Developer Toolkit GUI

About Developer Toolkit

The Catalyst Center platform provides you with the following software developer tools to access and program with Catalyst Center, as well as to integrate Catalyst Center with other applications:

- **APIs**: Available APIs organized within categories by functionality (for example, **Operational Tasks** or **Site Management** APIs).

- **Integration Flows**: Available integration flows organized by category type.

- **Event Notifications**: Lets you view and subscribe to specific events that may occur in your network.

Work with APIs

Perform this procedure to review available APIs, generate example code for using the APIs, and try out the APIs interactively on the Catalyst Center platform.

The Catalyst Center GUI displays documentation about each API call, including the request method and URL, query parameters, request header parameters, responses, and schema, and ways to preview or test the request.

For detailed information about the APIs, see the Cisco Catalyst Center APIs on Cisco DevNet.

Before you begin

- Ensure that you have met the supported programming language and authentication prerequisites, as described in the previous section. For more information, see API Prerequisites.

- You must first enable the **Rogue and aWIPS** bundle to view these specific APIs. From the top-left corner, click the menu icon and choose **Platform** > **Manage** > **Bundles** > **Rogue and aWIPS** > **Enable**. After enabling this bundle, you can view the APIs within the bundle under the **Contents** tab, or choose **Platform** > **Developer Toolkit** > **APIs** > **Know Your Network** > **Devices**.

Step 1   From the top-left corner, click the menu icon and choose **Platform** > **Developer Toolkit** > **APIs**.

Step 2   Review the list of supported APIs.

If necessary, click the **>** icon to display the API subdomains.

Step 3   Choose an API from the domains and subdomains.

After choosing an API, the following information is displayed in columns:

- **Method**: Supported methods include GET, POST, PUT, and DELETE.

- **Name**: Link to access the slide-in pane and additional information, including description, features, tags, parameters, responses, model schemas, and so on.

- **Description**: Brief description of the method.

- **URL**: URL value for the method.

- **Actions**: Create a code preview snippet with the **Try** option.

Note   A blue color-coded message may appear, stating that the specific API configuration is still in progress and to check back at a later time. The screen auto refreshes when the API is registered and you may proceed with your API activity. In the highly unlikely event that a red color-coded message appears stating that the API cannot be configured, contact your Catalyst Center administrator to contact Cisco for assistance in resolving the issue.

Step 4   Click the name (link) of an API method.

The following information about the API method is displayed:

- **DESCRIPTION**: Brief description of API.

- **FEATURES**: Method and URL information.

- **TAGS**: API identifiers, including where and under what circumstances you would use the API. Note that some APIs may not have tags.

- **PARAMETERS**: Parameters of API, including description, data type (Boolean or string), default value, and required value.

- **RESPONSES**: Possible HTTP responses.

- **MODEL SCHEMAS**: Presents response as a data model (**Model** tab) or JSON format of the actual response (**Model Schema** tab). Sample code is available from the **Code Preview** button.

- **POLICIES**: An API rate limiting feature, where policies are applied to certain APIs. These policies set the number of API calls per time interval per client IP address.

Step 5   (Optional) Generate a code preview by clicking **Code Preview**.

Note   If you are creating your own program, you can cut and paste the code preview sample into your own program.

Step 6   (Optional) In the **Code Preview** window, choose a language from the drop-down to generate the code.

The following languages are supported:

- **Shell**

- **Node - HTTP**

- **Node - Unirest**

- **Node - Request**

- **Python**

- **Ruby**

- **JavaScript**

- **JQuery**

- **PHP**

- **Go**

- **Ansible**

After reviewing or copying the code preview sample for use, click **Close**.

Step 7   (Optional) Try the method by clicking **Try**.

Step 8   (Optional) In the **Try** window, fill in the requested values (for example, URL address or value) and click **Run**.

After reviewing the response and/or error code, click **Close**.

When Catalyst Center returns a 202 (Accepted) HTTP status code, the result body includes a task ID and a URL that you can use to query for more information about the asynchronous task that your original request spawned. For example, you can use this information to determine whether a lengthy task has completed. For more information, see Getting Information about Asynchronous Operations.

Note   The response is a live response from Catalyst Center itself, and the results reflect the actual state of your network. In contrast, the code previews are static and contain placeholders for values that you must supply.

Work with Integration Flows

An integration flow defines the interaction between Catalyst Center platform and a third-party system, such as an ITSM system that is used to track, troubleshoot, and resolve network issues.

Catalyst Center platform supports schedule-based integration flows. This type of integration flow runs on a schedule, performs a task, and pushes the information to a REST endpoint or other vendor-specific destination. Schedule-based integration flows can be edited in the GUI using the **Integration Flows** window to specify the schedule on which they execute.

Note   The integration flows available in the **Developer Toolkit** are used by various bundles in **Manage** > **Bundles**. Bundles are used to integrate your own applications with Catalyst Center or to enhance the performance of Catalyst Center itself. You can view the integration flows used in a bundle by clicking the bundle in **Manage** and clicking the **Contents** tab. Integration flows for the bundle are listed under the **Contents** tab.

Before you begin

Before you can view and manage integration flows in the **Integration Flows** window, you must enable them. You enable integration flows from the individual bundles in the Catalyst Center platform. For example, click the menu icon and choose **Platform** > **Manage** > **Bundles** > **Basic ITSM (ServiceNow) CMDB synchronization**. Click the **Contents** tab and then click **Enable**.

Step 1 From the top-left corner, click the menu icon and choose **Platform** > **Developer Toolkit** > **Integration Flows**.

Step 2 Review the integration flows displayed by the GUI.

Step 3 Choose an integration flow from the ITSM Integration group.

The following information is displayed:

- **Name**: Name of the integration flow and link to access a slide-in pane where additional information is available.

  If the integration flow is a REST-based trigger type, after you click the integration flow name additional data such as description, tags, parameters, responses, model schemas, and policies appear.

  If the integration flow is a schedule-based trigger type, after you click the integration flow name a slide-in pane for setting the schedule appears. This slide-in pane displays **DESCRIPTION**, **TAGS**, and **HOW TO USE THIS FLOW** content.

- **Description**: Brief description of integration flow.

- **Trigger**: REST-based or schedule-based.

- Icon (**…**): Accesses links to create a code preview or the **Try** option. If the integration flow is schedule-based, this icon accesses a **Schedule Flow** option.

Step 4 For a REST-based integration flow, click on the name (link) of the integration flow.

A slide-in pane opens with details about the REST-based integration flow. Review the details and then close the slide-in pane.

Step 5 For a REST-based integration flow, generate a code preview snippet by mousing over the icon (**…**) and clicking **Generate Code Preview**.

These choices appear only for REST-based triggered integration flows. Schedule-based integration flows provide a Schedule Flow menu item on hover.

Step 6 In the **Code Preview** window, choose a programming language from the drop-down to generate the code.

After reviewing or copying the code for use, click **Close**.

Step 7 To try a REST request path interactively, mouse over the icon (**…**) and click **Try**.

Step 8 In the **Try** window, fill in the requested values (for example, URL address or value) and click **Run**.

After trying the method, review the response and/or error code within the **Try** window, and click **Close**.

When Catalyst Center returns a 202 (Accepted) HTTP status code, the result body includes a task ID and a URL that you can use to query for more information about the asynchronous task that your original request spawned. For example, you can use this information to determine whether a lengthy task has completed. For more information, see Getting Information about Asynchronous Operations.

Note	For responses, Catalyst Center APIs use a task-based response architecture so that multiple requests and responses can be sent concurrently. Therefore, all PUT, POST, and DELETE requests have a task-based response. To view more details about the response, send a GET request to the task URL (either from a script or as a URL). For error codes, the Catalyst Center APIs follow the standard HTTP status codes.

Step 9 For the schedule-based integration flow, mouse over the icon (**…**) and click **Schedule Flow**.

Step 10 Review the following displayed data:

- **DESCRIPTION**: Description and purpose of integration flow.

- **TAGS**: Tags indicate what the Catalyst Center component is used for or affected by the bundle.

- **HOW TO USE THIS FLOW**: Schedule configuration options.

You can schedule the integration flow using the GUI.

Step 11 Configure a schedule for the integration flow using the following GUI options:

- **Run Now**: Choose **Run Now** and then click the **Schedule** button to run the integration flow.

- **Run Later**: Choose **Run Later** and then enter a date, time, and time zone. Click the **Schedule** button to run the integration flow at the specified date, time, and time zone.

- **Recurring**: Choose **Recurring** and then configure the following options:

  - **Repeats**: Choose daily or weekly repeating occurrences for the integration flow

  - **Run at Interval**: Set the time interval between integration flows.

  - **Set Schedule Start**: Set a start date.

  - **Set Schedule End**: Set an end date.

Click the **Schedule** button to run the integration at the configured times.

Work with Event Notifications

You can associate a notification to specific events that may occur in your network. After the notification is associated with event and even if the event does occur, you receive a notification by REST API or email. You associate a notification to an event by using the **Event Notifications** window in the Catalyst Center platform GUI.

Before you begin

- For a REST API notification, you configured the webhook destination in the **Webhook** tab in Catalyst Center. To access the **Webhook** tab, click the menu icon and choose **System** > **Settings** > **External Services** > **Destinations** > **Webhook**. For detailed information about configuring a webhook destination, see Configure a Webhook Destination.

- For email notification of events, you configured the email destination in the **Email** tab in Catalyst Center. To access the **Email** tab, click the menu icon and choose **System** > **Settings** > **External Services** >

Destinations > **Email**. For detailed information about configuring an email destination, see Configure an Email Destination.

- For a syslog server notification of events, you configured the syslog server destination in the **Syslog** tab in Catalyst Center. To access the **Syslog** tab, click the menu icon and choose **System** > **Settings** > **External Services** > **Destinations** > **Syslog**. For detailed information about configuring a syslog server destination, see Configure a Syslog Server Destination.

- For an SNMP trap notification of events, you configured the SNMP trap destination in the **SNMP** tab in Catalyst Center. To access the **SNMP** tab, click the menu icon and choose **System** > **Settings** > **External Services** > **Destinations** > **SNMP**. For detailed information about configuring a trap destination, see Configure a Trap Notification.

- You have accessed the **Event Settings** window and reviewed or edited the list of events that may occur within your network for ITSM integration and can be captured by Catalyst Center. To access the **Event Settings** window, click the menu icon and choose **Platform** > **Manage** > **Configurations** > **Event Settings**.

Step 1 From the top-left corner, click the menu icon and choose **Platform** > **Developer Toolkit** > **Event Notifications**.

The **Events Notifications** window appears.

Step 2 Click the **Notifications** tab to view the notification tiles.

Each notification is represented by a tile and contains a link to view notification details.

Step 3 From the **CHANNELS** area in the left pane, click the radio button next to the channels for which you want to view the respective notification tiles.

The supported channels are **REST**, **PAGERDUTY**, **SNMP**, **SYSLOG**, **WEBEX** and **EMAIL**. Assurance events do not support SNMP.

Note	- You must create a notification for an event with respective channels and trigger the notification. For more information, see **Create an Event Notification** in the *Cisco Catalyst Center User Guide*. - One event notification supports more than one channel.

Step 4 Click a notification tile link for which you want to view the notification details.

The **Notification Details** slide-in pane displays the following notification details based on the selected channel:

- **Name**: Name of the event.

- **Description**: Event description

- **Sites**

- **Events**

- **REST**: Appears only when you want to view REST notification details. The **REST** area shows the following information:

  - **URL**: URL address of the REST API endpoint that event will be sent to.

  - **Method**: Either the PUT or POST method.

  - **Trust certificate**: Whether a trust certificate is required for REST API endpoint notification.

- **Headers**: The **Header Name** and **Header Value**.

- **PAGERDUTY**: Appears only when you want to view PAGERDUTY notification details. The **PAGERDUTY** area shows the following information:

  - PagerDuty Events API URL

  - PagerDuty Integration Key

  - PagerDuty Events API Version

- **SNMP**: Appears only when you want to view **SNMP** notification details.

- **SYSLOG**: Appears only when you want to view **SYSLOG** notification details.

- **WEBEX**: Appears only when you want to view **WEBEX** notification details.

- **EMAIL**: Appears only when you want to view **EMAIL** notification details. The **EMAIL** area shows the email recipients **From** and **To** along with email **Subject**.

Step 5   In the **Notification Details** slide-in pane, click the toggle button at the top-right corner to enable or disable the respective notification.

Step 6   To edit a particular notification, click the **Actions** drop-down list and choose **Edit**.

Step 7   In the **EDIT NOTIFICATION** window, configure the following based on the selected channel:

a.   In the **Name** field, enter a unique name.

b.   In the **Description** field, enter the description of respective event.

c.   Expand the **Site and Events** and choose a site from the **Select a site** drop-down list.

d.   Click the plus icon next to an event, or click **Add All** to add all the events to the respective notification.

e.   To remove an event from the notification, click the cross icon next to an event that you want to remove, or click **Remove All** to remove all events from the respective notification.

f.   Expand **Configuration** to edit the configuration of the selected notification channel.

To specify details in the **Configuration** area, see **Create an Event Notification** in the *Cisco Catalyst Center User Guide*.

Note   In the **Configuration** area, the fields shown depend on the type of selected notification channel.

Step 8   Click the toggle button at the top-right corner to toggle between the tile view and list view.

Step 9   Click the **Event Catalog** tab to view the list of created events.

Note   You can adjust the events that are displayed by entering a keyword in the **Search** field.

Step 10   Review the data on an individual event within the table.

The following **Event Details** tab data is displayed:

- **Description**: Brief description of the event and how it is triggered.

- **Event ID**: Identification number of the event.

- **Version**: Version number of the event.

- **Namespace**: Namespace of the event.

- **Severity**: 1 through 5.

  Note   Severity 1 is the most important or critical priority and should be assigned for this type of an event.

- **Domain**: REST API domain to which the event belongs.

- **Subdomain**: Subgroup under the REST API domain to which the event belongs.

- **Category**: Error, Warn, Info, Alert, Task Progress, Task Complete.

- **Note**: Additional information about the event or to assist in further understanding the event.

- **Event Link**: Event broadcast using REST URL.

- **Tags**: Tags indicate what Catalyst Center component is affected by the event.

- **Channels**: What channels are supported for the event notifications (REST API, email, webex, and so on).

- **Model Schema**: Presents model schema about the event:

    - **Details**: Example of model schema detail for the event.

    - **REST Schema**: REST schema format for the event.

Step 11   Click the **Notifications** tab to view the active notification associated to the respective event.

When you associate a notification to an event, a **Try-It Now** button appears in the **Event Catalog** tab. To run an event notification simulation, click **Try-It Now**. For information, see Work with Event Notification Simulations.

Work with Event Notification Simulations

Catalyst Center platform supports event simulation, which lets you test an event's subscription (email, REST API, SNMP trap notification, syslog server, or Webex). After running an event simulation, the results (success or failure) are displayed in the GUI.

Before you begin

- For a syslog server notification of events, you configured the syslog server destination in the **Syslog** tab in Catalyst Center. To access the **Syslog** tab, click the menu icon and choose **System** > **Settings** > **External Services** > **Destinations** > **Syslog**. For detailed information about configuring a syslog server destination, see Configure a Syslog Server Destination.

- For an email notification, you configured the email destination in the **Email** tab in Catalyst Center. To access the **Email** tab, click the menu icon and choose **System** > **Settings** > **External Services** > **Destinations** > **Email**. For detailed information about configuring an email destination, see Configure an Email Destination.

- For a REST API notification, you configured the webhook destination in the **Webhook** tab in Catalyst Center. To access the **Webhook** tab, click the menu icon and choose **System** > **Settings** > **External Services** > **Destinations** > **Webhook**. For detailed information about configuring a webhook destination, see Configure a Webhook Destination.

- You have accessed the **Event Settings** window and reviewed or edited the list of events that may occur within your network for ITSM integration and can be captured by Catalyst Center. To access the **Event Settings** window, click the menu icon and choose **Platform** > **Manage** > **Configurations** > **Event Settings**.

Step 1   From the top-left corner, click the menu icon and choose **Platform** > **Developer Toolkit** > **Event Notifications** > **Event Catalog**.

Step 2   In the **Event Catalog** tab, click an event. The slide-in pane shows a **Try-It Now** button if Catalyst Center is subscribed to that event. Click **Try-It Now**.

The following data is displayed; you can edit only the **Details** field:

- **Event Name**: Catalyst Center system name for the event.

- **Event ID**: Identification number of the event.

- **Instance ID**: Identification number of the event's instance.

- **Name**: Name of the event.

- **Description**: Brief description of the event and how it is triggered.

- **Namespace**: Namespace of the event.

  For this release, the default value for all events is ASSURANCE.

- **Context**: Event context field.

  The default value is EXTERNAL.

- **Source**: Source field.

  The default value is EXTERNAL.

- **Type**: **Network**, **App**, **System**, **Security**, or **Integrations** type of event.

- **Category**: **Error**, **Warn**, **Info**, **Alert**, **Task Progress**, **Task Complete**.

- **Severity**: 1 through 5.

- **Domain**: REST API domain to which the event belongs.

- **Sub Domain**: Subgroup under the REST API domain to which the event belongs.

- **Details**: Field for additional user detail about the event.

Step 3   Click **X** to exit from the field.

Step 4   Click **Publish** to run the event simulation and review results.

The following results are displayed:

- **Subscription Name**: User-created subscription name.

- **Connector Type**: Email, REST API, SNMP trap, or Syslog.

- **Status**: Loading, Success, or Fail.

     • **Message**: For a REST connector type (REST API subscription), an HTTPS response appears.