



ExtraHop 7.5

ExtraHop Trace REST API Guide

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

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Introduction to the ExtraHop REST API

The ExtraHop REST 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.

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 REST API Explorer, which enables you to view all of the available system resources, methods, properties, and parameters. The REST API Explorer also enables you to send API calls directly to 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 writing scripts for the ExtraHop REST API or performing operations through the REST 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 [generate a valid API key](#).
- You must have a user account on the ExtraHop appliance with appropriate [privileges](#) set for the type of tasks you want to perform.

Access and authenticate to the ExtraHop REST API

Administrators, or users with unlimited 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 assign privileges, but then users generate their own API keys. Users can delete API keys for their own account, and users with unlimited privileges can delete API keys for any user. For more information, see [Users and user groups](#).

After you generate an API key, you must append the key to your request headers. The following example shows a request that retrieves metadata about the firmware running on the ExtraHop appliance:

```
curl -i -X GET --header "Accept: application/json" \
--header "Authorization: ExtraHop apikey=2bc07e55971d4c9a88d0bb4d29ecbb29" \
"https://<hostname-or-IP-of-your-ExtraHop-appliance>/api/v1/extrahop"
```

Privilege levels

User privilege levels determine which ExtraHop Web UI and ExtraHop Admin UI tasks the user can perform through the ExtraHop REST API.

You can view the privilege levels for users through the `granted_roles` and `effective_roles` properties. The `granted_roles` property shows you which privilege levels are explicitly granted to the user. The `effective_roles` property shows you all privilege levels for a user, including those received outside of the granted role, such as through a user group.


The `granted_roles` and `effective_roles` properties are returned by the following operations:

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

The `granted_roles` and `effective_roles` properties support the following privilege levels. Note that the type of tasks for each ExtraHop appliance vary by the available [resources](#) listed in the REST API Explorer.

Privilege 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. • 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.

Privilege level	Actions allowed
"write": "limited"	<ul style="list-style-type: none"> • Perform any Web UI task available through the REST API. <hr/> <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 privilege levels:</p> <ul style="list-style-type: none"> • "write": "full" • "write": "limited" • "write": "personal" • "write": null • "metrics": "full" • "metrics": "restricted"
"packets": "full_with_keys"	<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 privilege levels:</p> <ul style="list-style-type: none"> • "write": "full"

Privilege level	Actions allowed
	<ul style="list-style-type: none"> • "write": "limited" • "write": "personal" • "write": null • "metrics": "full" • "metrics": "restricted" <p>  Note: Although this privilege level enables a user to view and download session keys through the Web UI, you cannot access session keys through the REST API. </p>

Manage API key access

Users with unlimited privileges can configure whether users can generate API keys for the ExtraHop system. You can allow only local users to generate keys, or you can also disable API key generation entirely.

Users must generate an API key before they can perform operations through the ExtraHop REST API. Keys can be viewed only by the user who generated the key or system administrators with unlimited privileges. After a user generates an API key, they must append the key to their request headers.

1. Log into 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 API Access section, select one of the following options:
 - **Allow all users to generate an API key:** Local and remote users can generate API keys.
 - **Only local users can generate an API key:** Remote users cannot generate API keys.
 - **No users can generate an API key:** No API keys can be generated by any user.
4. Click **Save Settings**.

Generate an API key

You must generate an API key before you can perform operations through the ExtraHop REST API. Keys can be viewed only by the user who generated the key or by system administrators with unlimited privileges. After you generate an API key, add the key to your request headers or the ExtraHop REST API Explorer.

Before you begin

Make sure the ExtraHop appliance is [configured to allow API key generation](#).

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 REST API Explorer or append the key to a request header.

Configure cross-origin resource sharing (CORS)

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 unlimited privileges can view and edit CORS settings.

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**.

Learn about the REST API Explorer

The REST 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.

Important: Clicking the **Try it out!** button causes the specified operation to be performed on your ExtraHop appliance.

Open the REST API Explorer

You can open the REST API Explorer from the ExtraHop Admin UI or through the following URL:

```
https://<extrahop-hostname-or-ip-address>/api/v1/explore/
```

1. Log into the Admin UI on the ExtraHop appliance.
2. From the Access Setting section, click **API Access**.
3. On the API Access page, click **REST API Explorer**.
The REST API Explorer opens in your browser.

Enter your API key here

ExtraHop REST API Explorer

The REST API Explorer is a web-based tool that enables you to view and manipulate operation information and examples for the ExtraHop REST API. You can test API operations such as methods, schemas, parameters, and response messages directly through the API Explorer. In addition, you can copy and paste sample code for cURL, Python 2.7, and Ruby from the API Explorer into your development environment.

Both the REST API and the API Explorer authenticate through an API Key and allow you to communicate with the ExtraHop system over HTTPS.

Resource	Method	URL	Description	Actions
Activity Group	GET	/activitygroups	Retrieve all activity groups from the ExtraHop appliance.	Show/Hide List Operations Expand Operations
Activity Group	GET	/activitygroups/[id]/dashboards	Retrieve all dashboards related to a specific activity group.	Show/Hide List Operations Expand Operations
Activity Map				Show/Hide List Operations Expand Operations
Alert				Show/Hide List Operations Expand Operations
Analysis Priority				Show/Hide List Operations Expand Operations
APIKey				Show/Hide List Operations Expand Operations
Appliance				Show/Hide List Operations Expand Operations
Application				Show/Hide List Operations Expand Operations
Audit Log				Show/Hide List Operations Expand Operations

View resource information

Click on any resource group in the REST API Explorer to view 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 REST API Explorer, you can click any operation to view configuration information for the resource.

The following table provides information about the sections available for resources in the REST 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 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 strings. Green text indicates Boolean and number values.

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. However, to perform API operations on a specific object, you must locate the object ID. You can easily locate the object ID through the following methods in the REST API Explorer.

- 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.

The following request returned the location for the newly created page as `/api/v1/pages/221` and the ID for the page as `221`.

```
{
  "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 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
},
```

- 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 and view the URL. In the following example, the URL for the device page shows `Oid=10180`.


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

To perform specific requests for that device, add 10180 to the `id` field in the REST 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 REST API Explorer or to your request, you must prepend a tilde to the short code.

In the following example, `kmC9Y` is the `short_code`. To perform requests for this dashboard, add `~kmC9Y` as the value for the `short_code` field.

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

You can also find the `short_code` and dashboard ID in the Dashboard Properties for any dashboard, which can be accessed from the command menu . Some API operations, such as DELETE, require the dashboard ID.

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 REST API Explorer.

Appliance

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

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.
GET /appliances/{id}/productkey	Retrieve the product key of the specified appliance.

Implementation information and instructions for each operation are documented in the REST API Explorer. You can click on any operation in the REST 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 /apikeyes	Retrieve all API keys.
POST /apikeyes	Create the initial API key for the setup user account.
GET /apikeyes/{keyid}	Retrieve information about a specific API key.

Implementation information and instructions for each operation are documented in the REST API Explorer. You can click on any operation in the REST 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.
POST /extrahop/sslcert/signingrequest	Create an SSL certificate signing request
GET /extrahop/ticketing	Retrieve the ticketing integration status.
PATCH /extrahop/ticketing	Enable or disable ticketing integration.
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 REST API Explorer. You can click on any operation in the REST 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.

Operation	Description
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 REST API Explorer. You can click on any operation in the REST 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 REST API Explorer. You can click on any operation in the REST API Explorer to view implementation information such as parameters, response class and messages, and JSON model and schema.