is GET and the status code is 404.

```
{
  "filter": {
    "operator": "and",
    "rules": [
      {
        "field": "method",
        "operand": "GET",
        "operator": "="
      },
      {
        "field": "statusCode",
        "operand": "404",
        "operator": "="
      }
    ]
  },
  "from": -900000,
  "limit": 100,
  "types": [
    "~http"
  ]
}
```