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Sending Connection Notifications to Slack from Google Compute Engine

Author(s): [@tswast](https://github.com/tswast) (<https://github.com/tswast>), Published: 2016-09-22



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This tutorial demonstrates how to send a [Slack](https://slack.com) (<https://slack.com>) notification when someone SSHs into a [Google Compute Engine](/compute) (</compute>) instance.

Google Compute Engine provides virtual machine instances with support for Linux and Windows operating systems, billed at minute-level increments.

Slack is a messaging application for working with teams, and it provides a [rich set of APIs](https://api.slack.com/) (<https://api.slack.com/>) to integrate with your applications.

Objectives

- Send a request to a [Slack incoming webhook](https://api.slack.com/incoming-webhooks) (<https://api.slack.com/incoming-webhooks>).
- Add a [Pluggable Authentication Modules \(PAM\)](http://tldp.org/HOWTO/User-Authentication-HOWTO/x115.html) (<http://tldp.org/HOWTO/User-Authentication-HOWTO/x115.html>) hook to run a script on SSH logins.

Before you begin

1. Create a Linux Google Compute Engine instance. You can follow [the Compute Engine Linux quickstart guide](/compute/docs/quickstart-linux) (</compute/docs/quickstart-linux>) to create one.

When choosing a machine size, note that the [Google Cloud Platform free tier](/free) (</free>) includes 1 [f1-micro](/compute/docs/machine-types#sharedcore) (</compute/docs/machine-types#sharedcore>) instance per month. This tutorial requires very little CPU or memory resources.

2. Create a [new Slack team](https://slack.com/create) (<https://slack.com/create>), or use an team where you have permissions to add integrations.

Costs

This tutorial uses billable components of Cloud Platform including Google Compute Engine. Use the [Pricing Calculator](/products/calculator#id=6d866c0e-b928-4786-b2ab-bed5c380a2fd) (</products/calculator#id=6d866c0e-b928-4786-b2ab-bed5c380a2fd>) to estimate the costs for your usage.

Slack is free for up to 10 apps and integrations. Check the [Slack pricing page](https://slack.com/pricing) (<https://slack.com/pricing>) for details.

Connect to your instance

[Connect to your Google Compute Engine instance](/compute/docs/instances/connecting-to-instance)

(</compute/docs/instances/connecting-to-instance>). The easiest way to do this is to use

the [SSH button from Google Cloud Console](https://console.cloud.google.com/compute/instances)

(<https://console.cloud.google.com/compute/instances>).

Get the sample code

From the instance, clone the sample code repository and change to the `notify` directory.

```
git clone https://github.com/GoogleCloudPlatform/slack-samples.git
cd slack-samples/notify
```

If git is not installed, download and extract the code.

```
# Alternative if git is not installed.
wget https://github.com/GoogleCloudPlatform/slack-samples/archive/master.tar.gz
tar -xzf master.tar.gz
cd slack-samples-master/notify
```

Creating a Slack incoming webhook

An [incoming webhook](https://api.slack.com/incoming-webhooks) (<https://api.slack.com/incoming-webhooks>) creates an HTTPS endpoint where you can send messages. These messages will post to the configured channel or direct message.

1. Create a [new Slack app](https://api.slack.com/apps) (<https://api.slack.com/apps>).
 - a. Give the app a name, such as "SSH Notifier".
 - b. Choose the Slack team where you want it installed.
2. Select the [Slack incoming webhook](https://api.slack.com/incoming-webhooks) (<https://api.slack.com/incoming-webhooks>) feature in the **Add features and functionality** section.
 - a. Click the **Off** switch in the upper right-hand corner to activate the incoming webhooks feature. The switch will turn green to indicate the

feature is now **On**.

3. Click the **Add new webhook to team** button at the bottom of the incoming webhooks feature page.
 - a. In the authorization dialog, select the channel where you want the SSH notifications to appear, such as #cloud or #botdev.
4. You should now see a webhook URL, like `https://hooks.slack.com/services/T000000/B000000/XXXXXXXX`. Copy it to your clipboard by clicking the **Copy** button.
5. Switch back to the SSH connection on the Compute Engine instance.
 - a. Write the webhook URL to a file called `slack-hook` in the `notify` directory.

```
echo 'https://hooks.slack.com/services/T000000/B000000/XXXXXXXX'
```

Be careful (<https://api.slack.com/docs/oauth-safety>) with your webhook URL. Treat it like you would any other secret token. Do not store tokens in version control or share them publicly.

Examining the notification script

*This section explains the script used to send notifications to Slack. It should be easy to understand if you are familiar with [Bash syntax](https://tiswww.case.edu/php/chet/bash/bashtop.html) (<https://tiswww.case.edu/php/chet/bash/bashtop.html>). You may skip to the **Testing the notification script** section if you only wish to try out the code.*

Examine the `login-notify.sh` script

(<https://github.com/GoogleCloudPlatform/slack-samples/blob/master/notify/login-notify.sh>).

First, it sets a variable with the location of this script. This will allow it to load the `slack-hook` file so long as it is in the same directory as the script.

```
script_dir="$( cd "$( dirname "${BASH_SOURCE[0]}" )" && pwd )"
```

Then it checks to see what kind of authentication event is happening. The script notifies on all events except closing an SSH connection.

```
if [[ $PAM_TYPE != "close_session" ]] ; then
```

Then it constructs a plain-text message to send. The message include the username and remote IP address.

```
host=$(hostname)
message="SSH Login: ${PAM_USER} from ${PAM_RHOST} on ${host}"
```

It reads the webhook URL from the `slack-hook` file.

```
hook=$(cat "${script_dir}/slack-hook")
```

Finally, it send a POST HTTP request with the message to the Slack webhook.

```
curl -X POST --data-urlencode "payload={\"text\": \"${message}\"}" "${hook}
fi
```

Testing the notification script

Test the script by setting the `PAM_USER` and `PAM_RHOST` variables and running the script from the Compute Engine instance SSH terminal.

```
PAM_USER=$USER PAM_RHOST=testhost ./login-notify.sh
```

You should receive a Slack message notifying you that there as a login from `testhost`.

Adding the PAM hook.

A PAM hook can run a script to run whenever someone SSHs into the machine.

1. Verify that SSH is using PAM by making sure there is a line `UsePAM yes` in the `/etc/ssh/sshd_config` file.

```
grep UsePAM /etc/ssh/sshd_config
```

If you do not see `UsePAM yes` or it is commented out with a `#`, you can use whatever text editor you would like to edit the file. This tutorial uses `nano`.

```
sudo nano /etc/ssh/sshd_config
```

2. Use the `install.sh` script (<https://github.com/GoogleCloudPlatform/slack-samples/blob/master/notify/install.sh>) to set up the PAM hook.

```
sudo ./install.sh
```

3. Keep this SSH window open in case something went wrong.
4. Verify that you can login from another SSH terminal.

You should receive another notification on Slack, indicating that you just connected.

Cleaning up

To prevent unnecessary charges, clean up the resources created for this tutorial.

1. Delete any Compute Engine instances (</compute/docs/instances/stopping-or-deleting-an-instance/>).

2. Remove the custom integration from Slack

(<https://slack.com/apps/manage/custom-integrations>).

Next steps

- Explore the other Slack APIs (<https://api.slack.com/>).
- Check out the other Slack samples for Google Cloud Platform (<https://github.com/GoogleCloudPlatform/slack-samples>)

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