GraphQL Quick Start Guide

SL1 version 8.12.1

Overview

This manual describes the functionality of the SL1 GraphQL API and is intended for developers who are responsible for integrating SL1 with external systems. To use this manual, you should have a general understanding of the HTTP protocol.

This manual includes the following topics:

What is the SL1 GraphQL API?

The ***SL1 GraphQL API*** allows external systems to programmatically access data in SL1 using the GraphQL query language. The API gives access to entities in the platform, such as devices and collected data, using standard HTTP request/response protocols. For more information about GraphQL, see the GraphQL documentation.

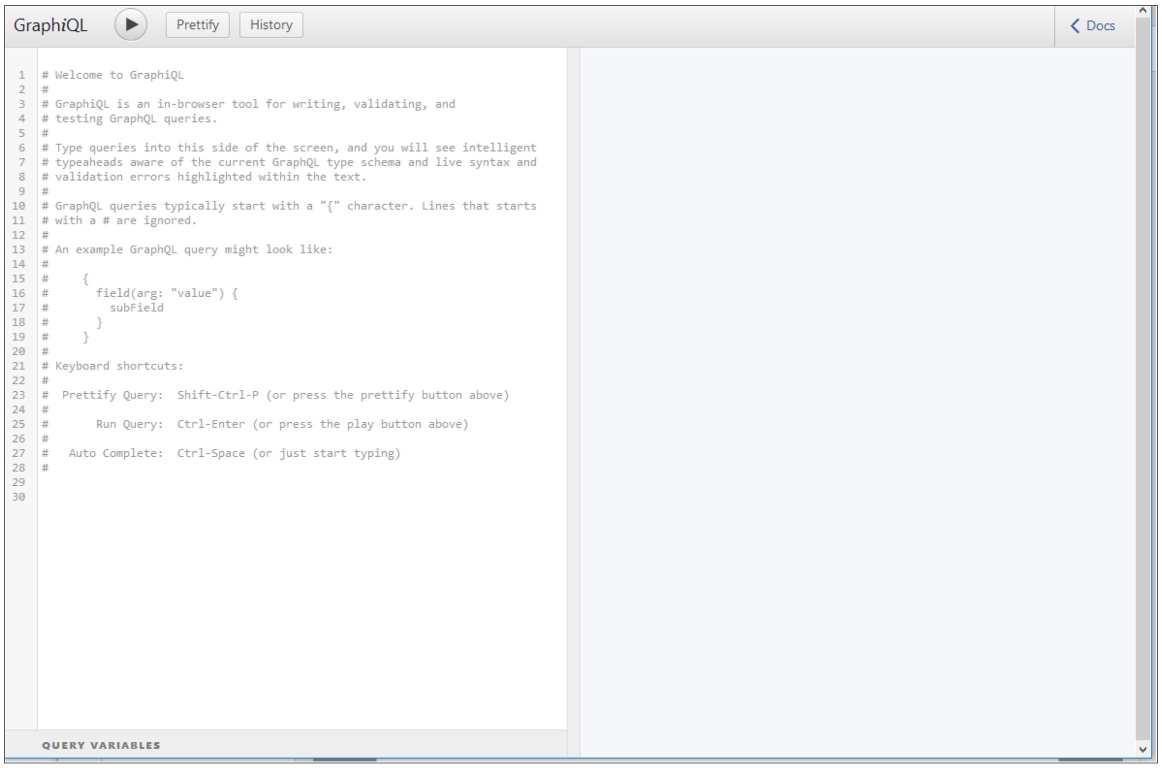
Overview of the GraphiQL User Interface

GraphiQL is a user interface for interactively exploring the capabilities of, and executing queries against, a GraphQL API. Unlike the SL1 REST API, all requests to the GraphQL API on a given SL1 system use the same URI.

NOTE: GraphiQL is not maintained by ScienceLogic, and you can access its documentation at https://github.com/graphql/graphiql.

To create a sample GraphQL query:

1. To access the GraphiQL interface, type the URL or IP address for SL1 in a browser, add **/gql** to the end of the URL or IP address, and press **[Enter]**. The GraphiQL interface appears:



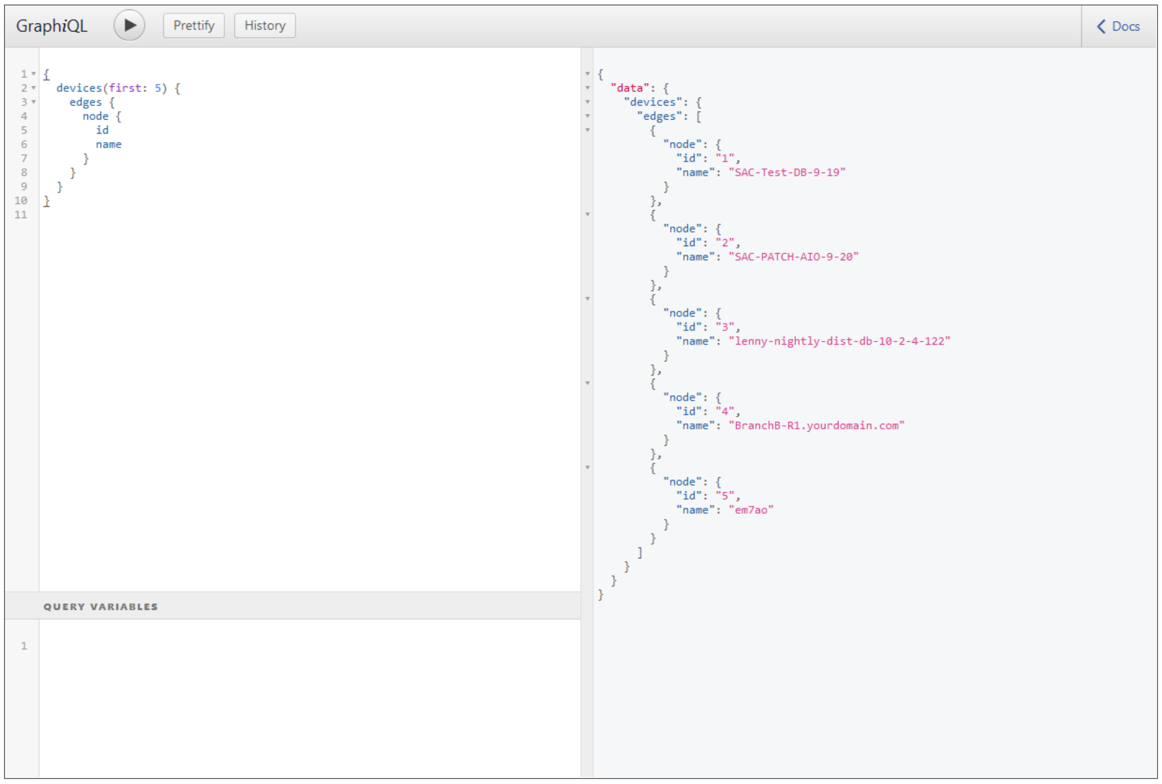
```
# Welcome to GraphiQL
#
# GraphiQL is an in-browser tool for writing, validating, and
# testing GraphQL queries.
#
# Type queries into this side of the screen, and you will see intelligent
# typeaheads aware of the current GraphQL type schema and live syntax and
# validation errors highlighted within the text.
#
# GraphQL queries typically start with a "{" character. Lines that starts
# with a # are ignored.
#
# An example GraphQL query might look like:
#
#     {
#       field(arg: "value") {
#         subField
#       }
#     }
#
# Keyboard shortcuts:
#
#  Prettify Query:  Shift-Ctrl-P (or press the prettify button above)
#
#       Run Query:  Ctrl-Enter (or press the play button above)
#
#   Auto Complete:  Ctrl-Space (or just start typing)
#
```

2. In the main query pane, type the following query to return the ID and name of the first five devices in the SL1 system:

```
query { devices (first:5) { edges { node { id name } } } }
```

TIP: Click the **[Prettify]** button to format the query and add syntax highlighting to make the query easier to read. Note that the *Prettify* process removes the `query` syntax if only one query is present in the main query pane.

3. Click the **[Execute Query]** (Play) button. The query executes, and the results of the query appear in the right pane:



```
{
  devices(first: 5) {
    edges {
      node {
        id
        name
      }
    }
  }
}
```

```
{
  "data": {
    "devices": {
      "edges": [
        {
          "node": {
            "id": "1",
            "name": "SAC-Test-DB-9-19"
          }
        },
        {
          "node": {
            "id": "2",
            "name": "SAC-PATCH-AIO-9-20"
          }
        },
        {
          "node": {
            "id": "3",
            "name": "lenny-nightly-dist-db-10-2-4-122"
          }
        },
        {
          "node": {
            "id": "4",
            "name": "BranchB-R1.yourdomain.com"
          }
        },
        {
          "node": {
            "id": "5",
            "name": "em7ao"
          }
        }
      ]
    }
  }
}
```

The GraphiQL user interface includes the following elements:

- The main query pane is a text area for entering GraphQL queries.
- The **[Execute Query]** (Play) button executes the query.
- The **[Prettify]** button re-formats the text in the main query pane.
- The **[History]** button opens a new pane that contains a list of the previous queries run in the GraphiQL interface. Click a query to add it to the main query pane.
- The lower-left pane is a text area for entering variables that can be used when executing queries.
- The right pane displays the result of the last executed query.

- The **[Docs]** button expands the **Documentation Explorer** pane. The **Documentation Explorer** pane displays information about how to query the SL1 GraphQL API.

Example: Querying for a List of Devices

The query you executed in the previous section returns the ID and name of the first five devices:

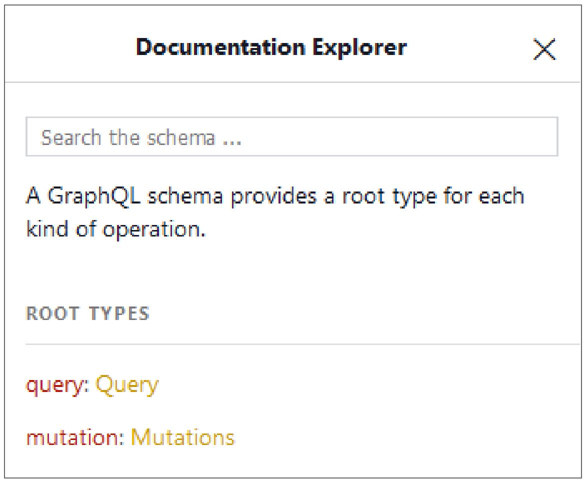
```
query {
  devices (first:5) {
    edges {
      node {
        id
        name
      }
    }
  }
}
```

This section describes how to use the **Documentation Explorer** pane to:

- Construct this query.
- Add an additional field to this query.
- Add additional parameters to the query so that you can iteratively request all devices in the SL1 system.

Perform the following steps:

1. If you have not already expanded the **Documentation Explorer** pane, click the **[Docs]** button. The two root types of the GraphQL API are displayed:



A GraphQL schema provides a root type for each kind of operation.

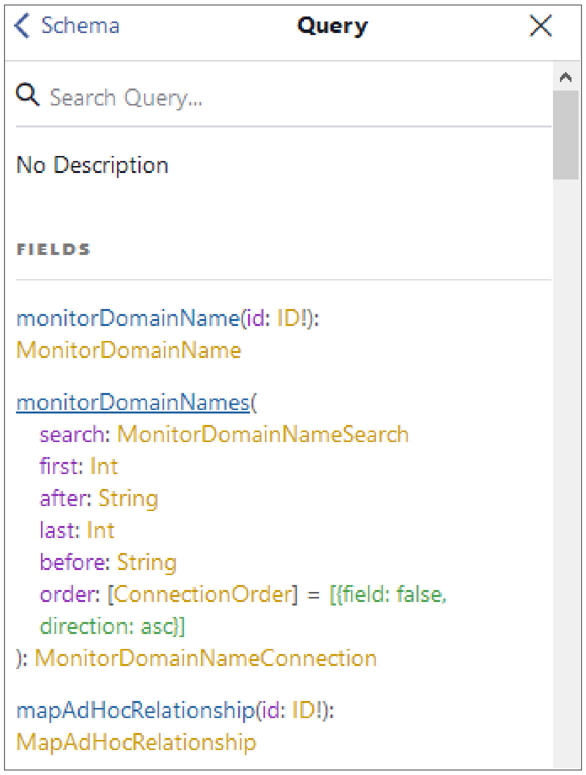
The root types describe the types of operations that can be performed using the SL1 GraphQL API:

- ***Query***. A query operation specifies a set of data to *retrieve* from SL1. If the query is successful, the API returns that set of data.
- ***Mutation***. A mutation operation specifies a *change* to an element in SL1. If the mutation is successful, an element in SL1 is created, edited, or deleted.

The example query specifies a query operation. The root type definition is highlighted in bold:

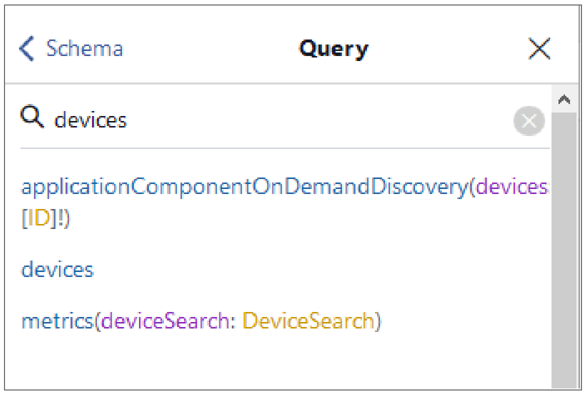
```
query {
   devices (first:5) {
      edges {
         node {
            id
            name
         }
      }
   }
}
```

2. In the **Documentation Explorer** pane, click **Query**. A list of query definitions, which specify how you can query for different types of data, appears:



```
< Schema                Query
Search Query...
No Description

FIELDS

monitorDomainName(id: ID!):
MonitorDomainName

monitorDomainNames(
  search: MonitorDomainNameSearch
  first: Int
  after: String
  last: Int
  before: String
  order: [ConnectionOrder] = [{field: false,
  direction: asc}]
): MonitorDomainNameConnection

mapAdHocRelationship(id: ID!):
MapAdHocRelationship
```

3. In the **Search Query** field, type "devices":



Schema

Query

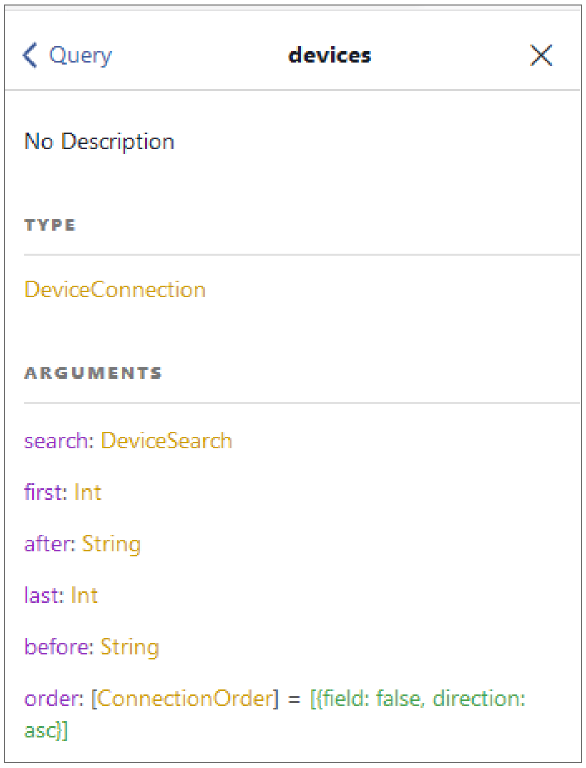
devices

applicationComponentOnDemandDiscovery(devices: [ID]!)

devices

metrics(deviceSearch: DeviceSearch)

4. Select **devices** from the search results. The "devices" query definition appears:



Query

devices

No Description

TYPE

DeviceConnection

ARGUMENTS

search: DeviceSearch

first: Int

after: String

last: Int

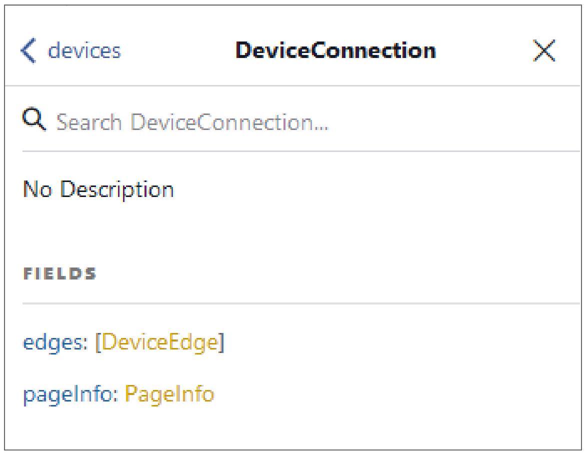
before: String

order: [ConnectionOrder] = [{field: false, direction: asc}]

The list of parameters in parentheses specify how you can sort and filter the data in the response. The example query uses the "devices" query definition with the "first" parameter (an integer) to limit the number of devices included in the response to five:

```
query {
  devices (first:5) {
    edges {
      node {
        id
        name
      }
    }
  }
}
```

5. Click *DeviceConnection* to view the data you can request using this query definition:



No Description

FIELDS

edges: [DeviceEdge]

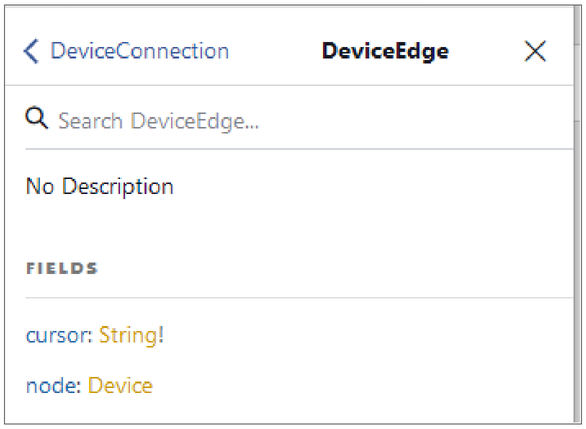
pageInfo: PageInfo

The *DeviceConnection* object has two fields, both of which are also objects. The "edges" field is the object that defines the structure of the entity data (in this example, the structure of device attributes). The "pageInfo" field is the object that defines metadata about the returned list of values, such as the first and last values returned in the list of values in the response.

The example query does not request any metadata, so only the edges field is included in the query:

```
query {
  devices (first:5) {
    edges {
      node {
        id
        name
      }
    }
  }
}
```

6. Click "DeviceEdge" to view how to structure the edges section of the query:


DeviceConnection DeviceEdge

Search DeviceEdge...

No Description

FIELDS

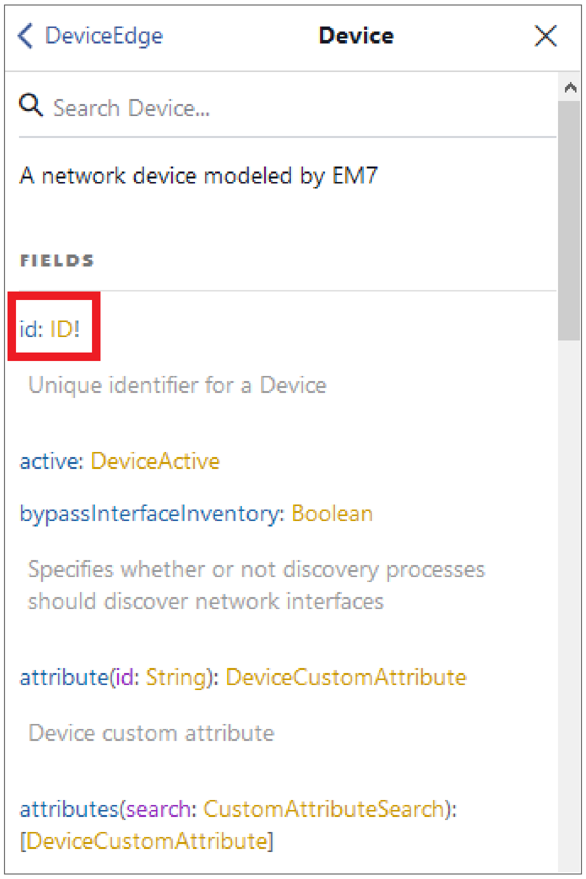
cursor: String!

node: Device

The *DeviceEdge* object has two fields. For objects that will be included in a list in a response, the "cursor" field is a string that specifies the position of the entry in the list, and the "node" field is the object that specifies the collection of data fields and objects associated with each list entry. The example query does not request any metadata, so only the node field is included in the query:

```
query {
   devices (first:5) {
      edges {
         node {
            id
            name
         }
      }
   }
}
```

7. Click "Device" to view how to structure the "node" section of the query:


DeviceEdge Device

Search Device...

A network device modeled by EM7

FIELDS

id: ID!

Unique identifier for a Device

active: DeviceActive

bypassInterfaceInventory: Boolean

Specifies whether or not discovery processes should discover network interfaces

attribute(id: String): DeviceCustomAttribute

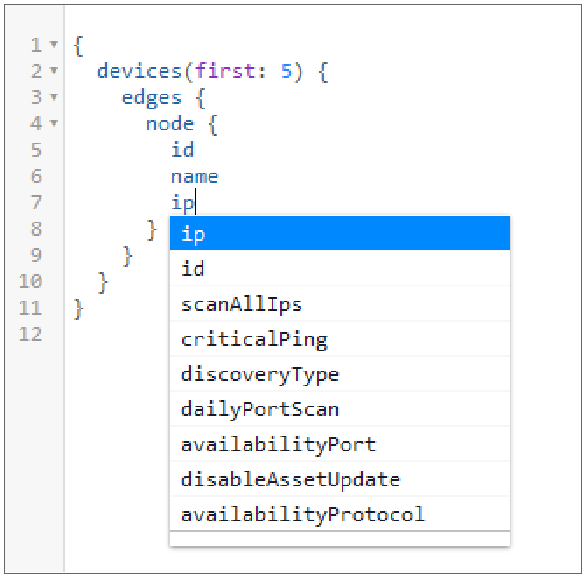
Device custom attribute

attributes(search: CustomAttributeSearch): [DeviceCustomAttribute]

The example query includes the "id" fields from this list. If you select the type information for the ID field, the description specifies that this field is a scalar type. ***Scalar types*** do not have subordinate fields:

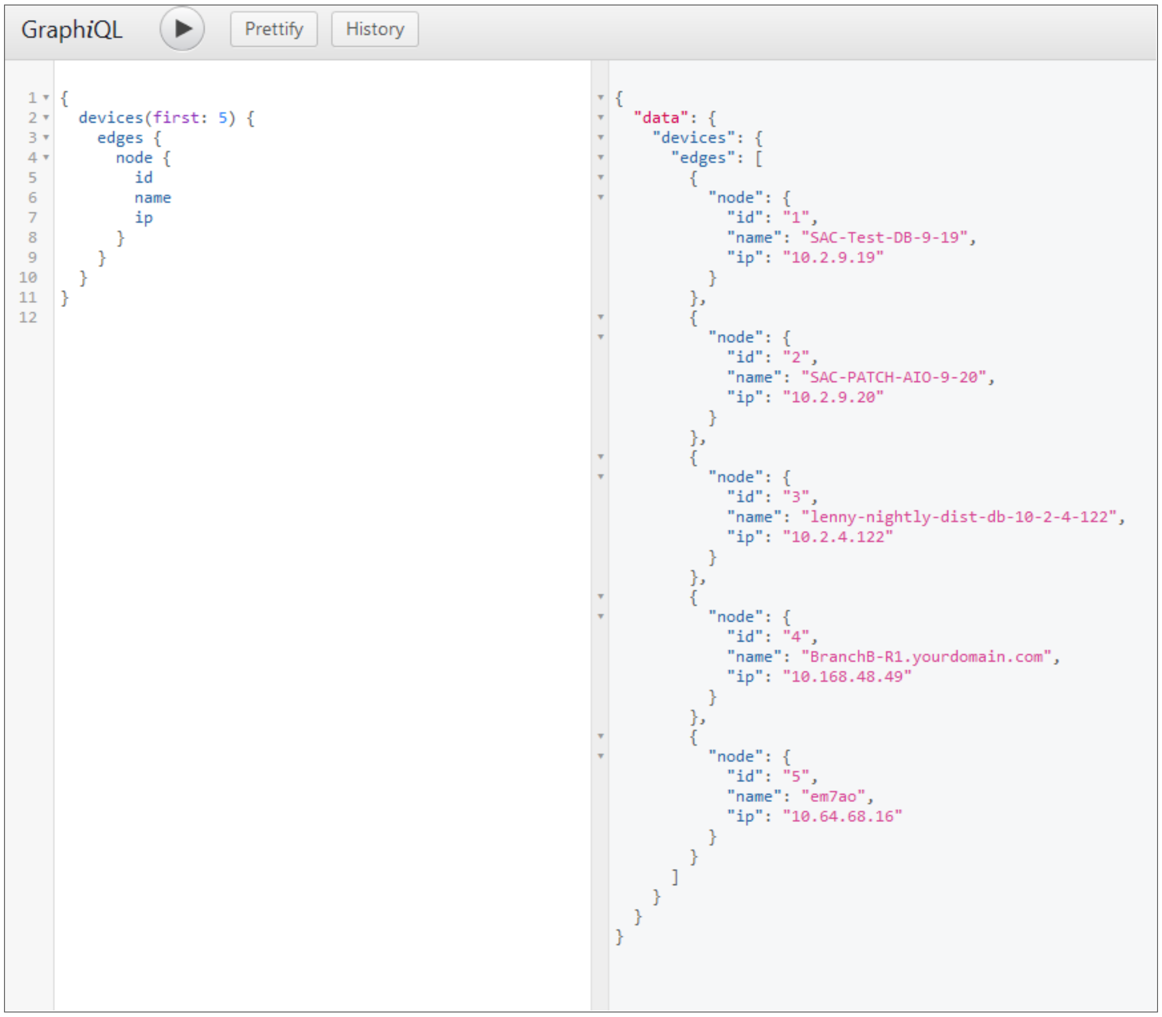
```
query {
   devices (first:5) {
      edges {
         node {
            id
            name
         }
      }
   }
}
```

8. Suppose you want to edit the example query to request the ip address system of each device. The documentation for the "device" object lists "ip" as an available field. In the upper-right pane, add a new line after "name" and type "ip". The GraphiQL interface includes auto-complete options when you are typing a query in the upper-left pane. If you type "i" or "ip" on the new line, a list of suggestions appears:



```
{
  devices(first: 5) {
    edges {
      node {
        id
        name
        ip
      }
    }
  }
}
```

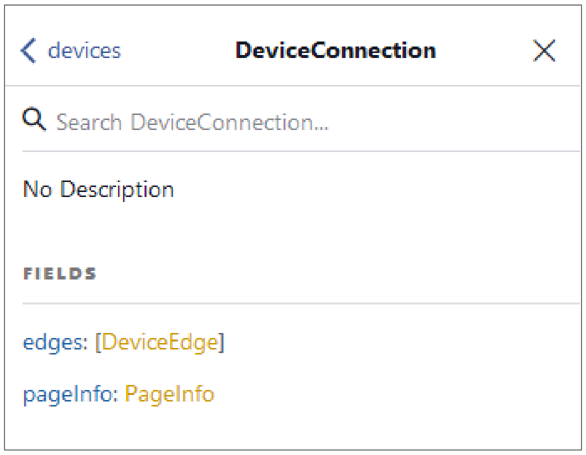
9. After you type or select "ip", click the **[Execute Query]** (Play) button. The query executes and the "ip" field is now included in the result:



```
{
  devices(first: 5) {
    edges {
      node {
        id
        name
        ip
      }
    }
  }
}
```

```
{
  "data": {
    "devices": {
      "edges": [
        {
          "node": {
            "id": "1",
            "name": "SAC-Test-DB-9-19",
            "ip": "10.2.9.19"
          }
        },
        {
          "node": {
            "id": "2",
            "name": "SAC-PATCH-AIO-9-20",
            "ip": "10.2.9.20"
          }
        },
        {
          "node": {
            "id": "3",
            "name": "lenny-nightly-dist-db-10-2-4-122",
            "ip": "10.2.4.122"
          }
        },
        {
          "node": {
            "id": "4",
            "name": "BranchB-R1.yourdomain.com",
            "ip": "10.168.48.49"
          }
        },
        {
          "node": {
            "id": "5",
            "name": "em7ao",
            "ip": "10.64.68.16"
          }
        }
      ]
    }
  }
}
```

10. Suppose you now want to query for the *next* five device. To do this, you will need to edit the example query to request metadata about the list of values, and then use that metadata to build a second request for the next five devices. In the **Documentation Explorer** pane, navigate back to the "DeviceConnection" object:



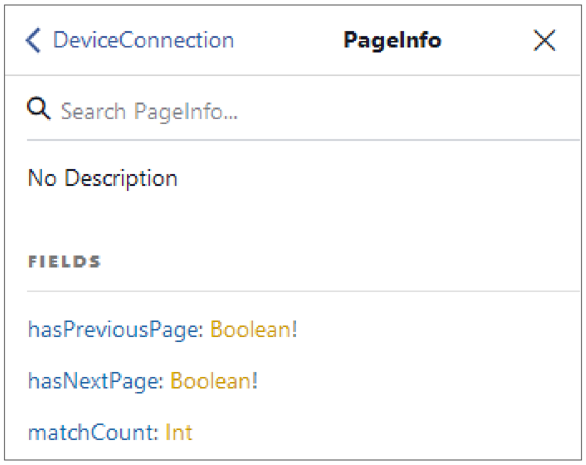
No Description

FIELDS

edges: [DeviceEdge]

pageInfo: PageInfo

11. The "pageInfo" field is the object that defines metadata about the returned list of values, such asthe first and last values returned in the list of values in the response. Click "PageInfo" to view how to structure the "pageInfo" section of the query:



No Description

FIELDS

hasPreviousPage: Boolean!

hasNextPage: Boolean!

matchCount: Int

The *PageInfo* object contains the following fields:

- ***hasPreviousPage***. A boolean that indicates whether list entries exist after the last list entry returned by the query.
- ***hasNextPage***. A boolean that indicates whether list entries exist before the first list entry returned by the query.
- ***matchCount***. An integer that lists the number of entries matching this query.

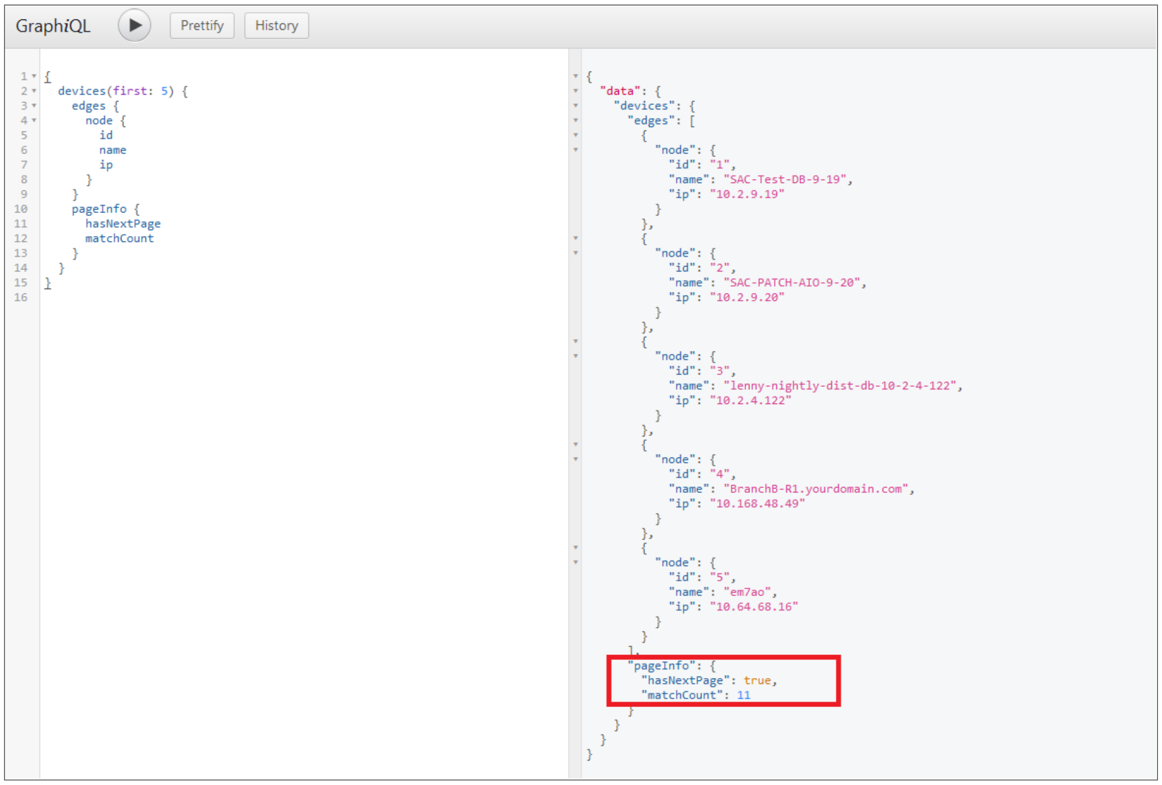
12. Run the following query to add a "pageInfo" section to the example query to request the *hasNextPage* and *matchCount* fields:

```
query {
  devices (first:5) {
    edges {
      node {
        id
        name
        ip
      }
    }
    pageInfo {
      hasNextPage
      matchCount
    }
  }
}
```

The response will include a *pageInfo* section that looks like this:

```
"pageInfo": {
  "hasNextPage": true,
  "matchCount": "11"
}
```

The example response indicates that there are additional devices we can query for beyond the first five, because *hasNextPage* is true, and a total of 11 devices exist according to *matchCount*:



```
{
  devices(first: 5) {
    edges {
      node {
        id
        name
        ip
      }
    }
    pageInfo {
      hasNextPage
      matchCount
    }
  }
}
```

```
{
  "data": {
    "devices": {
      "edges": [
        {
          "node": {
            "id": "1",
            "name": "SAC-Test-DB-9-19",
            "ip": "10.2.9.19"
          }
        },
        {
          "node": {
            "id": "2",
            "name": "SAC-PATCH-AIO-9-20",
            "ip": "10.2.9.20"
          }
        },
        {
          "node": {
            "id": "3",
            "name": "lenny-nightly-dist-db-10-2-4-122",
            "ip": "10.2.4.122"
          }
        },
        {
          "node": {
            "id": "4",
            "name": "BranchB-R1.yourdomain.com",
            "ip": "10.168.48.49"
          }
        },
        {
          "node": {
            "id": "5",
            "name": "em7ao",
            "ip": "10.64.68.16"
          }
        }
      ],
      "pageInfo": {
        "hasNextPage": true,
        "matchCount": 11
      }
    }
  }
}
```

Querying the ScienceLogic GraphQL API from an External Application

After you have determined the queries you want to execute using the GraphiQL interface, you can execute those queries from an external application by performing an HTTPS request to the GraphQL URI for your SL1 system. To execute a GraphQL query using an HTTPS request:

- Use the POST method.
- Set the content-type header to "application/json".
- Specify the username and password of an appropriate user account.
- In the request content, send JSON in the following structure:

```
{
   "query":"[GraphQL query]"
}
```

For example, to execute the original example query, you would POST the following JSON:

```
{
  "query":"query devices { devices { edges { node { id name} } } }"
}
```