

MONOLITHIC PROJECT

STEP-1: Launch an instance (t2.medium & 20 gb ebs) with key-pair, 8080 port and IAM Admin role

STEP-2: install terraform and write a terraform code to launch an instance with same key-pair.

STEP-3: push that code into GitHub.

STEP-4: setup Jenkins in our server.

STEP-5: create a job in Jenkins (Automate terraform) to launch an instance.

STEP-6: install Ansible and its dependencies(python-pip, leveldb, openssl and pip install boto3)

STEP-7: write a plugin for getting prod server details

STEP-8: allow all permissions for Ansible configuration on prod servers

STEP-9: make ssh connection b/w the server through pem file

STEP-10: write a script to automate the configuration on prod servers.

STEP-11: INTEGRATE SLACK AND SPLUNK

STEP-2: INSTALL TERRAFORM

`yum-config-manager --add-repo`

`https://rpm.releases.hashicorp.com/AmazonLinux/hashicorp.repo`

`yum install terraform -y`

STEP-5:

```
pipeline {  
    agent any  
  
    stages {  
  
        stage('code') {  
  
            steps {  
  
                git branch: 'main', url: "https://github.com/devops0014/devops18.git"  
            }  
        }  
  
        stage("deploy") {  
  
            steps {  
  
                sh 'terraform init'  
  
                sh 'terraform plan'  
  
                sh 'terraform apply --auto-approve'  
            }  
        }  
    }  
}
```

AFTER THAT ADD S3 BACKUP FOR STORING TF STATE FILES:

open s3.tf file in your github and add the below code

```
terraform {  
  backend "s3" {  
    bucket = "mustafa.devops.project.bucket"  
    key    = "prod/terraform.tfstate"  
    region = "us-east-1"  
  }  
}
```

Now add this INIT stage separately in your pipeline:

```
stage("init") {  
  steps {  
    script {  
      sh 'echo -e "yes\n" | terraform init'  
    }  
  }  
}
```

STEP-6,7,8,9: INSTALL ANSIBLE AND CONFIGURE IT

[amazon-linux-extras install ansible2 -y](#)

[yum install python python-pip python-level openssl -y](#)

[pip install boto3](#)

[vi /etc/ansible/ansible.cfg](#)

- inventory = /opt/ansible/inventory/aws_ec2.yml
- host_key_checking = False
- enable_plugins = aws_ec2 (line-330)

- o vim keypair.yml

```
mkdir -p /opt/ansible/inventory
```

```
vim aws_ec2.yml
```

```
=====
```

```
---
```

```
plugin: aws_ec2
```

```
regions:
```

```
- ap-south-1
```

```
filters:
```

```
tag:Environment: dev
```

```
=====
```

NOW ADD THE DEPLOYMENT STAGE IN YOUR PIPELINE:

```
stage ("deployment") {
```

```
    steps {
```

```
        sh "ansible-playbook -i /opt/ansible/inventory/aws_ec2.yml  
/var/lib/jenkins/workspace/My-Project/ansible/deployment.yml"
```

```
}
```

```
}
```

NOW THE APP WILL GETS DEPLOYED IN SLAVE SERVERS.

LETS INTEGRATE SLACK AND SPLUNK TO JENKINS:

STEP-2: INSTALL SLACK NOTIFICATION PLUGIN

A screenshot of the Jenkins plugin store interface. At the top, there's a search bar with the text "slack no". To the right of the search bar are two buttons: a blue "Install" button and a dropdown arrow. Below the search bar, there are filter options: "Install" and "Name ↓" on the left, and "Released" on the right. A list of plugins is shown, with the first item being "Slack Notification 684.v833089650554". This plugin has a checked checkbox next to it, a "slack" tag, and a "Build Notifiers" tag. It was released "5 mo 22 days ago" and has the description "Integrates Jenkins with Slack, allows publishing build statuses, messages and files to Slack channels."

STEP-3: CREATE ACCOUNT ON SLACK USING GOOGLE ACCOUNT.



First of all, enter your email address

We suggest using the email address that you use at work.

name@work-email.com

Continue

OR

Continue with Google

Continue with Apple

Already using Slack?

[Sign in to an existing workspace](#)

click on continue with Google



Confirmed as awsanddevops18@gmail.com Change

Create a new Slack workspace

Slack gives your team a home – a place where they can talk and work together. To create a new workspace, click on the button below.

[Create a workspace](#)



By continuing, you're agreeing to our main services agreement, user terms of service and Slack supplemental Terms. Additional disclosures are available in our privacy policy and cookie policy.

click on create workspace

Step 1 of 4

What's the name of your company or team?

This will be the name of your Slack workspace – choose something that your team will recognise.

DevOps

Next

Enter your team name or company name

Step 2 of 4

What's your name?

Adding your name and profile photo helps your teammates to recognise and connect with you more easily.

MUSTAFA SHAIK

Your profile photo (optional)

Help your teammates to know that they're talking to the right person.



Edit photo

Next

Enter your name

Step 3 of 4

Who else is on the DevOps team?

Add colleagues by email

 Add from Google Contacts

Example ellis@gmail.com, maria@gmail.com

Next

 Copy invitation link

Skip this step

Enter your colleague mail ids for collaboration

Create a channel



Name

deployment-team

65

Channels are where conversations happen around a topic. Use a name that is easy to find and understand.

Invite external people  PRO

Next

Enter any channel name.

The screenshot shows a Slack interface. At the top, there's a search bar with 'Search DevOps' and a help icon. Below the search bar, the channel name '# deployment-team' is displayed with a dropdown arrow. To the right of the channel name are icons for 'M 1', 'Huddle', and 'Canvas'. A link '+ Add a bookmark' is also visible. The main area shows a message from 'MUSTAFA SHAIK' at 14:54 stating 'joined #deployment-team.' followed by a message 'Hi Team'. Below the messages is a message input field with placeholder text 'Message #deployment-team' and various rich text and media icons. The date 'Today' is shown above the message input field.

STEP-4: INTEGRATE THIS SLACK TO JENKINS

INSTALL JENKINS PLUGIN IN SLACK

CLICK ON PROFILE -----> TOOLS & SETTINGS -----> MANAGE APPS

The screenshot shows the Slack web interface. On the left, the sidebar for the 'DevOps' workspace is visible, featuring sections for 'Home', 'More', 'Tools & settings' (which is currently selected), and 'Sign in on mobile'. A context menu is open over the '# deployment-team' channel, listing options like 'Customise workspace', 'Workflow Builder', 'Analytics', 'Settings', 'Workspace settings', 'Edit workspace details', 'Administration', 'Manage members', and 'Manage apps'. The 'Manage apps' option is highlighted with a blue bar. At the bottom of the screen, a confirmation message reads: 'Are you sure? Without notifications, you'll never receive updates from this channel.'

SEARCH FOR JENKINS

The screenshot shows a search results page with the query 'JENKINS' entered in the search bar. The results are displayed in a card-based format. The first result is 'Jenkins CI' with a Jenkins logo icon. Below it are other results: 'Zenduty' with a person icon, 'marbot' with a blue cat-like icon, and 'BuildPulse' with a blue square icon. At the bottom of the page, there are two dropdown menus labeled '▼' containing the text 'Anyone'.

[← Browse apps](#)



Jenkins CI

Description

Permissions

Security & compliance

Jenkins CI is a customisable continuous integration server with over 600 plugins, allowing you to configure it to meet your needs.

This integration will post build notifications to a channel in Slack.

[Add to Slack](#)

[Learn more & Support](#)

[Privacy policy](#)

[Terms](#)

Categories

Developer tools

CLICK ON ADD TO SLACK

[Browse apps](#) > [Jenkins CI](#) > New configuration



Jenkins CI

An open-source continuous integration server.

Jenkins CI is a customisable continuous integration server with over 600 plugins, allowing you to configure it to meet your needs.

This integration will post build notifications to a channel in Slack.

Post to channel

Start by choosing a channel where Jenkins notifications will be posted.

deployment-team

▼

or [create a new channel](#)

[Add Jenkins CI integration](#)

SELECT OUR CHANNEL (deployment-team) AND CLICK ON ADD JENKINS CI INTEGRATION

STEP-5: NOW GO TO JENKINS ----> MANAGE JENKINS ----> SYSTEM ----> SLACK

Slack

Workspace ?

devops-iy03319

Credential ?

slack token

+ Add ▾

Default channel / member id ?

deployment-team

Custom slack app bot user ?

Advanced ▾

Success

Test Connection

add **sub-domain, workspace and credentials**(slack token) using secret text. we will get this **slack token and sub-domain** name from slack page.

Step 3

Once it's installed, click on **Manage Jenkins** again in the left navigation and then go to **Configure system**. Find the **Global Slack notifier settings** section and add the following values:

- Team subdomain: `devops-iy03319`
- Integration token credential ID: Create a secret text credential using `pXY02V1PnyAWwM9yqL9tCVEt` as the value

The other fields are optional. You can click on the question mark icons next to them for more information. Press **Save** once you've finished.

Note: Please remember to replace the integration token in the screenshot below with your own.

NOW OPEN YOUR SLACK YOU WILL GET A MESSAGE

Search DevOps

deployment-team

+ Add a bookmark

deployment-team

You created this channel today. This is the very beginning of # deployment-team. [Add description](#)

[Add colleagues](#)

Today

MUSTAFA SHAIK 14:54 joined #deployment-team.

MUSTAFA SHAIK 14:56 Hi Team

MUSTAFA SHAIK 15:00 added an integration to this channel: [jenkins](#)

 jenkins APP 15:06 Slack/Jenkins plugin: you're all set on <http://54.160.206.179:8080/>

B I S | P | E E | E | </> | ↵

Message #deployment-team

+ Aa ⌂ @ | □ ♫ | □

▶ | ↴

NOW LETS BUILD ANY JOB USING POST BUILD ACTIONS IN JENKINS AND TEST IT.

```
post {
    always {
        echo 'Slack Notifications'
        slackSend (
            channel: '#channel name', message: "*${currentBuild.currentResult}:* Job ${env.JOB_NAME} \n build
${env.BUILD_NUMBER} \n More info at: ${env.BUILD_URL}"
        )
    }
}
```

SPLUNK INTEGRATION:

STEP-2: GO TO slack.com and CREATE ACCOUNT.

STEP-3: INSTALL SLACK ON OUR SERVER.

- cd /opt/
- wget -O splunk-9.0.1-82c987350fde-Linux-x86_64.tgz "https://download.splunk.com/products/splunk/releases/9.0.1/linux/splunk-9.0.1-82c987350fde-Linux-x86_64.tgz"
- tar -zxf splunk-9.0.1-82c987350fde-Linux-x86_64.tgz
- cd splunk/bin/
- sudo ./splunk start --accept-license

STEP-4: NOW ACCESS SPLUNK DASHBOARD (public-ip:8000) and Login

STEP-5: INSTALL JENKINS ON SPLUNK

In Splunk Dashboard

Click on Apps → Find more apps

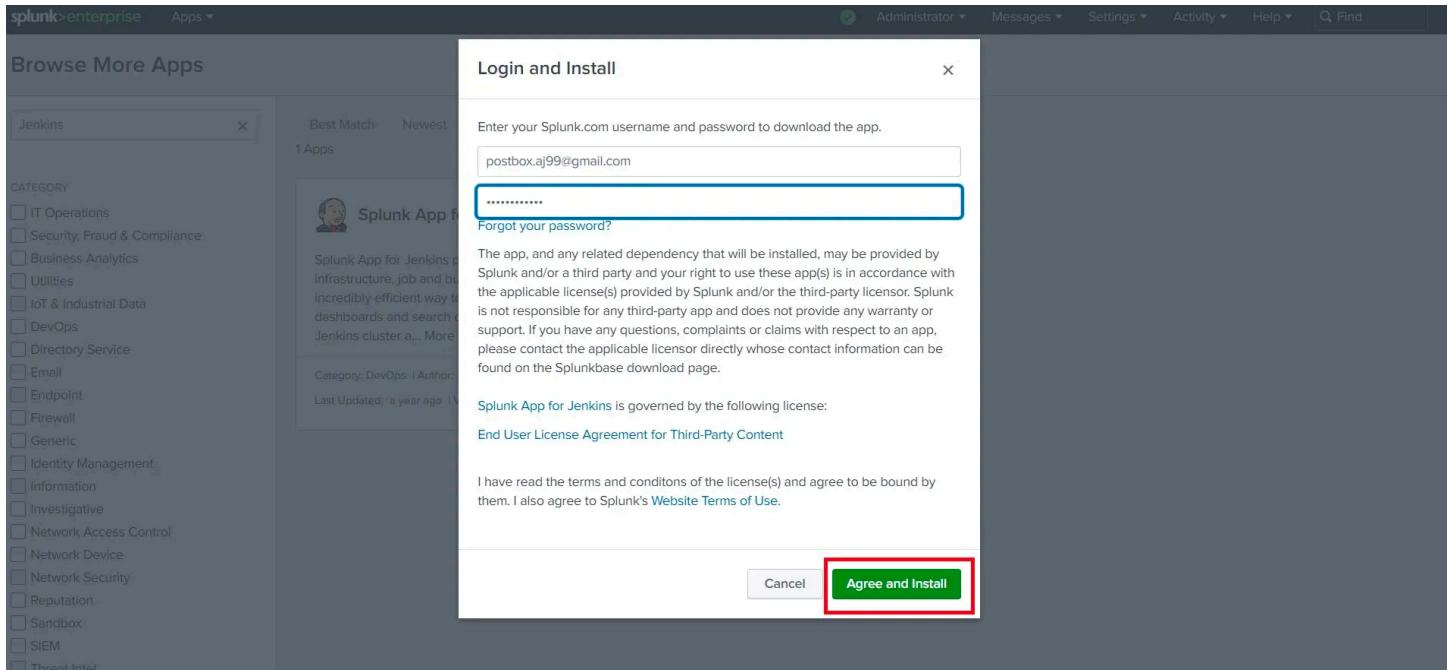
The screenshot shows the Splunk Dashboard interface. On the left, there's a sidebar with 'Apps' and a search bar labeled 'Search app'. Below the search bar are buttons for 'Splunk Secure Gateway', 'Upgrade Readiness App', and 'Find more apps [?]'. The 'Find more apps' button is highlighted with a red box. The main content area has a title 'Administrator' and a 'Common tasks' section with six cards: 'Add data', 'Search your data', 'Visualize your data', 'Add team members', 'Manage permissions', and 'Configure mobile devices'. At the bottom, there's a 'Learning and resources' section.

Search for Jenkins in Search bar

You will get Splunk app for Jenkins and click on install

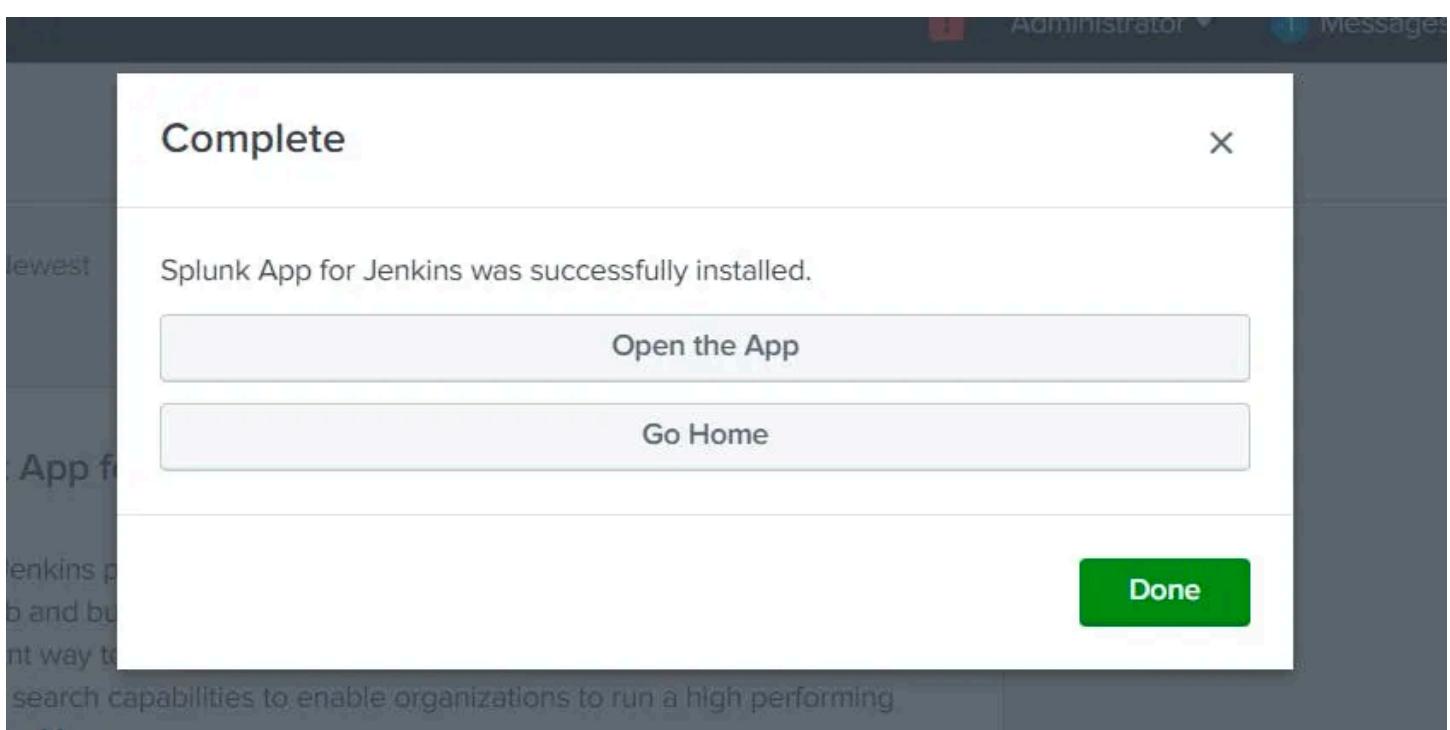
The screenshot shows the Splunk App Store. At the top, there's a search bar with 'Jenkins' typed in, and an 'Install' button is highlighted with a red box. Below the search bar, there are tabs for 'Best Match', 'Newest', and 'Popular', with 'Best Match' selected. A message says '1 Apps'. The main content area shows a single app card for 'Splunk App for Jenkins', which includes a profile picture, the app name, a brief description, and an 'Install' button. The description mentions it provides deep insights into Jenkins master and slave infrastructure. At the bottom of the card, there's category information ('Category: DevOps'), author ('Author: Splunk Works'), download count ('Downloads: 17164'), release date ('Released: 4 years ago'), and last update ('Last Updated: a year ago').

You will be prompted to provide your Splunk credentials. That's why we created a Splunk account



Click on Agree and install

Now click on Go home



On homepage of Splunk, you will see Jenkins been added

The screenshot shows the Splunk homepage. On the left sidebar, under 'Apps', the 'Splunk App For Jenkins' icon is highlighted with a red box. The main content area features a 'Hello, Administrator' greeting and a 'Common tasks' section with six cards: 'Add data', 'Search your data', 'Visualize your data', 'Add team members', 'Manage permissions', and 'Configure mobile devices'. The 'Splunk App For Jenkins' card is also part of this section.

In the Splunk web interface, go to Settings -----> Data Inputs.

The screenshot shows the Splunk Settings page. The 'Settings' tab is selected and highlighted with a red box. In the sidebar, the 'DATA' section is expanded, showing 'Data inputs' which is also highlighted with a red box. Other options in the sidebar include 'Forwarding and receiving', 'Indexes', 'Report acceleration summaries', 'Virtual indexes', 'Source types', and 'Ingest actions'. The main content area displays various configuration sections like 'Add Data', 'Explore Data', 'Monitoring Console', and 'Knowledge'.

Click on HTTP Event Collector.

splunk>enterprise Apps ▾

Administrator ▾ Messages ▾ Settings ▾ Activity ▾ Help ▾ Find

Data inputs

Set up data inputs from files and directories, network ports, and scripted inputs. If you want to set up forwarding and receiving between two Splunk instances, go to [Forwarding and receiving](#).

Local inputs

Type	Inputs	Actions
Files & Directories Index a local file or monitor an entire directory.	15	+ Add new
HTTP Event Collector Receive data over HTTP or HTTPS.	0	+ Add new
TCP Listen on a TCP port for incoming data, e.g. syslog.	0	+ Add new
UDP Listen on a UDP port for incoming data, e.g. syslog.	0	+ Add new
Scripts Run custom scripts to collect or generate more data.	25	+ Add new
Splunk Assist Instance Identifier Assigns a random identifier to every node	1	+ Add new

Click on Global Settings

splunk>enterprise Apps ▾

Administrator ▾ Messages ▾ Settings ▾ Activity ▾ Help ▾ Find

HTTP Event Collector

Data Inputs » HTTP Event Collector

Global Settings New Token

Name	Actions	Token Value	Source Type	Index	Status
No tokens found.					

Set All tokens to enabled

Uncheck SSL enable

Use 8088 port and click on save

splunk>enterprise Apps ▾

Administrator ▾ Messages ▾ Settings ▾ Activity ▾ Help ▾ Find

HTTP Event Collector

Data Inputs » HTTP Event Collector

Global Settings New Token

All Tokens Enabled Disabled

Default Source Type Select Source Type ▾

Default Index Default ▾

Default Output Group None ▾

Use Deployment Server

Enable SSL UNCHECK THIS

HTTP Port Number ? 8088

Cancel Save

Now click on New token

The screenshot shows the Splunk Enterprise interface with the title 'HTTP Event Collector'. In the top right corner, there is a green button labeled 'New Token' with a red arrow pointing to it. Below the button, there is a dropdown menu set to '20 per page'.

Provide a Name and click on next

The screenshot shows the 'Add Data' wizard for creating a new token. The current step is 'Input Settings'. The 'Name' field is filled with 'Jenkins' and has a red box around it. The 'Next >' button is also highlighted with a red box.

Click Review

The screenshot shows the 'Add Data' wizard at the 'Review' step. The 'Review' button is highlighted with a red box. The left panel shows various input types like 'HTTP Event Collector', 'TCP / UDP', and 'Splunk Secure Gateway'.

Click Submit

The screenshot shows the 'Add Data' process in Splunk. The current step is 'Review'. The 'Submit' button is highlighted with a red box. The review section displays the following configuration details:

Input Type	Token
Name	Jenkins
Source name override	N/A
Description	N/A
Enable indexer acknowledgment	No
Output Group	N/A
Allowed indexes	N/A
Default index	default
Source Type	Automatic
App Context	launcher

Click Start searchig

The screenshot shows the 'Add Data' process completed. A success message indicates that the token has been created successfully. The 'Start Searching' button is highlighted with a red box. Other buttons like 'Add More Data', 'Download Apps', and 'Build Dashboards' are also visible.

Now let's copy our token again

In the Splunk web interface, go to **Settings > Data Inputs**.

The screenshot shows the Splunk Enterprise dashboard. At the top, there's a search bar with the query "source='http:Jenkins'". Below it, a warning message says "Search not executed: The minimum free disk space (5000MB) reached for /opt/splunk/var/run/splunk/dispatch. user=ajay, concurrency_limit=5000". Under the search bar, there are tabs for Events, Patterns, Statistics, and Visualization, with Events selected. Below these are buttons for List, Format, and 20 Per Page. A navigation bar at the bottom has tabs for i, Time, and Event.

The main content area has a sidebar with icons for Add Data, Explore Data, Monitoring Console, and System. The System section is expanded, showing sub-options like Server settings, Server controls, Health report manager, RapidDiag, Instrumentation, Licensing, Workload management, and Mobile settings. On the right, the Settings menu is open, with the "Data inputs" option under the "DATA" section highlighted with a red box. Other sections in the Settings menu include Knowledge, Data, Distributed Environment, and Users and Authentication.

Click on HTTP event collector

This screenshot shows the "Data inputs" page in Splunk. The title is "Data inputs" and the subtitle is "Set up data inputs from files and directories, network ports, and scripted inputs. If you want to set up forwarding and receiving between two Splunk instances, go to Forwarding and receiving." Below this, there's a table titled "Local inputs" with columns for Type, Inputs, and Actions.

Type	Inputs	Actions
Files & Directories Index a local file or monitor an entire directory.	15	+ Add new
HTTP Event Collector Receive data over HTTP or HTTPS.	1	+ Add new
TCP Listen on a TCP port for incoming data, e.g. syslog.	0	+ Add new
UDP Listen on a UDP port for incoming data, e.g. syslog.	0	+ Add new
Scripts Run custom scripts to collect or generate more data.	25	+ Add new

Now copy your token

This screenshot shows the "HTTP Event Collector" token list in Splunk. The title is "HTTP Event Collector" and the subtitle is "Data Inputs > HTTP Event Collector". There are buttons for Global Settings and New Token. The table lists one token named "Jenkins" with a token value of "757be2ee-eb37-4529-a8f2-9cf7c12e".

Name	Actions	Token Value	Source Type	Index	Status
Jenkins	Edit Disable Delete	757be2ee-eb37-4529-a8f2-9cf7c12e		default	Enabled

Add Splunk Plugin in Jenkins

Go to Jenkins dashboard

Click on Manage Jenkins → Plugins → Available plugins

Search for Splunk and install it.

The screenshot shows the Jenkins Plugins page. On the left, there's a sidebar with links: Updates, Available plugins (which is selected and highlighted in grey), Installed plugins, and Advanced settings. The main area has a search bar at the top with the text 'splunk'. Below the search bar, there's a button with a gear icon and the word 'Install'. A list of available plugins is shown, with one plugin highlighted by a green border: 'Splunk 1.10.1'. The details for this plugin are visible: 'Build Notifiers', 'Build Reports', and 'Other Post-Build Actions'. A description below states: 'Splunk plugin for Jenkins provides deep insights into your Jenkins controller and agent infrastructure, job and build details such as console logs, status, artifacts, and an incredibly efficient way to analyze test results.' To the right of the plugin list, there's a 'Released' section showing the date '7 mo 27 days ago'.

Again Click on Manage Jenkins → System

Search for Splunk

Check enable

HTTP input host as SPLUNK PUBLIC IP

HTTP token that you generated in Splunk

Jenkins ip and apply.

Splunk for Jenkins Configuration

Enable

HTTP Input Host ?
3.110.197.211 **SPLUNK PUBLIC IP**

HTTP Input Port ?
8088

HTTP Input Token ?
757be2ee-eb37-4529-a8f2-9cf7c12a5c18 **SPLUNK TOKEN**

SSL Enabled ?

Send All Pipeline Console Logs ?

Jenkins Master Hostname ?
13.234.48.89 **JENKINS PUBLIC IP**

Testing...

Save **Apply**

RESTART SPLUNK:

The screenshot shows the Splunk Enterprise dashboard. On the left, there's a 'Jenkins Health' panel. On the right, the 'Settings' menu is open, displaying various configuration options like 'Add Data', 'Explore Data', 'Monitoring Console', 'Knowledge', 'Data', etc. The 'Server controls' option under the 'SYSTEM' section is specifically highlighted with a red box.

restart and login again

The screenshot shows the 'Server controls' page. It features a prominent green button at the top center labeled 'Restart Splunk'. Below the button, there's a small note: 'Click the button below to restart Splunk.'

Now go to Jenkins Dashboard and run some sample Jobs. Then data will gets stored on splunk dashboard

splunk>enterprise Apps ▾

Administrator ▾ 2 Messages ▾ Settings ▾ Activity ▾ Help ▾ Find

Build Analysis Job Insight Test Analysis Custom Panel Search User ▾

Builds

Build Analysis

Configure filters to return Jenkins builds matching that criteria. Click on the desired record to get detailed results about that build.

Jenkins Master	Jenkins Node	Job	Build Parameters <small>?</small>	Build	Status	Time
Select...	Select... ▾	Select... ▾		Select... ▾	Select... ▾	Today ▾

Zoom To Selection Zoom Out Deselect

0 4
00:00 00:30 01:00 01:30 02:00 02:30 03:00 03:30 04:00 04:30 05:00 05:30 06:00 06:30 07:00 07:30 08:00
Wed, 31 Jan 2024 2 0

i	Jenkins Master ▾	Job ▾	Build ▾	StartTime ▾	Jenkins Node ▾	Duration ▾	Status ▾
>	54.160.206.179	job-2	3	2024-01-31 09:56:01	(built-in)	00:00:00.177	✓
>	54.160.206.179	job-3	7	2024-01-31 09:54:53	(built-in)	00:00:01.514	!
>	54.160.206.179	job-3	6	2024-01-31 09:51:52	(built-in)	00:00:00.665	!
>	54.160.206.179	job-3	5	2024-01-31 09:50:29	(built-in)	00:00:00.056	!
>	54.160.206.179	job-3	4	2024-01-31 09:49:30	(built-in)	00:00:00.745	✓
>	54.160.206.179	job-3	3	2024-01-31 09:48:04	(built-in)	00:00:00.577	✓
>	54.160.206.179	job-3	2	2024-01-31 09:46:04	(built-in)	00:00:00.701	!
>	54.160.206.179	job-3	1	2024-01-31 09:44:59	(built-in)	00:00:00.781	!
>	54.160.206.179	Job-1	11	2024-01-31 09:43:36	(built-in)	00:00:00.767	!
>	54.160.206.179	Job-1	10	2024-01-31 09:42:39	(built-in)	00:00:01.848	!

-----*****-----*****----- ❤️ HAPPY LEARNING ❤️ -----*****-----*****-----