



Tanium™ API Gateway User Guide

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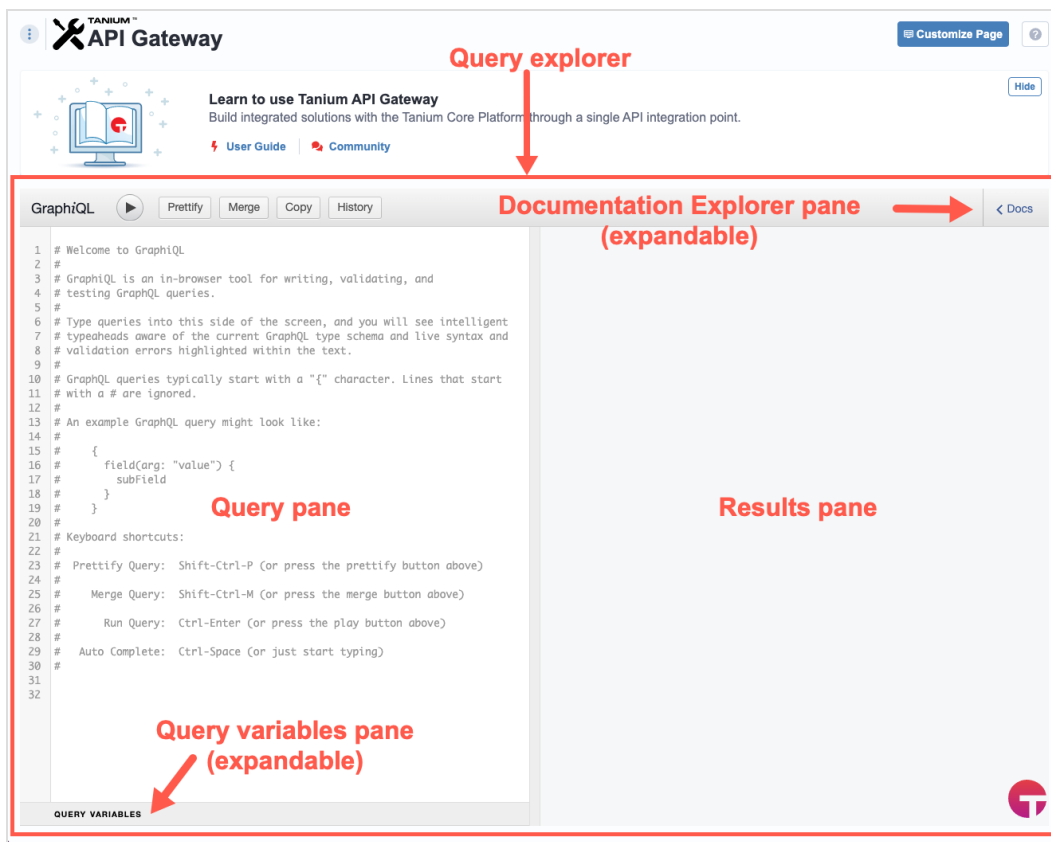
API Gateway overview

Tanium™ API Gateway provides a single and stable API integration point for various Tanium solutions. It is designed for Tanium partners and customers interested in building integrated solutions with the Tanium™ Core Platform.

Query explorer

API Gateway includes an interactive query explorer that you can use to write and run queries and mutations in the Tanium Console. Use the query explorer to try new queries and discover what data is available.

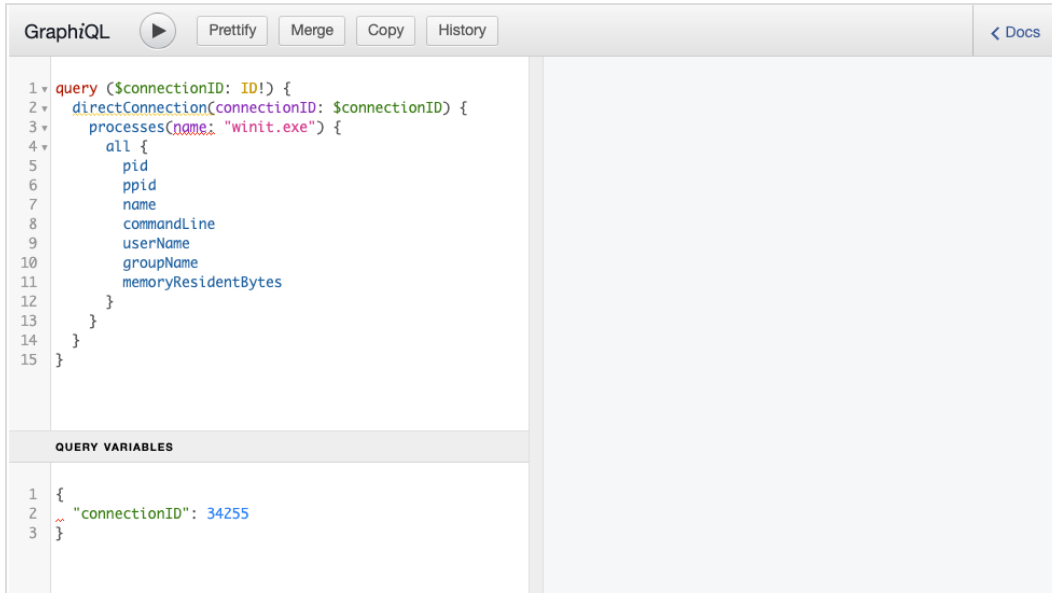
You can find the query explorer on the API Gateway **Overview** page:



If the query explorer does not appear on the API Gateway **Overview** page, click **Customize Page** and make sure the **Query Explorer** option is selected.

Query variables

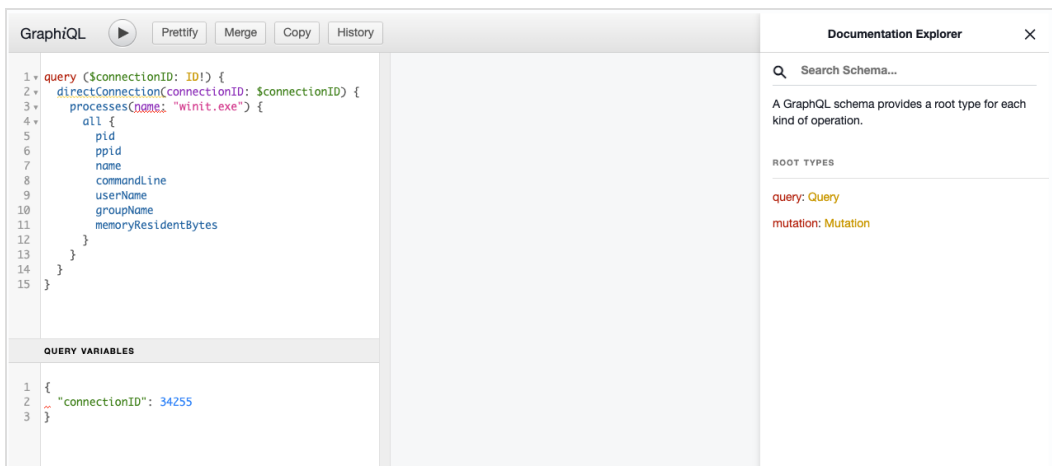
If a query or mutation uses variables, expand the **QUERY VARIABLES** pane and include the variables in the pane that expands.



Schema reference

API Gateway contains a schema reference that documents all queries, mutations, and objects that are available in API Gateway. The schema reference is generated directly from the schema; refer to the schema reference in API Gateway for the most up-to-date documentation.

To view the schema reference in the query explorer, click **Docs** to expand the **Documentation Explorer** pane of the query explorer.





The query explorer uses the GraphQL interactive browser to send GraphQL queries and mutations to the Tanium Server. For more information about the options that are available in GraphQL, see <https://graphql.org/learn/>.

Authentication

Requests that are sent from the query explorer in the Tanium Console are authenticated and authorized with the session ID of the user who is signed in. The Tanium Server uses the role-based access control (RBAC) permissions of the user account to determine which content you can query and mutate.

Requests that are sent from outside the Tanium Console are authenticated and authorized with either session IDs or API tokens. You must include an API token or session ID in the authorization header of all requests that are sent to API Gateway. API Gateway uses the RBAC permissions of the requesting user to determine content access for all queries and mutations. For an example cURL query that shows the authorization header, see [Example cURL syntax on page 8](#).



BEST PRACTICE

Use API tokens to send requests through API Gateway instead of session IDs. While session IDs time out after five minutes of inactivity, you can set a longer timeout for API tokens. You can create API tokens in the Tanium Console or through the Tanium Core Platform REST API. For more information, see [Tanium Console User Guide: Managing API tokens](#).



IMPORTANT

When requests are sent outside the Tanium Console, make sure to use the correct URL to send requests. See [Root endpoint on page 8](#) and [Example cURL syntax on page 8](#) for examples.

Rate limits

API Gateway has no specific rate limits.

Root endpoint

To send queries and mutations outside the Tanium Console, use the following address:

```
https://<server>/plugin/products/gateway/graphql
```

Example cURL syntax

```
curl --request POST \  
  --url https://localhost/plugin/products/gateway/graphql \  
  --header 'Content-Type: application/json' \  
  --header 'session: token-356d5f5bbb3671f28e24f65be3bdd54d9d81001ca823efaabc5fbff251' \  
  --data '{"query": "{\n  now\n}"}'
```


Pagination

Queries that return many results are paginated to reduce resource utilization. API Gateway uses the standard [Relay GraphQL pagination specification](#) to provide users the option to explicitly control pagination.

Paginated queries return a connection type that is prefixed with the name of the data type, such as `EndpointConnection`. Queries accept standard arguments to control the pagination.

Example of a paginated query:

```
{
  endpoints {
    edges {
      node {
        id
        serialNumber
      }
    }
    pageInfo {
      hasNextPage
      endCursor
    }
  }
}
```

Cursors

Use cursors to control relay pagination. Cursors are opaque strings that point to records within queried collections, and can be used to request the records after the cursor. All collections support forward traversal, and some also support backward traversal.

Cursors are valid only for the query for which they were returned. Cursors are generally valid for five minutes after their most recent use. Any queries that deviate from this policy are documented in the query field.

Connection results are stable and consistent when traversed with cursors unless documented in the query field.

Connection and edges

The connection includes an `edge` field that returns a list of typed edges, such as `EndpointEdge`. Each edge contains at least two fields:

- A `node` field with the actual data type, such as `Endpoint`
- A `cursor` field with a cursor for the record

The connection type also includes a `pageInfo` field that contains at least two fields:

- `hasNextPage` indicates if there are more records
- `endCursor` is the cursor of the last record in the returned page, if any

Some connection types feature other metadata, such as `totalRecords`.

Arguments

Paginated queries support at least two arguments: `first` indicates the number of records to return, and `after` is the value of the record cursor that precedes the records in the requested page. When fully paginated, this value is the same as the `endCursor` value from the previous page. Both arguments have sensible defaults.

Paginated queries that support backward traversal allow two corresponding arguments: `last` and `before`.



A single query supports either forward or backward traversal, but not both. The server returns an error response for queries with arguments for both forward and backward traversals.

When a paginated request extends beyond the collection, the query returns only the available results.

Example of a request for a page of data within a collection:

```
{
  endpoints(after: "the-cursor-value", first: 10) {
    edges {
      node {
        id
        serialNumber
      }
    }
    pageInfo {
      hasNextPage
      endCursor
    }
  }
}
```

Filters

Most queries that return multiple results provide support to filter the results. Such queries provide a `filter` argument.

Simple filters

Simple filters are single filters that constrain the values of fields that participate in the query. You can specify simple filters in the `path` property with a period to separate levels in the graph starting at the record type. For example:

```
{
  endpoints(filter: {path: "primaryUser.email", value: "user@example.com"}) {
    edges {
      node {
        id
        primaryUser {
          email
        }
      }
    }
  }
}
```

The query does not need to return the filtered path. Not all field paths are filterable. Refer to the schema to see which paths cannot be filtered.

Simple filters must also contain a string `value` property.

You can specify an operator in the `op` property, which is an enumerated type and defaults to the equality operator. For example:

```
{
  endpoints(filter: {path: "processor.logicalProcessors", value: "4", op: GTE}) {
    edges {
      node {
        id
      }
    }
  }
}
```



Not all operators are valid for all fields.

NOTE

Compound filters

Compound filters contain multiple simple or compound filters that appear in the `filters` property. By default, all child filters must pass for a record to be included. If the `or` argument is given with a `true` value, then a record is included if any child filter matches.

Example of a simple compound filter:

```
{
  endpoints(filter: {filters: [{path: "serialNumber" value: "x"}, {path: "name", value: "y"}]})
  {
    edges {
      node {
        id
      }
    }
  }
}
```

Negated filters

You can negate both simple and compound filters with a `negated` property of `true`. For example, the following query returns endpoints whose serial number does not contain the letter `x`:

```
{
  endpoints(filter: {path: "serialNumber", value: "x", negated: true}) {
    edges {
      node {
        id
      }
    }
  }
}
```

Field filters

Filters apply to the entire record. Some records contain fields that are collections; you can also filter these fields. When you filter a field, the filter applies to both the child collection and to the records. For example, if you search for endpoints with an installed application named `Tanium Client` with a filter on the field, API Gateway returns only those endpoints with such an application, as well as only the matching application:

```

{
  endpoints {
    edges {
      node {
        installedApplications(filter: {path: "name", value: "Tanium Client"}) {
          name
          version
        }
      }
    }
  }
}

```

Field filters can be simple or compound. Compound filters are limited to one level of children that must use the equality operator, and require all child filters. For example:

```

{
  endpoints {
    edges {
      node {
        installedApplications(
          filter: {
            filters: [
              {path: "name", value: "Tanium Client"},
              {path: "version": value: "7.5.0.0"}
            ]
          }
        ) {
          name
          version
        }
      }
    }
  }
}

```

Integration with other Tanium products

The following solutions are supported by API Gateway:

- Tanium Core Platform
 - Actions
 - Tanium™ Data Service
 - Tanium™ Direct Connect
 - Packages
- Tanium™ Blob
- Tanium™ Deploy
- Tanium™ Performance

Getting started with API Gateway

Step 1: Review the requirements

Review the system, network, security, and user role requirements: see [API Gateway requirements on page 16](#).

Step 2: Install API Gateway

See [Installing API Gateway on page 20](#).

Step 3: Install any integrated solutions that use the API Gateway

Import any integrated solutions that you want to use. For information on which Tanium solutions use the API Gateway, see [Integration with other Tanium products on page 14](#).

Step 4: Grant API Gateway permissions

Grant permissions to users to use API Gateway. Users with the **Administrator** reserved role have access by default. See [User role requirements on page 18](#).

Step 5: Test queries through the Tanium™ Console

Use the interactive query explorer to test queries in the Tanium Console. See [Test a query in the Tanium Console on page 21](#).

Step 6: (Optional) Test queries through cURL

Test queries through cURL. See [Using API Gateway on page 21](#).

Step 7: Explore sample queries and mutations

Explore sample queries and mutations to see what you can do with API Gateway. See [Reference: API Gateway examples on page 25](#).

API Gateway requirements

Review the requirements before you install and use API Gateway.

Tanium dependencies

Component	Requirement
Tanium™ Core Platform	7.5.2 or later ¹
Tanium™ Console UI	3.0 or later ¹
Tanium content	API Gateway uses sensors that are included in the Core Content and Core AD Query content packs.
Tanium solutions	<p>Other Tanium solutions are required for API Gateway to function (required dependencies) or for specific API Gateway features to work (feature-specific dependencies).</p> <p>If you select Tanium Recommended Installation when you import API Gateway, the Tanium Server automatically imports all your licensed solutions at the same time. See Tanium Console User Guide: Import all modules and services.</p> <p>If you select only API Gateway to import, the server automatically imports the latest available versions of any required dependencies that are missing. If some required dependencies are already imported but their versions are earlier than the minimum required for API Gateway, the server automatically updates those dependencies to the latest available versions. API Gateway has the following required dependencies at the specified minimum versions:</p> <ul style="list-style-type: none">• Tanium Interact 2.9.83 or later• Tanium System User 1.0.40 or later <p>The server does not automatically import or update feature-specific dependencies. You must import or update those manually. See Tanium Console User Guide: Import, re-import, or update specific solutions. API Gateway has the following feature-specific dependencies at the specified minimum versions:</p> <ul style="list-style-type: none">• Tanium Blob 1.0.6 or later• Tanium Direct Connect 1.10.39 or later• Tanium Deploy 2.9.123 or later• Tanium Performance 1.10.57 or later
License	The license entitlement for the Tanium Core Platform includes the API Gateway.

¹ The API Gateway workbench requires Tanium Console 3.0 or later, which also requires Tanium Core Platform 7.5 or later. Users with older versions of the Tanium Console on Tanium Core Platform 7.4.4 or later can still install and use API Gateway for API-only interactions.

Tanium™ Module Server

API Gateway is installed and runs as a service on the Module Server host computer. The impact on the Module Server is minimal and depends on usage.

For information about Module Server sizing in a Windows deployment, see [Tanium Core Platform Deployment Guide for Windows: Host system sizing guidelines](#).

Endpoints

API Gateway does not directly deploy packages to endpoints. However, you can use API Gateway to deploy packages through Tanium Deploy. For Tanium Deploy endpoint requirements, see [Tanium Deploy User Guide: Endpoints](#).

For Tanium Client operating system support, see [Tanium Client Management User Guide: Client version and host system requirements](#).

Host and network security requirements

Specific ports and processes are needed to run API Gateway.

Ports

The following ports are required for API Gateway communication.

Source	Destination	Port	Protocol	Purpose
Module Server	Module Server (loopback)	17600	TCP	Internal purposes, not externally accessible



BEST PRACTICE

Configure firewall policies to open ports for Tanium traffic with TCP-based rules instead of application identity-based rules. For example, on a Palo Alto Networks firewall, configure the rules with service objects or service groups instead of application objects or application groups.

Security exclusions

If security software is in use in the environment to monitor and block unknown host system processes, your security administrator must create exclusions to allow the Tanium processes to run without interference. For a list of all security exclusions to define across Tanium, see [Tanium Core Platform Deployment Reference Guide: Host system security exclusions](#).







API Gateway security exclusions

Target Device	Notes	Exclusion Type	Exclusion
Module Server		Process	<Module Server>\services\gateway-service\taniumgateway\TaniumGatewayService.exe

User role requirements
















The following tables list the role permissions required to use API Gateway. For more information about role permissions and associated content sets, see [Tanium Console User Guide: Managing RBAC](#).

API Gateway user role permissions




Permission	API Gateway User ¹	Gateway Service Account	Gateway Service Account - All Content Sets
Gateway Api Access API Gateway	 EXECUTE		
Gateway Service Account Provides access for the API Gateway service.		 EXECUTE	

¹ This role provides module permissions for Tanium Interact. You can view which Interact permissions are granted to this role in the Tanium Console. For more information, see [Tanium Interact User Guide: User role requirements](#).

Provided API Gateway administration and platform content permissions

Permission	Permission Type	API Gateway User	Gateway Service Account	Gateway Service Account - All Content Sets
Action Group	Administration		 READ WRITE	
Computer Group	Administration		 READ	
Global Settings	Administration		 READ	
Sensor	Platform Content			 READ ¹
Token - Use	Administration	 SPECIAL		

Provided API Gateway administration and platform content permissions (continued)

Permission	Permission Type	API Gateway User	Gateway Service Account	Gateway Service Account - All Content Sets
Plugin	Platform Content	 EXECUTE ² READ ²		

¹ This permission applies to all content sets.

² This permission applies to the Interact content set.

Installing API Gateway

Use the Tanium Console **Solutions** page to install API Gateway and choose either automatic or manual configuration:

- **Automatic configuration** (Tanium Core Platform 7.4.2 or later only): API Gateway is installed with any required dependencies and other selected products. This option is the best practice for most deployments. For more information about the automatic configuration for API Gateway, see [Tanium Console User Guide: Import all modules and services](#).
- **Manual configuration:** Manually install API Gateway and the required dependencies. For more information, see [Import API Gateway on page 20](#).

Before you begin

- Read the [release notes](#).
- Review the [API Gateway requirements on page 16](#).
- Assign the correct roles to users for API Gateway. Review the [User role requirements on page 18](#).
 - To import the API Gateway solution, you must be assigned the **Administrator** reserved role.

Import API Gateway

Perform the following steps to install the API Gateway solution on the Tanium Server.



If you have multiple Tanium Servers in an active-active configuration, you only need to perform these steps on one Tanium Server if you have Tanium Core Platform 7.4.3.1204 or later.

1. Sign in to the Tanium Console with an account that has the **Administrator** reserved role.
2. From the Main menu, go to **Administration > Configuration > Solutions**.
3. In the **Content** section, select the checkbox for **API Gateway** and click **Install**.



If you need to install any prerequisite Tanium solutions or content, select the corresponding checkboxes for those solutions as well.

4. Review the content to import and click **Begin Install**.

Troubleshoot issues

If you experience issues with installing API Gateway, see [Queries return unexpected results or errors on page 23](#).

Using API Gateway

Use API Gateway to build API-based integrations with the Tanium Core Platform. This service consolidates information from multiple Tanium modules into a unified view of information on the endpoints in the environment. API Gateway intelligently routes requests to the services and sources that provide the most recent information and the most reliable mutations.

API Gateway uses GraphQL to request data (queries) and to make changes (mutations). With GraphQL, you can compose queries in API Gateway to retrieve the exact data that you want as well as filter the results to a set of endpoints.

Use API Gateway to:

- Query endpoints through the Tanium Server, or access data through Tanium Data Service
- Create, delete, and query actions
- Query packages
- Open a connection to an endpoint through Tanium Direct Connect and retrieve data from the endpoint

For examples of available functions, see [Reference: API Gateway examples on page 25](#).

Test a query in the Tanium Console


To access the query explorer in the Tanium Console and run a query, perform the following steps:

1. From the Main menu, go to **Administration > Shared Services > API Gateway**.
2. Enter a query in the query pane. For example, paste the following query to get the time from the Tanium Server:

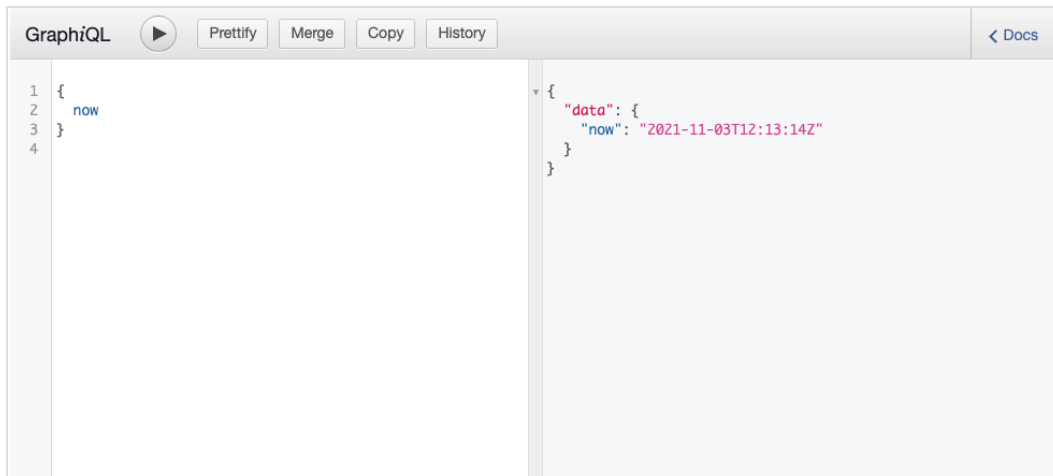
```
{
  now
}
```



If the query explorer does not appear on the API Gateway **Overview** page, click **Customize Page** and make sure the **Query Explorer** option is selected.

3. (Optional) If a query or mutation uses variables, expand the **QUERY VARIABLES** pane and include the variables in the pane that expands.
4. Click Execute Query .

API Gateway sends the query to the server and returns the response in the results pane.



The screenshot shows the GraphQL query explorer interface. The top bar includes the title 'GraphQL', a play button, and buttons for 'Prettify', 'Merge', 'Copy', and 'History'. A '< Docs' link is also present. The left pane contains the query:

```
1 {  
2   now  
3 }  
4
```

The right pane shows the JSON response:

```
{  
  "data": {  
    "now": "2021-11-03T12:13:14Z"  
  }  
}
```


For more information on the query explorer, see [Query explorer on page 6](#).

Troubleshooting API Gateway

If API Gateway is not performing as expected, you might need to troubleshoot issues.

Collect logs

The information is saved as a ZIP file that you can download with your browser.

1. From the API Gateway **Overview** page, click Help , then the **Troubleshooting** tab.
2. Click **Download Support Package**.
A `tanium-api-gateway-support-[timestamp].zip` file downloads to the local download directory.
3. Contact Tanium Support to determine the best option to send the ZIP file. For more information, see [Contact Tanium Support on page 24](#).

Tanium API Gateway maintains logging information in the `gateway-service.log` file in the `\Program Files\Tanium\Tanium Module Server\services\gateway-files\logs\` directory.

Queries return unexpected results or errors

- The API Gateway service redirects queries and mutations to other Tanium solutions. If API Gateway returns unexpected results or errors, make sure that all prerequisites are installed at the minimum recommended version. For information, see [API Gateway requirements on page 16](#).
- If all queries and mutations return a **502 Gateway Timeout** error, make sure the Tanium System User service and the Tanium API Gateway service are running on the Tanium Module Server.
- If you recently installed API Gateway or the System User service, restart the Tanium Module Server.
- Queries and mutations that use the **eid** element require Interact 2.9 or later.

Uninstall API Gateway

If you need to uninstall API Gateway, perform the following steps.



Consult with Tanium Support before you uninstall or reinstall API Gateway.

1. Sign in to the Tanium Console as a user with the Administrator role.
2. From the Main menu, go to **Administration > Configuration > Solutions**.
3. In the **Content** section, select the **API Gateway** row and click **Uninstall**.
4. Review the summary and click **Yes** to proceed with the uninstallation.
5. When prompted to confirm, enter your password.



The uninstall does not remove the API Gateway log from the Tanium Module Server. To remove the log after the uninstall completes, manually delete the `\Program Files\Tanium\Tanium Module Server\services\gateway-files\` directory.

Contact Tanium Support

To contact Tanium Support for help, sign in to <https://support.tanium.com>.

Reference: API Gateway examples

Use the following query examples to learn about the functionality and syntax of queries and mutations in API Gateway.

- [General examples on page 25](#)
- [Action examples on page 42](#)
- [Deploy examples on page 44](#)
- [Direct Connect examples on page 49](#)

General examples

The following queries retrieve data from the endpoints in your environment.

Get server time

The following query retrieves the local time from the Tanium Server.

```
{
  now
}
```

Example response:

```
{
  "data": {
    "now": "2021-11-08T19:22:03Z"
  }
}
```

Get endpoints

The following query retrieves known endpoints from the Tanium Server.

```
{
  endpoints(source: {ts: {expectedCount: 1, stableWaitTime: 10}}) {
```

```
edges {
  node {
    computerID
    name
    serialNumber
    ipAddress
  }
}
```

Example response:

```
{
  "data": {
    "endpoints": {
      "edges": [
        {
          "node": {
            "computerID": "937672696",
            "name": "ubuntu-test",
            "serialNumber": "Not Specified",
            "ipAddress": "10.168.20.30"
          }
        },
        {
          "node": {
            "computerID": "1867570226",
            "name": "CentOS-test-1",
            "serialNumber": "Not Specified",
            "ipAddress": "10.168.20.40"
          }
        }
      ]
    }
  }
}
```

```
    "node": {
      "computerID": "2711217959",
      "name": "CentOS-test-2",
      "serialNumber": "Not Specified",
      "ipAddress": "10.168.20.50"
    }
  }
]
```

Get endpoints IDs from Tanium Data Service

The following query retrieves the all endpoint IDs from Tanium Data Service.

```
{
  endpoints {
    edges {
      node {
        id
      }
    }
  }
}
```

Example response:

```
{
  "data": {
    "endpoints": {
      "edges": [
        {
          "node": {
```

```
      "id": "12345"
    }
  },
  {
    "node": {
      "id": "54321"
    }
  },
  {
    "node": {
      "id": "21212"
    }
  }
]
}
}
```

Get rich endpoint data

The following query demonstrates using nested fields to retrieve categorized endpoint data.



The `first:2` argument retrieves two records; set this value higher to retrieve more records at a time. For more information on pagination arguments, see [Using API Gateway on page 21](#).

```
{
  endpoints (first:2) {
    edges {
      node {
        name
        computerID
        ipAddress
        isVirtual
        chassisType
      }
    }
  }
}
```

```
    systemUUID
    domainName
    os {
      name
      platform
      generation
    }
    processor {
      architecture
      cacheSize
      consumption
      cpu
      family
      manufacturer
      speed
    }
    lastLoggedInUser
  }
}
pageInfo {
  startCursor
  endCursor
  hasNextPage
}
}
```

Example response:

```
{
  "data": {
    "endpoints": {
      "edges": [
        {
```

```
"node": {
  "name": "Test-01",
  "computerID": "1234567890",
  "ipAddress": "10.20.30.40",
  "isVirtual": false,
  "chassisType": "TSE-Error: Unknown - dmidecode unavailable",
  "systemUUID": "TSE-Error: Unknown - dmidecode unavailable",
  "domainName": "(none)",
  "os": {
    "name": "Red Hat Enterprise Linux Server release 5.11 (Tikanga)",
    "platform": "Linux",
    "generation": "Red Hat Enterprise Linux 5"
  },
  "processor": {
    "architecture": "x86_64",
    "cacheSize": "16384 KB",
    "consumption": "9.9 %",
    "cpu": "Intel Core Processor (Haswell, no TSX, IBRS)",
    "family": "6",
    "manufacturer": "GenuineIntel",
    "speed": "2600 Mhz"
  },
  "lastLoggedInUser": "reboot"
},
{
  "node": {
    "name": "Test-02",
    "computerID": "3216549870",
    "ipAddress": "10.20.30.50",
    "isVirtual": true,
    "chassisType": "Virtual",
    "systemUUID": "[no results]",
    "domainName": "(none)",
```

```

    "os": {
      "name": "CentOS Linux release 8.4.2105",
      "platform": "Linux",
      "generation": "CentOS 8"
    },
    "processor": {
      "architecture": "x86_64",
      "cacheSize": "35840 KB",
      "consumption": "18.6 %",
      "cpu": "Intel(R) Xeon(R) CPU E5-2680 v4 @ 2.40GHz",
      "family": "6",
      "manufacturer": "GenuineIntel",
      "speed": "2400 Mhz"
    },
    "lastLoggedInUser": "tester-5"
  }
}
],
"pageInfo": {
  "startCursor": "4267468:0",
  "endCursor": "4267468:1",
  "hasNextPage": true
}
}
}
}

```

Get a set of endpoints

The following query retrieves a set of endpoints. The query demonstrates the use of the `sensorReadings` field and contains a filter argument to retrieve endpoints whose names contain the letter `a`. The results are paginated to 3 records.

```

{
  endpoints(first: 3, filter: {op: MATCHES, path: "name", value: "a.*"}) {

```

```

edges {
  node {
    name
    ipAddress
    sensorReadings(sensors: [{name: "EID Last Seen"}]) {
      columns {
        name
        values
      }
    }
  }
}

```

Example response:

```

{
  "data": {
    "endpoints": {
      "edges": [
        {
          "node": {
            "name": "test-1",
            "ipAddress": "10.20.20.30",
            "sensorReadings": {
              "columns": [
                {
                  "name": "EID Last Seen",
                  "values": [
                    "Mon, 08 Nov 2021 21:29:28 +0000"
                  ]
                }
              ]
            }
          }
        }
      ]
    }
  }
}

```



```
    }
  }
},
{
  "node": {
    "name": "test-2",
    "ipAddress": "10.20.20.250",
    "sensorReadings": {
      "columns": [
        {
          "name": "EID Last Seen",
          "values": [
            "Mon, 08 Nov 2021 21:29:28 +0000"
          ]
        }
      ]
    }
  },
  {
    "node": {
      "name": "test-3",
      "ipAddress": "10.170.10.3",
      "sensorReadings": {
        "columns": [
          {
            "name": "EID Last Seen",
            "values": [
              "Mon, 08 Nov 2021 21:17:17 +0000"
            ]
          }
        ]
      }
    }
  }
}
```

```
    }
  ]
}
}
```

Unregistered sensor query

The following query retrieves the operating system platform from all endpoints.



In API Gateway, a sensor is unregistered if the sensor is not represented by a named field in the API Gateway schema. This has no correlation to registering sensors in Tanium Data Service.

```
{
  endpoints {
    edges {
      node {
        id
        name
        sensorReadings(sensors: [{name: "OS Platform"}]) {
          columns {
            name
            values
          }
        }
      }
    }
  }
}
```

Example response:

```
{
```

```
"data": {
  "endpoints": {
    "edges": [
      {
        "node": {
          "id": "12345",
          "name": "Test-01",
          "sensorReadings": {
            "columns": [
              {
                "name": "OS Platform",
                "values": [
                  "Linux"
                ]
              }
            ]
          }
        }
      },
      {
        "node": {
          "id": "54321",
          "name": "Test-03",
          "sensorReadings": {
            "columns": [
              {
                "name": "OS Platform",
                "values": [
                  "Linux"
                ]
              }
            ]
          }
        }
      }
    ]
  }
}
```

```
    }
  ]
}
}
}
```

Unregistered parameterized sensor query

The following query checks to see if each endpoint contains the C:\Windows\py.exe file.



In API Gateway, a sensor is unregistered if the sensor is not represented by a named field in the API Gateway schema. This has no correlation to registering sensors in Tanium Data Service.

```
{
  endpoints {
    edges {
      node {
        name
        id
        sensorReadings(
          sensors: [{name: "File Exists", params: [{name: "file", value:
"C:\Windows\py.exe"}]}]
        ) {
          columns {
            sensor {
              name
              params {
                name
                value
              }
            }
          }
          values
        }
      }
    }
  }
}
```

```
    }
  }
}
}
```

Example response:

```
{
  "data": {
    "endpoints": {
      "edges": [
        {
          "node": {
            "name": "Test-01",
            "id": "12345",
            "sensorReadings": {
              "columns": [
                {
                  "sensor": {
                    "name": "File Exists",
                    "params": [
                      {
                        "name": "file",
                        "value": "C:\\\\Windows\\py.exe"
                      }
                    ]
                  },
                },
              ],
              "values": [
                "File does not exist"
              ]
            }
          }
        }
      ]
    }
  }
}
```

```
    }
  },
  {
    "node": {
      "name": "[no results]",
      "id": "54225",
      "sensorReadings": {
        "columns": [
          {
            "sensor": {
              "name": "File Exists",
              "params": [
                {
                  "name": "file",
                  "value": "C:\\Windows\\py.exe"
                }
              ]
            },
            "values": [
              "[no results]"
            ]
          }
        ]
      }
    }
  },
  {
    "node": {
      "name": "[no results]",
      "id": "65456",
      "sensorReadings": {
        "columns": [
          {
            "sensor": {
```

```
      "name": "File Exists",
      "params": [
        {
          "name": "file",
          "value": "C:\\Windows\\py.exe"
        }
      ],
      "values": [
        "[no results]"
      ]
    }
  ]
}
}
```

Paginated query

The following query retrieves the first five endpoint records after the given cursor.

```
{
  endpoints(after: "4277520:4", first: 5) {
    edges {
      node {
        name
        id
        ipAddress
      }
    }
  }
}
```

```
pageInfo {
  hasNextPage
  startCursor
  endCursor
}
}
```

Example results

```
{
  "data": {
    "endpoints": {
      "edges": [
        {
          "node": {
            "name": "Test-06",
            "id": "6172",
            "ipAddress": "172.20.30.40"
          }
        },
        {
          "node": {
            "name": "Test-07",
            "id": "87654",
            "ipAddress": "192.168..1.80"
          }
        },
        {
          "node": {
            "name": "Test-14",
            "id": "43584",
            "ipAddress": "10.70.11.44"
          }
        }
      ]
    }
  }
}
```



```

    },
    {
      "node": {
        "name": "Test-03",
        "id": "37233",
        "ipAddress": "[no results]"
      }
    },
    {
      "node": {
        "name": "Test-55",
        "id": "12139",
        "ipAddress": "[no results]"
      }
    }
  ],
  "pageInfo": {
    "hasNextPage": true,
    "startCursor": "4277520:5",
    "endCursor": "4277520:9"
  }
}
}
}

```

Software characteristics query with filter

The following query retrieves endpoints that contain software installed by Deploy, where the package ID is `1`.

```

{
  endpoints {
    edges {
      node {
        ipAddress
      }
    }
  }
}

```

```
    isVirtual
    domainName
    os {
      generation
    }
    lastLoggedInUser
    deployedSoftwarePackages(
      filter: {filters: [{op: EQ, path: "id", value: "1"}, {op: EQ, path: "applicability",
value: "Installed"}]}
    ) {
      id
    }
  }
}
```

Action examples

[Create action \(subset of endpoints\)](#)

The following mutation deploys an action to increase the verbosity of log levels on Debian endpoints.

```
{
  createAction(
    action: {description: "Increasing log verbosity level on all debian endpoints for
troubleshooting", target: {targetGroup: "All Debian", platforms: [Linux]}, changeClientSetting:
{name: LOG_VERBOSITY_LEVEL, value: "41"}}
  ) {
    id
  }
}
```

[Get action details](#)

The following parameterized query retrieves details and any results for an action.

```
query ($id: ID!) {  
  lastActionDetails(id: $id) {  
    id  
    name  
    comment  
    expireSeconds  
    creationTime  
    startTime  
    expirationTime  
    distributeSeconds  
    status  
    stoppedFlag  
  }  
  lastActionResults(id: $id) {  
    id  
    waiting  
    downloading  
    running  
    waitingToRetry  
    completed  
    expired  
    failed  
    pendingVerification  
    verified  
    failedVerification  
  }  
}
```

Include the endpoint ID in the **QUERY VARIABLES** panel:

```
{  
  "id": 12323  
}
```

Deploy examples

Deploy a package to all endpoints

The following mutation deploys a package to `All Computers`.

```
mutation {
  manageSoftware(
    operation: INSTALL
    softwarePackageID: 2
    start: "2021-10-27T00:00:00Z"
    end: "2021-11-03T00:00:00Z"
    target: {targetGroup: "All Computers"}
  ) {
    ID
    name
  }
}
```

Get package details

The following query retrieves multiple fields for all packages.

```
query PackagesQuery {
  packages {
    items {
      id
      name
      displayName
      command
      commandTimeout
      expireSeconds
      contentSet {
        id
        name
      }
    }
  }
}
```

```
processGroupFlag
skipLockFlag
metadata {
  adminFlag
  name
  value
}
sourceHash
sourceHashChangedFlag
sourceID
sourceName
parameters {
  key
  value
}
rawParameterDefinition
parameterDefinition {
  parameterType
  model
  parameters {
    model
    parameterType
    key
    label
    helpString
    defaultValue
    validationExpressions {
      model
      parameterType
      expression
      helpString
    }
  }
  promptText
  heightInLines
}
```

```
maxChars
values
restrict
allowEmptyList
minimum
maximum
stepSize
snapInterval
dropdownOptions {
  model
  parameterType
  name
  value
}
componentType
startDateRestriction {
  model
  parameterType
  type
  interval
  intervalCount
  unixTimeStamp
}
endDateRestriction {
  model
  parameterType
  type
  interval
  intervalCount
  unixTimeStamp
}
startTimeRestriction {
  model
  parameterType
```

```
    type
    interval
    intervalCount
    unixTimeStamp
}
endTimeRestriction {
    model
    parameterType
    type
    interval
    intervalCount
    unixTimeStamp
}
allowDisableEnd
defaultRangeStart {
    model
    parameterType
    type
    interval
    intervalCount
    unixTimeStamp
}
defaultRangeEnd {
    model
    parameterType
    type
    interval
    intervalCount
    unixTimeStamp
}
separatorText
}
}
verifyExpireSeconds
```

```
    }  
  }  
}
```

Get Deploy packages

The following query retrieves all Deploy packages.

```
{  
  softwarePackages {  
    edges {  
      node {  
        id  
        productName  
        productVendor  
        productVersion  
      }  
    }  
  }  
}
```

Get software deployment status

The following query retrieves the deployment status of all Deploy packages.

```
{  
  softwareDeployment {  
    ID  
    name  
    status {  
      completeCount  
      downloadCompleteWaitingCount  
      downloadingCount  
      failedCount  
    }  
  }  
}
```



```
    notApplicableCount
    runningCount
    waitingCount
  }
  errors {
    error
    count
  }
}
```

Direct Connect examples

The following queries and mutations use Direct Connect to connect to a single endpoint, retrieve data, stop a process, and then close the connection.

Open a connection to an endpoint

The following mutation uses Direct Connect to establish a connection to the endpoint with an ID of `12323`. You can retrieve IDs through the [Get endpoints IDs from Tanium Data Service on page 27](#) query.



Direct Connect connections close after two minutes of inactivity.

```
mutation {
  openDirectConnection(input: {endpointID: "12323"}) {
    connectionID
  }
}
```

Example response:

```
{
  "data": {
    "openDirectConnection": {
```

```
      "connectionID": "86d9a9ac-0229-481b-9d88-5f1bcb1b177b"
    }
  }
}
```

Ping the connection to an endpoint

The following mutation retrieves the status for a Direct Connect connection. Use this mutation to check connection details or to keep the connection active. You need the `connectionID` that is returned by the mutation to open the connection.



Direct Connect connections close after two minutes of inactivity.

```
mutation ($connectionID: ID!) {
  pingDirectConnection(input: {connectionID: $connectionID}) {
    result
  }
}
```

Include the connection ID in the **QUERY VARIABLES** panel:

```
{
  "connectionID": "5fc564d6-5767-47fc-abb6-25cba65409d8"
}
```

Get data from an endpoint

After you establish a connection to an endpoint through Direct Connect, you can query the endpoint for specific information. You need the `connectionID` that is returned by the mutation to open the connection. The following query retrieves the CPU usage on the endpoint:

```
{
  directConnection(connectionID: "7212763a-20aa-4cdd-a8b2-6b20b3968f2a") {
    performance {
      cpuUsagePercent
    }
  }
}
```

```
    }  
  }  
}
```

Get process from an endpoint

The following query retrieves the state of the `winit.exe` process on the endpoint, if it exists. You need the `connectionID` that is returned by the mutation to open the connection.

```
query ($connectionID: ID!) {  
  directConnection(connectionID: $connectionID) {  
    processes(name: "winit.exe") {  
      all {  
        pid  
        ppid  
        name  
        commandLine  
        userName  
        groupName  
        memoryResidentBytes  
      }  
    }  
  }  
}
```

Include the connection ID in the **QUERY VARIABLES** panel:

```
{  
  "connectionID": "5fc564d6-5767-47fc-abb6-25cba65409d8"  
}
```

Get alerts from an endpoint

The following query retrieves alerts from an endpoint. You need the `connectionID` that is returned by the mutation to open the connection.

```
query ($connectionID: ID!) {
  directConnection(connectionID: $connectionID) {
    alerts {
      all {
        schema
        key
        type
        ref
        topProcessesExpr
        labels
        pendingAt
        start
        resolvedAt
        leadup
        value {
          name
          value
          values {
            value
            labels
          }
        }
      }
    }
  }
}
```

Include the connection ID in the **QUERY VARIABLES** panel:

```
{
  "connectionID": "5fc564d6-5767-47fc-abb6-25cba65409d8"
}
```

Stop a process on an endpoint

The following mutation stops a process named `foo` on an endpoint. You need the `connectionID` that is returned by the mutation to open the connection.

```
mutation {
  killProcess(
    input: {connectionID: "7212763a-20aa-4cdd-a8b2-6b20b3968f2a", name: "foo", pid: 1, signal:
SIGKILL}
  ) {
    result
  }
}
```

Close connection to an endpoint

The following mutation closes a Direct Connect connection to an endpoint. You need the `connectionID` that is returned by the mutation to open the connection.



Direct Connect connections close after two minutes of inactivity.

```
mutation ($connectionID: ID!) {
  closeDirectConnection(input: {connectionID: $connectionID}) {
    result
  }
}
```

Include the connection ID in the **QUERY VARIABLES** panel:

```
{
  "connectionID": "5fc564d6-5767-47fc-abb6-25cba65409d8"
}
```

Example response:

```
{
  "data": {
    "closeDirectConnection": {
      "result": true
    }
  }
}
```