Configuring notifications and integrations on the Red Hat Hybrid Cloud Console

Configuring Hybrid Cloud Console settings so that account users receive event-triggered notifications about RHEL systems
Configuring Hybrid Cloud Console settings so that account users receive event-triggered notifications about RHEL systems
Abstract

Using notifications to learn of identified events that have occurred and could impact your organization.
## Table of Contents

**MAKING OPEN SOURCE MORE INCLUSIVE** ................................................................. 3

**PROVIDING FEEDBACK ON RED HAT HYBRID CLOUD CONSOLE DOCUMENTATION** ............ 4

1. **INTRODUCTION TO RED HAT HYBRID CLOUD CONSOLE NOTIFICATIONS AND INTEGRATIONS** 4
   1.1. What the notifications service does .................................................. 4
   1.2. Notification and integration concepts ........................................... 5

2. **CONFIGURE USER ACCESS** ................................................................. 6
   2.1. Creating and configuring a notifications group in User Access ............. 7
   2.2. Editing or removing a User Access group ....................................... 7

3. **CONFIGURE INTEGRATIONS** ............................................................... 8
   3.1. HTTP POST messages ................................................................. 8
   3.2. Setting up integrations ................................................................. 9

4. **CONFIGURE NOTIFICATION BEHAVIOR GROUPS** ..................................... 10
   4.1. Creating a behavior group ........................................................... 10
   4.2. Associating a behavior group with events ..................................... 11

5. **CONFIGURE USER PREFERENCES** ..................................................... 12
   5.1. Configuring user preferences for email notifications ......................... 12

6. **TROUBLESHOOT NOTIFICATION FAILURES WITH THE EVENT LOG AND INTEGRATION SETTINGS** 13
   6.1. Checking for connection failures in the event log ............................ 14
Red Hat is committed to replacing problematic language in our code, documentation, and web properties. We are beginning with these four terms: master, slave, blacklist, and whitelist. Because of the enormity of this endeavor, these changes will be implemented gradually over several upcoming releases. For more details, see our CTO Chris Wright’s message.
We appreciate your input on our documentation. Please let us know how we could make it better. To do so, create a Bugzilla ticket:

1. Go to the Bugzilla website.
2. As the Component, use Documentation.
3. Fill in the Description field with your suggestion for improvement. Include a link to the relevant part(s) of documentation.
4. Click Submit Bug.

1. INTRODUCTION TO RED HAT HYBRID CLOUD CONSOLE NOTIFICATIONS AND INTEGRATIONS

The notifications service on Red Hat Hybrid Cloud Console frees users from having to check their user interface routinely, looking for event-triggered notifications. Instead, when events occur, the service automatically takes the action to send notifications about the events to users.

**IMPORTANT**

Groups and roles, including the Notifications administrator role, must be configured by an Organization Administrator in order for events to be reported through email and integrations.

To learn more about User Access on the Red Hat Hybrid Cloud Console platform, see the User Access Configuration Guide for Role-based Access Control (RBAC).

1.1. What the notifications service does

Through the notifications service, Red Hat Hybrid Cloud Console applications and services have a standardized way of notifying users of events. By setting up behavior groups, a Notifications administrator specifies the notification delivery method, and whether event notifications are sent to all users on an account or only to Organization Administrators.

For example, the Notifications administrator can configure the service to send an email notification for (advisor service) new-recommendation hits on a system. Similarly, the administrator might decide to trigger a notification that sends a message to a third-party application using the webhook integration type.

An Organization Administrator designates Notifications administrators by creating a User Access group with the Notifications administrator role, then adding account members to the group. A Notifications administrator then configures notification behavior groups that define actions taken when service-specific events occur.

The notifications service transmits event-triggered notifications to users’ email accounts, or to third-party applications using webhooks. Users on the Hybrid Cloud Console account set their own preferences for receiving email notifications. In User preferences > Notifications > application bundle, each user configures their personal settings to receive event notification emails as an instant notification or daily digest.
**1.2. Notification and integration concepts**

The following table defines terms that are important for understanding how the notifications service works:

**Table 1. Notifications concepts**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions</td>
<td>Operations performed in response to an event. Examples include sending an email or forwarding a notification to an integration endpoint, such as a webhook. Actions are defined in behavior groups configured by a Notifications administrator.</td>
</tr>
<tr>
<td>Application bundle</td>
<td>Application bundle refers to an application group within the Hybrid Cloud Console, such as Red Hat Enterprise Linux (Insights for RHEL) or OpenShift.</td>
</tr>
</tbody>
</table>
| Behavior groups        | Behavior groups determine what actions to take when an event occurs, and whether to notify all account users or only designated administrators. Once a Notifications administrator creates a behavior group, they associate it with event types, enabling Notifications administrators to apply the same actions to all application-specific events.  
**NOTE:** Notifications administrators configure notification behavior groups separately, for each application bundle. |
| Email preferences      | Individual users with access to applications on the Hybrid Cloud Console set their personal email preferences. Users can configure personal email notifications to arrive either instantly, as the event occurs, or consolidated into a daily digest that arrives at midnight, 00:00 Coordinated Universal Time (UTC), for all accounts.  
**IMPORTANT:** Selecting Instant notification for any service can potentially result in receiving a very large number of emails. |
Event type

Event types are application-specific system changes that trigger the application or service to initiate notification actions. Event types are created by application developers at Red Hat and are unique for each application bundle. Examples from the Insights for RHEL (Red Hat Enterprise Linux) application bundle include:

- **Policies service**: Policy triggered
- **Drift service**: Drift from baseline detected
- **Advisor service**: New recommendation; Resolved recommendation

Integrations

Integrations define the method of delivery of notifications to third-party applications configured by the Notifications administrator. Once configured, the notifications service sends the HTTP POST messages to endpoints. Currently, only the webhook type is supported.

User access roles

The following User Access roles interact with notifications:

- **Organization Administrator**
- **Notifications administrator**
- **Notifications viewer**

## 2. CONFIGURE USER ACCESS

Before account users can configure notifications and integration settings, a group with the Notification administrator role must be configured in User Access by an Organization Administrator. In User Access > Groups, an Organization Administrator performs the following high-level steps:

- Create a User Access group for Notifications administrators.
  - Add the Notifications administrator role to the group.
  - Add members (users with account access) to the group.

**Organization Administrator**

The Organization Administrator configures the User Access group for Notifications administrators, then adds the Notifications administrator role and users to the group.

**Notifications administrator role**
Notifications administrators configure how applications interact with notifications. Notifications administrators configure behavior groups to define how applications notify users about events. Administrators can configure additional integrations as they become available, as well as edit, disable, and remove existing integrations.

**Notifications viewer role**

The Notifications viewer role is automatically conferred to everyone on the account and limits how a user can interact with notifications service views and configurations. A viewer can view notification configurations, but cannot modify or remove them. A viewer also cannot configure.r modify, or remove integrations.

For learn more about User Access on the Red Hat Hybrid Cloud Console platform, see the [User Access Configuration Guide for Role-based Access Control (RBAC)](#).

### 2.1. Creating and configuring a notifications group in User Access

The following procedure shows how an *Organization Administrator* on the account creates a group with the *Notifications administrator* role and adds members to the group.

**Prerequisites**

- You must be logged into your Red Hat Hybrid Cloud Console account as an Organization Administrator.

**Procedure**

1. Click the gear icon in the upper right quadrant of the application window and select *Settings*.
2. From the Settings menu on the left, click *User Access* and select *Groups*.
3. Click *Create group*.
4. Enter a group name, for example, Notifications Administrators, and a description, then click *Next*.
5. Select the role to add to this group, in this case *Notifications administrator*. Click the checkbox for that role, then click *Next*.
6. Add members to the group. Search for individual users or filter by username, email, or status. Check the box next to each intended member’s name, then click *Next*.
7. Review the details to make sure everything is correct. Click *Back* if you need to go back and change something.
8. Click *Submit* to finish creating the group.

### 2.2. Editing or removing a User Access group

If you need to edit or remove a User Access group, perform the following steps:

**Prerequisites**
You must be logged into your Red Hat Hybrid Cloud Console account as an Organization Administrator.

Procedure

1. Locate the group name in User Access > Groups.

2. Click the menu options icon on the far right of the group name row (⋮), and click Edit or Delete.

3. Make and save changes or delete the group.

3. CONFIGURE INTEGRATIONS

The Red Hat Hybrid Cloud Console notifications and integrations services work together to transmit messages to third-party application endpoints, such as instant messaging platforms and external ticketing systems, when triggering events occur.

This enables Notifications administrators to integrate Hybrid Cloud Console functionality into the operational workflow used in their organization. Integrations are configured by a Notifications administrator as endpoints in Red Hat https://console.redhat.com[Red Hat Hybrid Cloud Console > Settings > Integrations].

**NOTE**

Webhook is the current integration type supported in the Red Hat Hybrid Cloud Console platform. When configured, the service sends an HTTP POST message to the specified third-party applications endpoint.

3.1. HTTP POST messages

The following screenshot is an example of an HTTP POST message sent to a third-party application endpoint. Event types are specific to a service or application. For example, the Insights for RHEL application bundle currently notifies configured users of events from the policies, advisor, and drift services. The following example notification from the Insights for RHEL advisor service was triggered by a new recommendation on a host system.
In the example, the blocks contain the following information:

1. Information about the bundle and application sending the notification
   - **bundle**: Name of the application bundle
   - **application**: Name of the individual application or service sending the event-triggered notification
   - **event_type**: The event type that triggered the notification
   - **account_id**: The Red Hat account from which the notification was sent
   - **timestamp**: ISO-8601 formatted date showing when the notification was sent

2. Information about the application or service-specific event
   - **payload**: The application payload, a JSON string containing all the data sent by the application

3. Information about the system on which the event occurred. For example:
   - **inventory_id**: System ID
   - **hostname**: System name
   - **rhel_version**: RHEL version running on the system

The metadata field is not currently being used.

### 3.2. Setting up integrations
A Notifications administrator sets up integrations for the organization. In addition to adding new integrations, a Notifications administrator can edit, remove, or disable any listed integration by clicking the more-actions icon, , to the right of the integration name and clicking the appropriate option.

Prerequisites

- To perform the following procedure, a user must be logged into the Red Hat Hybrid Cloud Console platform with Notifications administrator privileges configured in User Access.

Procedure

1. Navigate to Red Hat Hybrid Cloud Console > Settings > Integrations.

2. Click Add integration.
   a. Enter an Integration name.
   b. Select an integration Type, such as webhook.
   c. Provide the Endpoint URL.
   d. The checkbox to Enable SSL verification is checked by default.
   
   **IMPORTANT**
   
   SSL is essential for protecting the data sent to the integration endpoint. SSL should always be used when integrating Red Hat Hybrid Cloud Console to third party applications.
   
   e. Provide a Secret token, if required.
   
   **NOTE**
   
   If defined, the Secret token is used as an 'X-Insight-Token' header on the POST HTTP request.
   
   f. Click Save.

The new integration is enabled by default and available as an integration option when a Notifications administrator configures behavior groups in the notifications service. In order to disable the integration, use the toggle button on the Integrations list, Enabled column.

**4. CONFIGURE NOTIFICATION BEHAVIOR GROUPS**

The Notifications administrator configures notifications for the account through behavior groups. After creating a behavior group, the Notifications administrator associates it with triggering events, which are unique to each application bundle.

When an event occurs, all users on the account who selected in their user preferences to receive notifications will receive them, as well as all third-party applications specified as integration actions in the behavior group.

**4.1. Creating a behavior group**
Use the following procedure to create a new notifications behavior group:

**Prerequisites**

- An Organization Administrator has configured notification groups, roles, and members in User Access.
- You must be logged into the Red Hat Hybrid Cloud Console platform with Notifications administrator privileges.

**Procedure**

1. Navigate to Red Hat Hybrid Cloud Console > Settings.
2. In the settings menu, expand Notifications and select an application bundle, such as Red Hat Enterprise Linux or OpenShift.
3. Click Create new group.
4. Enter a group name. From the Actions dropdown list, select from the following options:
   a. Select Send an email, then select whether the email notification should go to all users in the organization, or to limit the recipients to administrators in the organization.
   b. Select Integration: Webhook and select an option from the dropdown list, which is populated by endpoints configured in Settings > Integrations.
   c. You can add additional actions as needed to notify all of your organization’s integration endpoints.
5. Edit or delete the behavior group as needed by locating it in the Behavior groups list on the notifications page for the application bundle, clicking the options menu, and clicking Edit or Delete.

**NOTE**

Clicking Delete prompts a warning to the user of the consequences of deleting a behavior group assigned to event types.

4.2. Associating a behavior group with events

Use the following procedure to associate a notifications service behavior group with triggering events.

**Prerequisites**

- To perform the following procedure, a user must be logged into the Red Hat Hybrid Cloud Console platform with Notifications administrator privileges configured in User Access.
- A Notifications administrator has already created the behavior group.

**Procedure**

1. Navigate to Red Hat Hybrid Cloud Console > Settings.
2. In the settings menu, expand **Notifications** and select an **application bundle** where the behavior group was created, such as Red Hat Enterprise Linux or OpenShift.

3. Select a behavior group with which to associate events. You can enter the name of the group in the search box, or scroll through the behavior group cards.

4. In the list of events for the application bundle, click the pencil icon on the far right of the event name row. This will enable a drop-down list in the behavior column for the event.

5. Click the behavior drop-down list and select the behavior group(s) you want to associate with the event.

6. Click the checkmark in the event row to accept your selection for that event.

7. Repeat the previous step for each event.

**NOTE**

Events can have multiple behavior groups associated with them. It is also possible that a behavior group is not associated with any event. In that case, when an event occurs, no action is taken.

**5. CONFIGURE USER PREFERENCES**

Each user on the Red Hat Hybrid Cloud Console account must opt in to receive email notifications. If you don’t set your user preferences, you will not receive emails about events.

Select the services from which to receive the notifications, and the frequency: instantly (after each triggered event) or as a daily digest.

**IMPORTANT**

Selecting **Instant notification** for any service can potentially result in receiving a very large number of emails.

**5.1. Configuring user preferences for email notifications**

Each user configures their own preferences for receiving emails about event-driven system changes.

**Prerequisites**

- You must be a registered user and logged into the Red Hat Hybrid Cloud Console platform.

**Procedure**

1. Locate your user name in the upper-right part of the application window.

2. Click the arrow to the right of your username and select **User Preferences**.

3. In the left navigation panel, click **Notifications** and select the appropriate application bundle, for example Red Hat Enterprise Linux or OpenShift.

4. Select an email preference for each service.
IMPORTANT

Selecting Instant notification for any service can potentially result in receiving a very large number of emails.

5. Click Save.

Email notifications are delivered in the format and frequency you select.

NOTE

If you decide to stop receiving notifications, select Unsubscribe from all, and click Save. You will no longer receive any email notifications unless you return to this screen and subscribe to them once again.

6. TROUBLESHOOT NOTIFICATION FAILURES WITH THE EVENT LOG AND INTEGRATION SETTINGS

Troubleshoot notification failures with the event log and integration settings. The notifications service event log enables Notifications administrators to easily see when notifications are not working properly. The event log provides a list of all triggered events on the Red Hat Hybrid Cloud Console account, and actions taken (as configured in the associated behavior group) for the past 14 days.

In the Actions column, each event shows the integration type highlighted in green or red. These visual color codes indicate the status of the message transmission: success or failure, respectively.

The following use cases illustrate the troubleshooting capabilities of the event log:

Check an endpoint configuration to troubleshoot a degrading connection.

The filterable event log is a useful troubleshooting tool to see a failed notification event and identify potential issues with endpoints. After seeing a failed action in the event log, the Notifications administrator can check the endpoint and the status of the last five connection attempts on the Integrations screen.

In the integrations service, the following connection statuses are reflected by color:

- **Green**: Five previous transmissions were successful
- **Red**: Five previous transmissions were unsuccessful (timeout, 404 error, etc)
- **Yellow**: Connection is degraded; at least two of the five previous transmissions were unsuccessful

- **Unknown**: The integration has not yet been called, or is not associated with a behavior group

**Determine whether a user’s non-receipt of emails is a configuration or user error.**

The event log can answer questions related to receipt of emails. By showing the email action for an event as green, the event log enables a Notifications administrator to confirm emails were sent successfully. An issue with the receipt of notification emails may be with *individual user preferences* and not with notification configuration.

**IMPORTANT**

Even with notifications and integrations configured properly, individual users on the Red Hat Hybrid Cloud Console account must configure their **User Preferences** to receive emails.

### 6.1. Checking for connection failures in the event log

Use the following procedure to check for notification action failures.

**Prerequisites**

- You must be logged into Red Hat Hybrid Cloud Console with the Notifications administrator privileges configured in User Access.

- Before users receive notifications using the webhook integration type, endpoints for your organization’s preferred webhook application must be configured by a Notifications administrator in the integrations service.

- Before users receive email notifications, they must configure their personal email notification preferences for each Hybrid Cloud Console application bundle.

**Procedure**

1. Navigate to **Red Hat Hybrid Cloud Console > Settings > Notifications > Event log**.

2. Filter the events list as needed by event, application, or application bundle and select to show events from today, yesterday, the last seven days, the last 14 days (default), or set a custom range within the last 14 days.

3. Sort the Date and time column as needed in ascending or descending order.

4. If users of the application bundle are not receiving the notifications as intended, you can click **View notification settings** and change settings and/or have users check their user preferences for receiving email notifications.