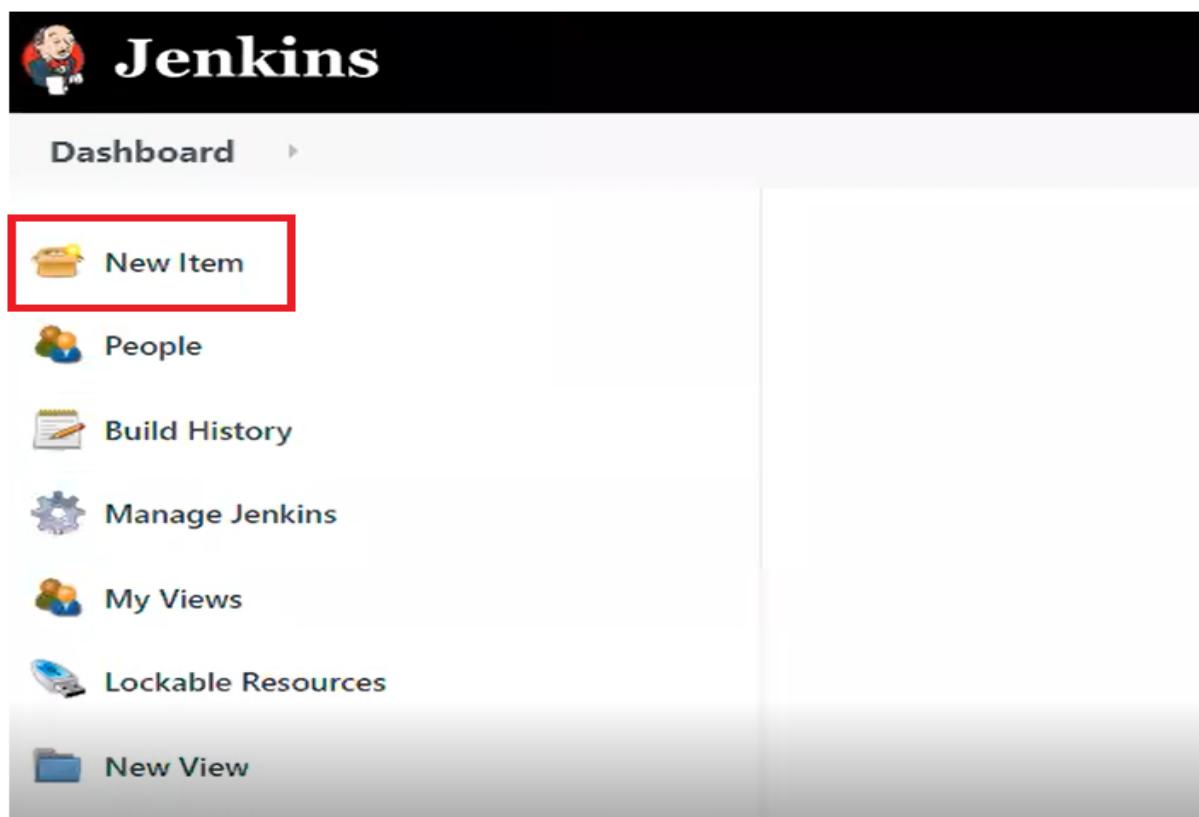


Job Chaining in Jenkins

This document covers the instructions on how to create jobs in such a way that they can be executed in a chain rather than having to build each one separately. All the jobs should be executed one after another by a single trigger. In the following demonstration, we will build three jobs and chain them all together. So, login to your AWS account and launch your Ubuntu instance, and then start Jenkins on port 8080. Thereafter, perform the following steps.

1. Go to your **Jenkins Dashboard** and click on **New Item**.



2. Create a new **freestyle project** as shown in the image below. Enter in a name for your project and click **OK**.

Enter an item name

CPU INFORMATION
» Required field

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

OK [older]

3. Then scroll down and go to the **Build** section.
4. Click on **Add build step** and select the **Execute shell** option, as shown in the image below.

General Source Code Management Build Triggers **Build Environment** [] Build Post-build Actions

Build Environment

- Delete workspace before build starts
- Use secret text(s) or file(s)
- Abort the build if it's stuck
- Add timestamps to the Console Output
- Inspect build log for published Gradle build scans
- With Ant

Build

Add build step ▾

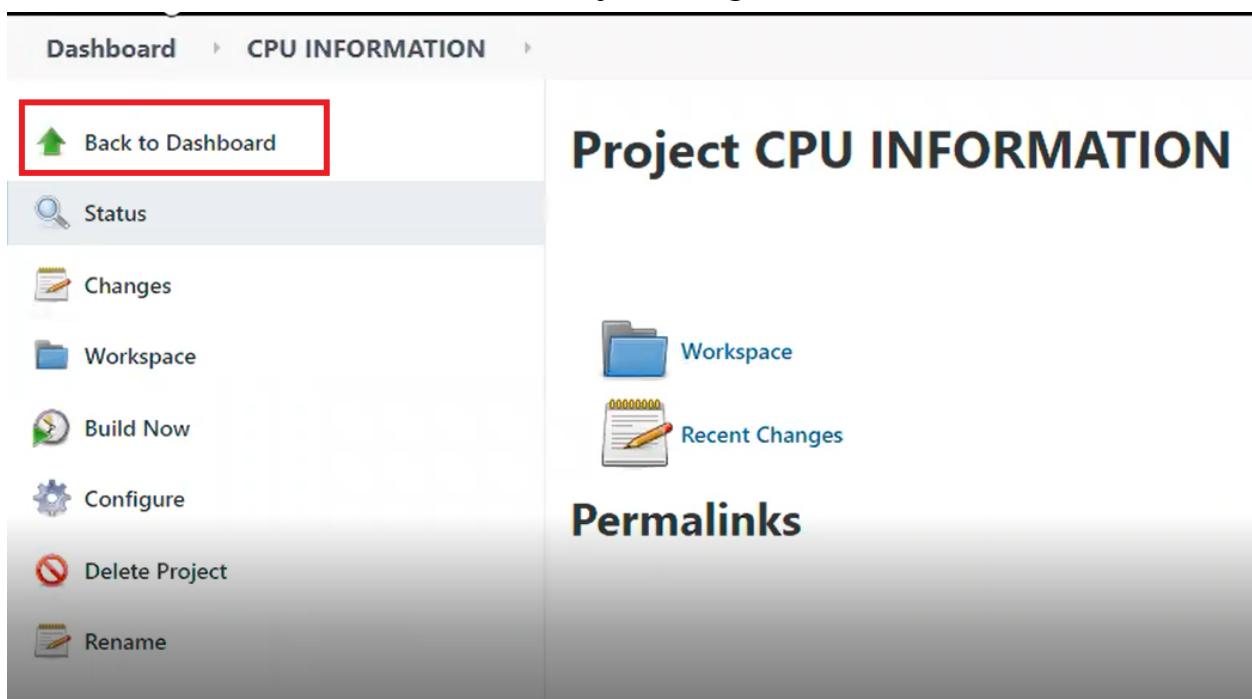
Execute Windows batch command
Execute shell []
Invoke Ant
Invoke Gradle script
Invoke top-level Maven targets
Run with timeout
Set build status to "pending" on GitHub commit

5. Now write the shell script or any other script that you want to execute.

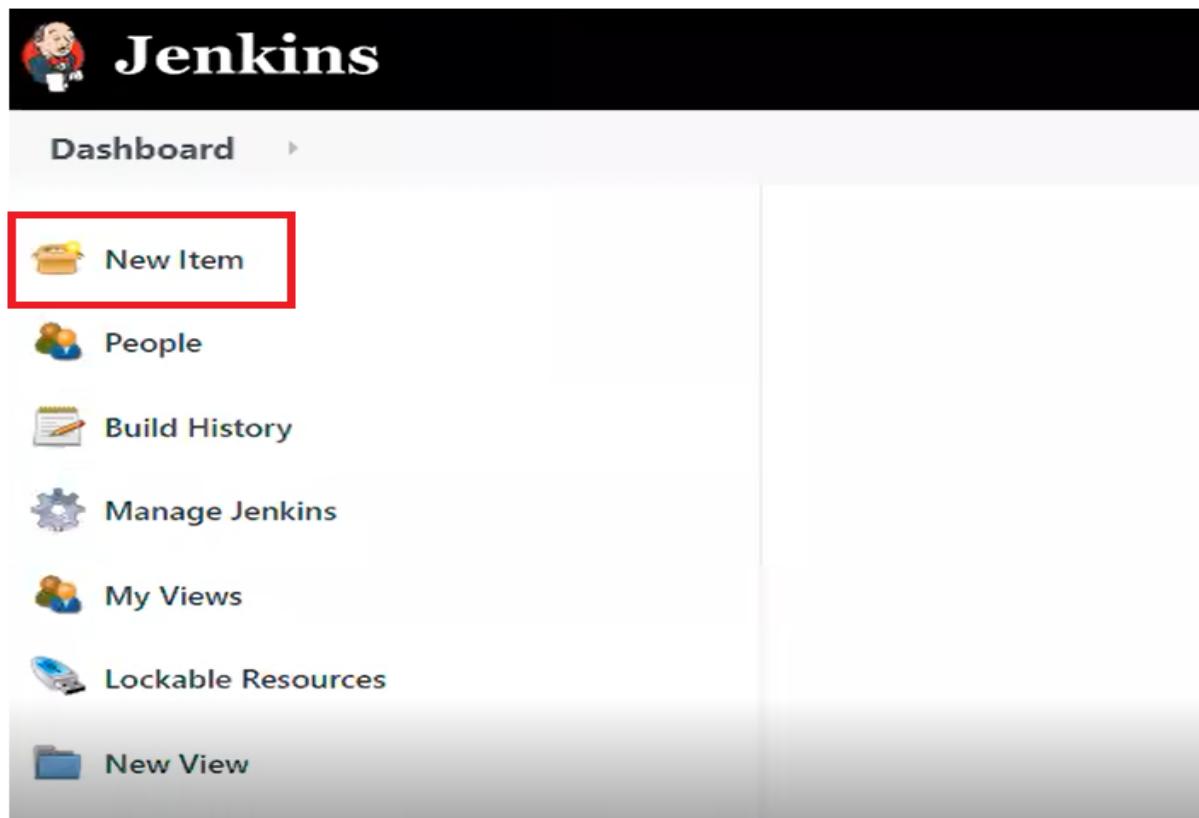
6. Click on **Apply** and then **Save** the command.



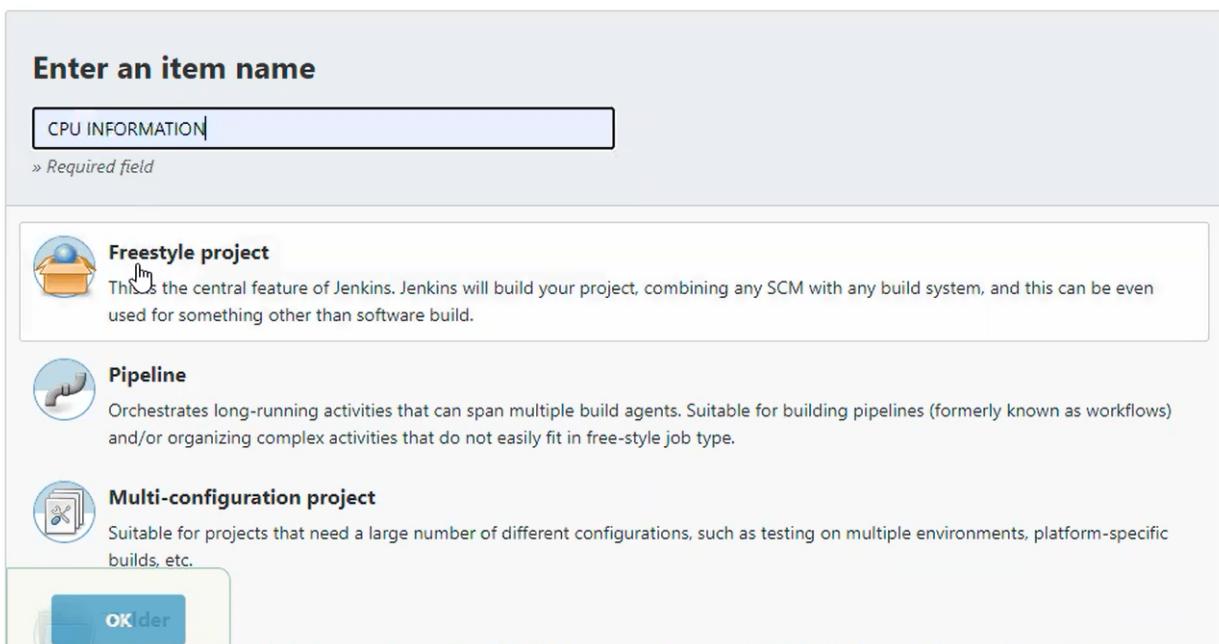
7. Go back to the **Jenkins Dashboard** by clicking on **Back to Dashboard**.



8. We will now create a second job. So, click on **New Item** on the dashboard.



9. Create a new **freestyle project** as shown in the image below. Enter in a name for your project and click **OK**.



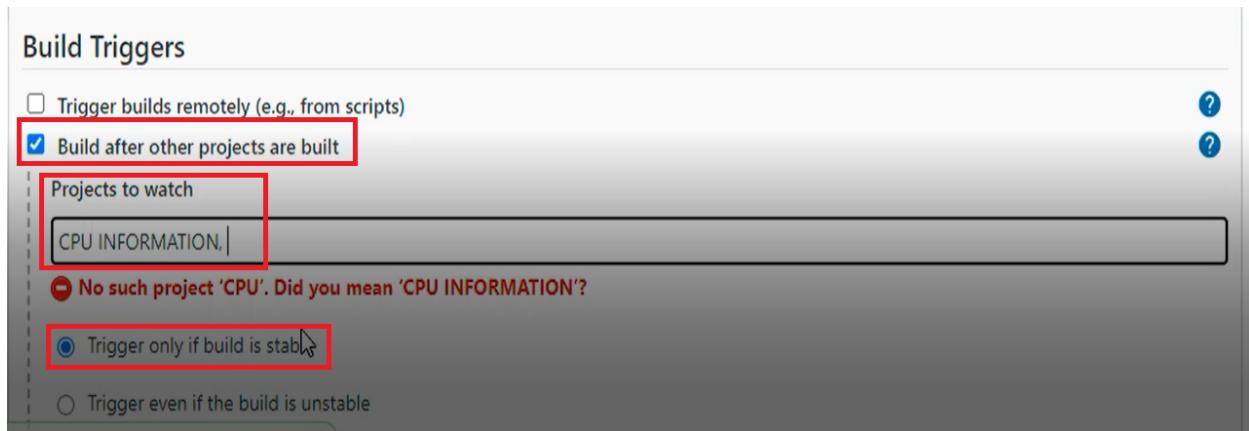
The image shows a "Enter an item name" dialog box. At the top, there is a text input field containing "CPU INFORMATION" with the placeholder text "» Required field". Below the input field, there are three project type options: "Freestyle project", "Pipeline", and "Multi-configuration project". Each option has a small icon to its left and a brief description below it. At the bottom of the dialog is a blue "OK" button.

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

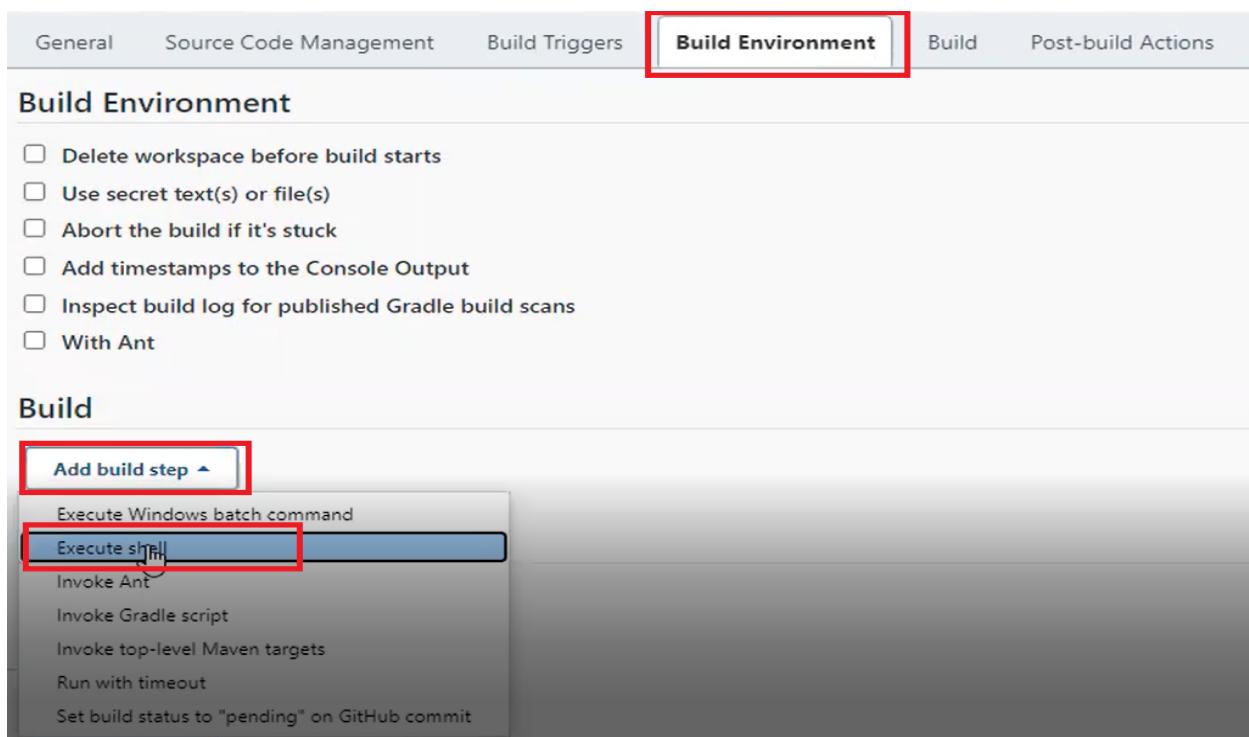
Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

10. Then scroll down to the **Build Triggers** section and select the option '**Build after other projects are built**'.



11. In the **Projects to watch** column, enter the name of the project after which you want to start building this job.
 12. Next, select the option '**Trigger only if build is stable**'.
 13. Then scroll down and go to the **Build** section under the Build Environment tab.
 14. Click on **Add build step** and select the **Execute shell** option, as shown in the image below.



15. Now write the shell script or any other script that you want to execute.



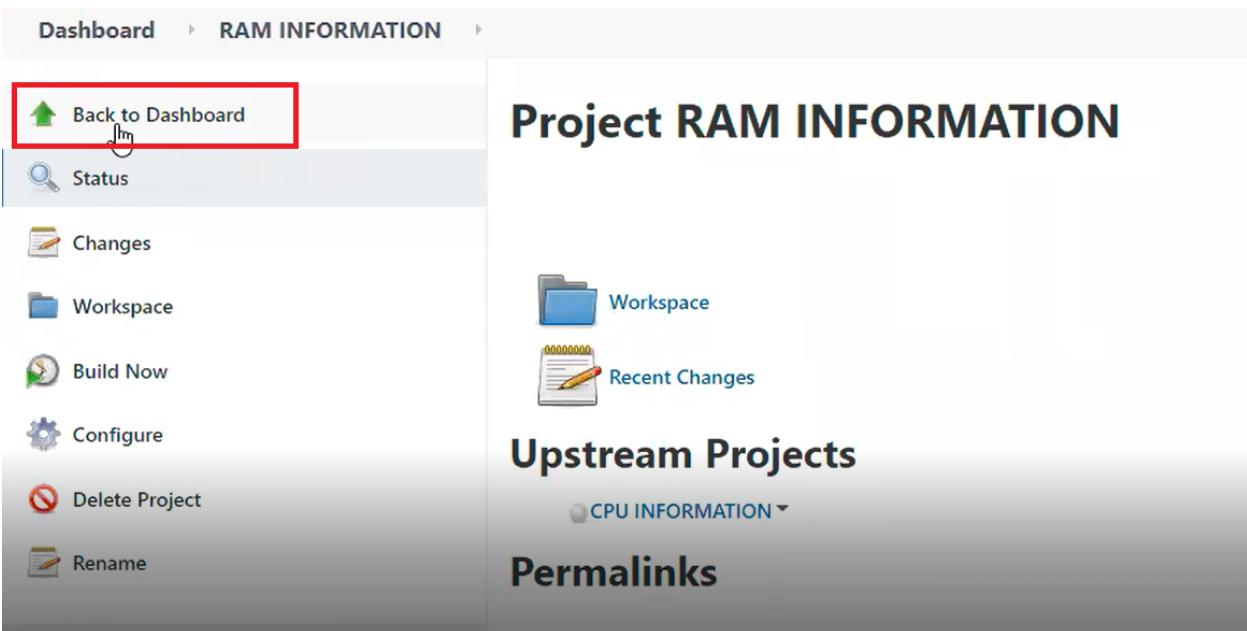
The screenshot shows the Jenkins 'Build' configuration page. Under the 'Execute shell' section, the command is set to:

```
echo " Physical Memory Information: "
free -m
```

Below the command, there is a link to 'See the list of available environment variables'. At the bottom, there are 'Save' and 'Apply' buttons, with 'Apply' being highlighted with a blue border. There is also an 'Advanced...' button.

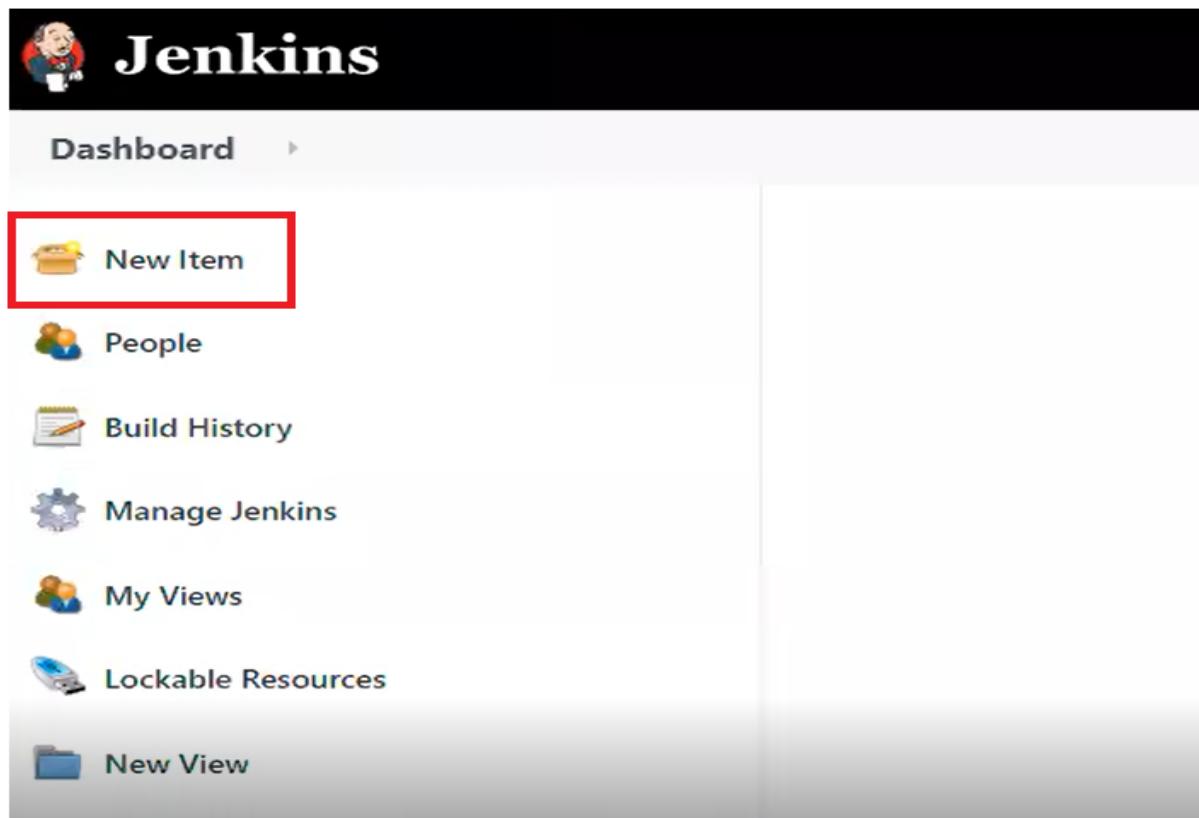
16. Click on **Apply** and then **Save** the command.

17. Now go back to the **Jenkins Dashboard** by clicking on **Back to Dashboard**.

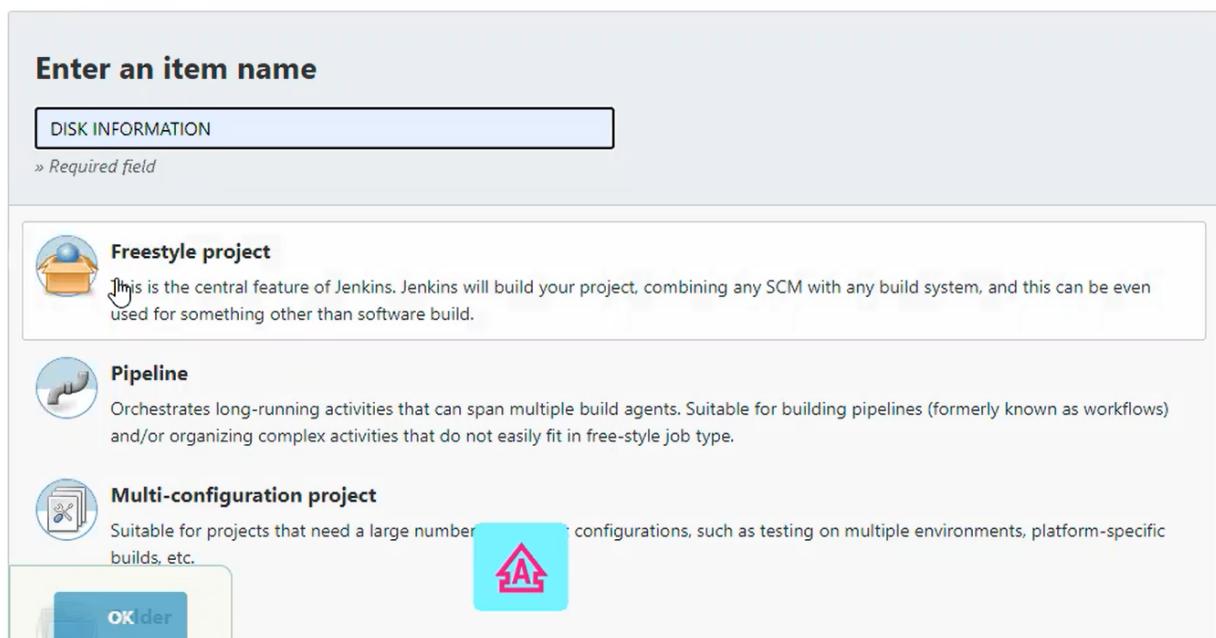


The screenshot shows the Jenkins Project RAM INFORMATION dashboard. On the left sidebar, there are several options: 'Back to Dashboard' (which is highlighted with a red box and has a cursor icon over it), 'Status', 'Changes', 'Workspace', 'Build Now', 'Configure', 'Delete Project', and 'Rename'. The main content area is titled 'Project RAM INFORMATION' and includes sections for 'Workspace' (with a folder icon) and 'Recent Changes' (with a notepad icon). Below this is a section for 'Upstream Projects' and a 'CPU INFORMATION' dropdown. At the bottom, there is a 'Permalinks' section.

18. We will now create a third job. So, click on **New Item** on the dashboard.

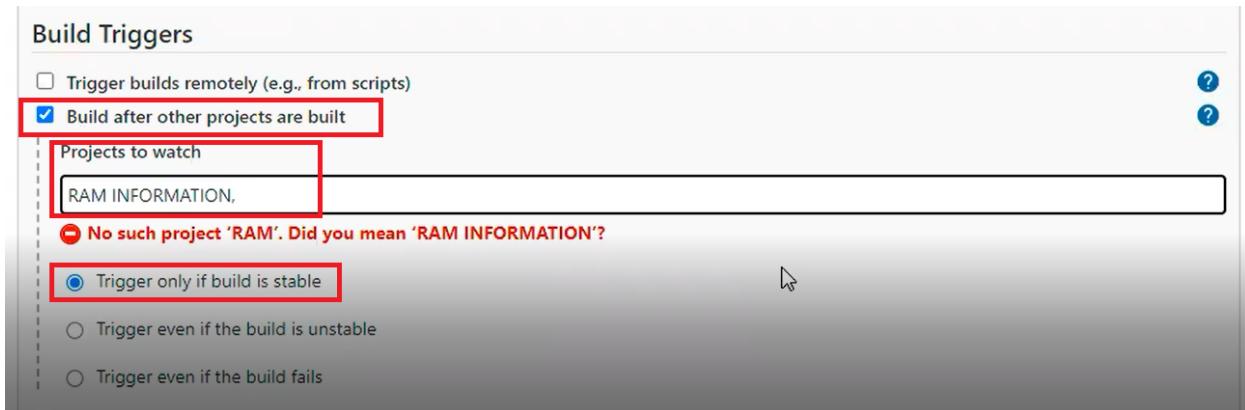


19. Then create a new **freestyle project** as shown in the image below.
Enter in a name for your project and click **OK**.

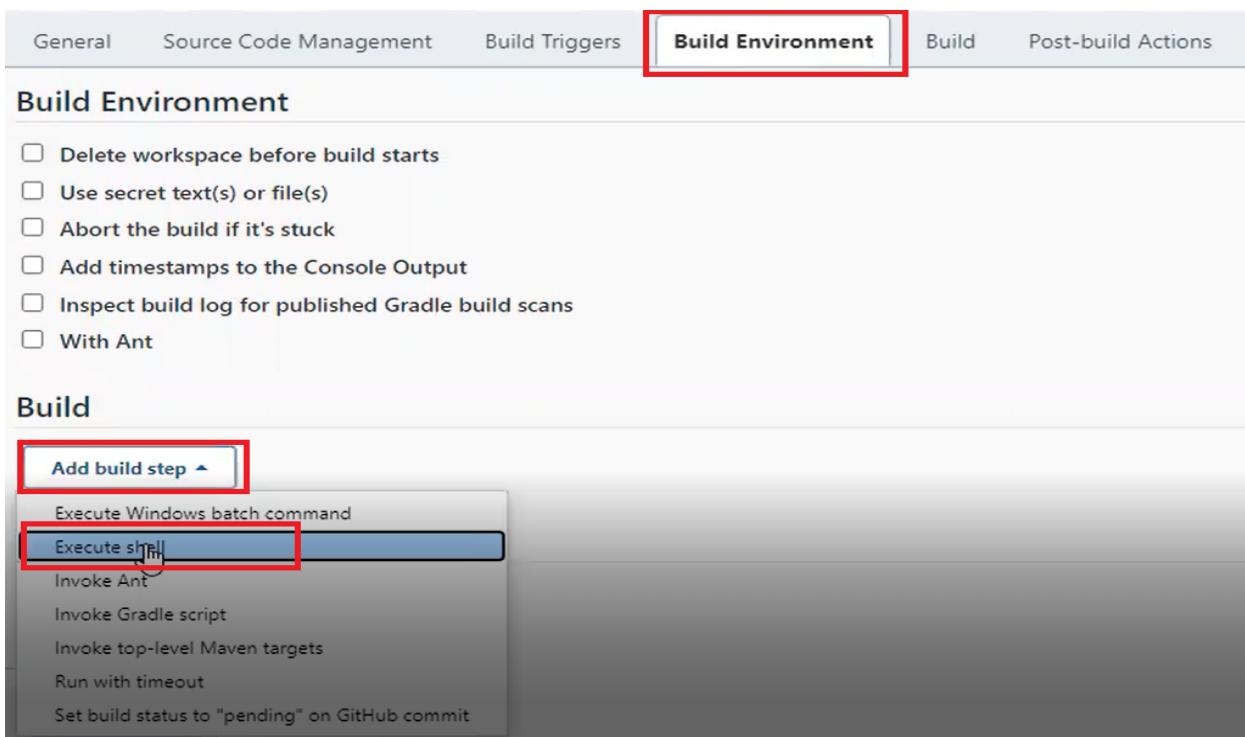


The image shows a "Enter an item name" dialog box. At the top, there is a "DISK INFORMATION" section with a note: "» Required field". Below this, there are three project type options: "Freestyle project" (selected, indicated by a blue border), "Pipeline", and "Multi-configuration project". Each option has a description and a small icon. At the bottom, there are two buttons: "OK" (in a blue box) and "Cancel".

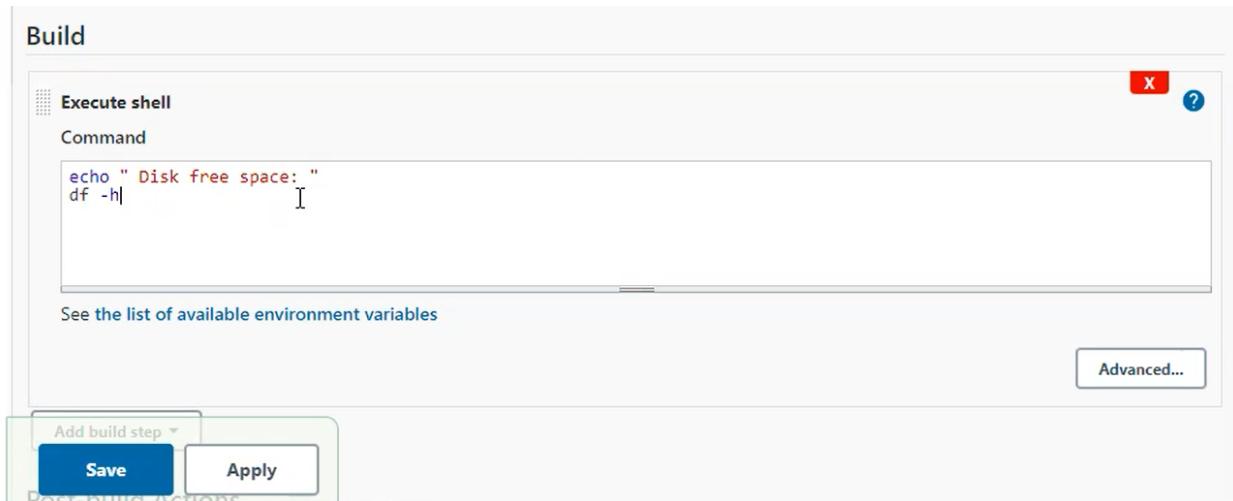
20. Then scroll down to the **Build Triggers** section and select the option '**Build after other projects are built**'.



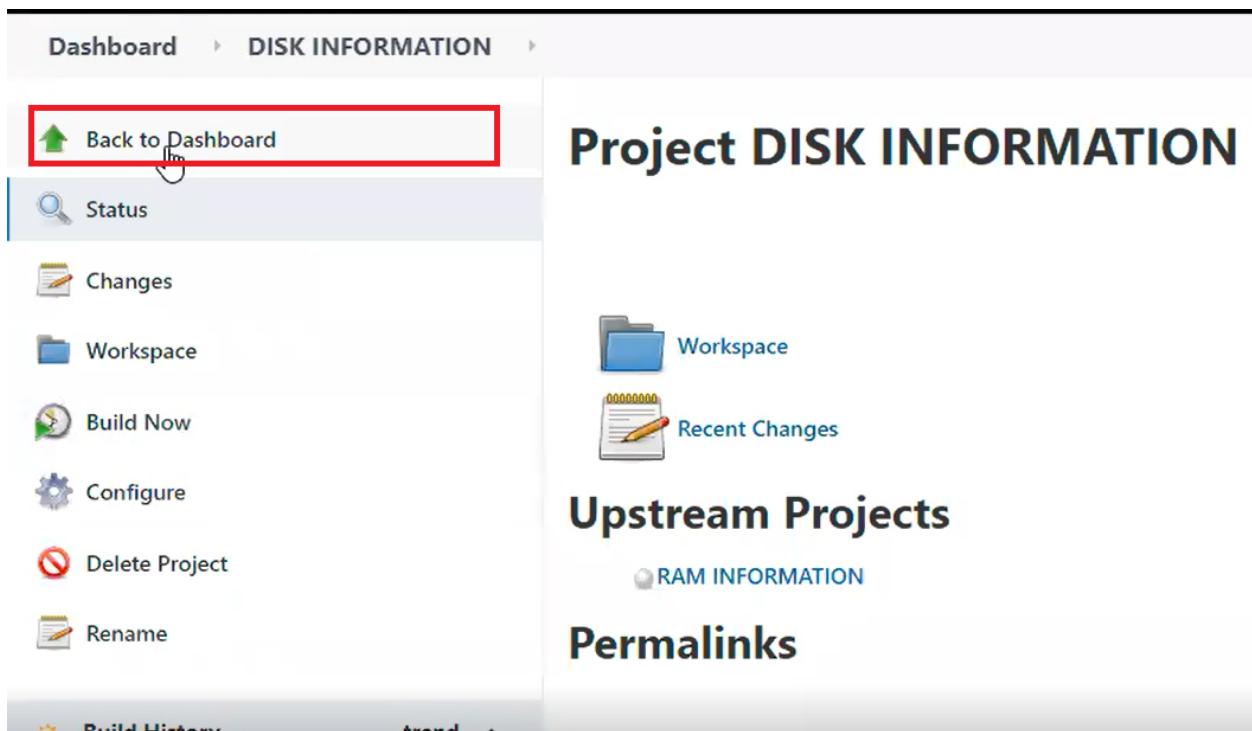
21. In the **Projects to watch** column, enter the name of the project after which you want to start building this job.
 22. Select the option '**Trigger only if build is stable**'.
 23. Then scroll down and go to the **Build** section.
 24. Click on **Add build step** and select the **Execute shell** option, as shown in the image below.



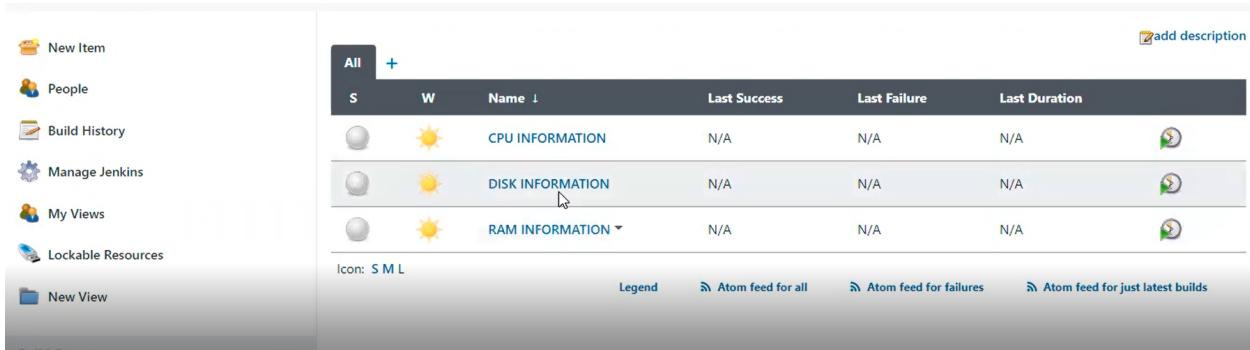
25. Now write the shell script or any other script that you want to execute.



26. Click on **Apply** and then **Save** the command.
 27. Then click on the **Back to Dashboard** option as shown in the image below.



28. On the **Dashboard**, you can see all the list of projects as shown below.



The screenshot shows the Jenkins dashboard with three jobs listed:

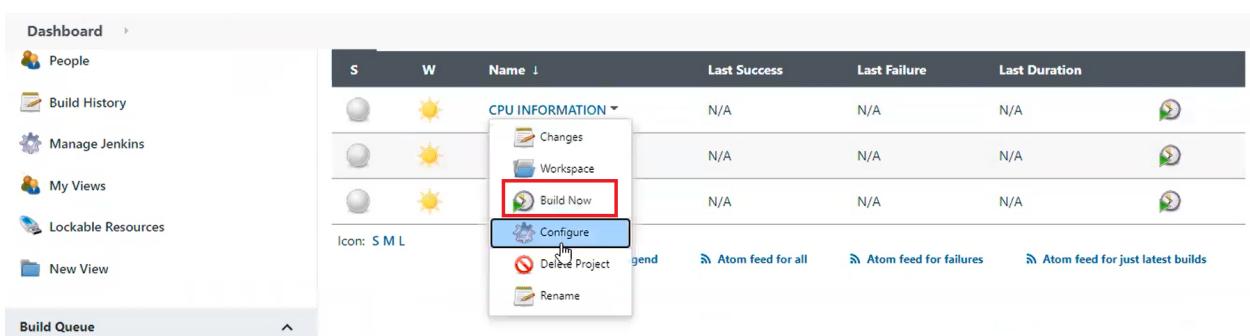
S	W	Name	Last Success	Last Failure	Last Duration
		CPU INFORMATION	N/A	N/A	N/A
		DISK INFORMATION	N/A	N/A	N/A
		RAM INFORMATION	N/A	N/A	N/A

Legend: S M L

Icon: S M L

Atom feed for all Atom feed for failures Atom feed for just latest builds

29. Start building the first job, which in this case is the **CPU INFORMATION**, as shown in the image below.



The screenshot shows the Jenkins dashboard with the context menu open for the CPU INFORMATION job. The 'Build Now' option is highlighted with a red box.

Dashboard >

People

Build History

Manage Jenkins

My Views

Lockable Resources

New View

Build Queue

CPU INFORMATION ▾

- Changes
- Workspace
- Build Now**
- Configure
- Delete Project
- Rename

Icon: S M L

Legend: S M L

Atom feed for all Atom feed for failures Atom feed for just latest builds

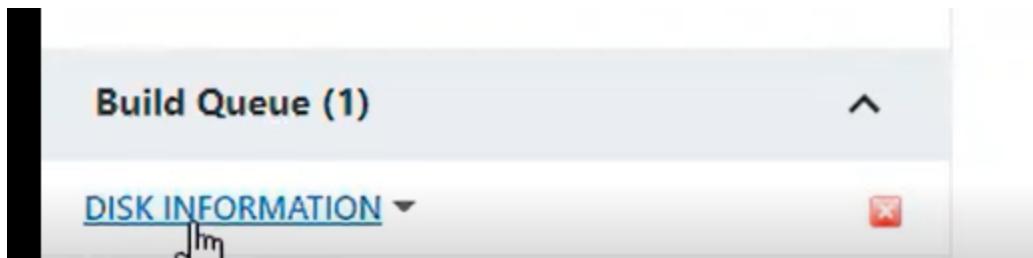
30. After the first job is successfully built/completed, we can see the second job in the build queue, i.e., **RAM INFORMATION** being built.



Build Queue (1)

RAM INFORMATION

31. Similarly, after the successful building/completion of the second job, the building of the third job, i.e., **DISC INFORMATION** will begin.



The screenshot shows a 'Build Queue (1)' section. Below it is a dropdown menu labeled 'DISK INFORMATION'. A red box highlights the 'CPU INFORMATION' link in the dropdown menu.

32. Now click on the first job, i.e., **CPU INFORMATION**.



The screenshot shows the 'Build Queue (1)' interface with the 'CPU INFORMATION' job selected. A red box highlights the 'CPU INFORMATION' link in the list. Below the table, there are icons for S, M, and L, and a legend for Atom feeds.

S	W	Name ↓	Last Success	Last Failure	Last Duration
		CPU INFORMATION	N/A	N/A	N/A
		DISK INFORMATION	N/A	N/A	N/A
		RAM INFORMATION	N/A	N/A	N/A

Icon: S M L Legend [Atom feed for all](#) [Atom feed for failures](#) [Atom feed for just latest builds](#)

33. Then click on the build number in the **Build History**.



The screenshot shows the 'Build History' interface. It displays a list of builds, with the first build (#1) marked as successful ('Success') and dated 'Mar 17, 2021, 10:40 AM'. A red box highlights the '#1' build number. To the right, there is a search bar with 'find' and a trend indicator 'trend'.

34. The Console Output for Build #1 (first job) will be displayed as shown below.

Console Output

```

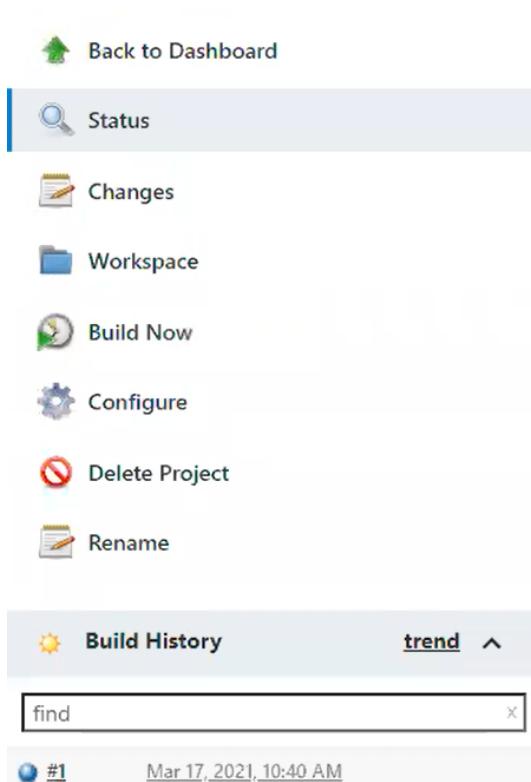
Started by user admin
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/CPU INFORMATION
[CPU INFORMATION] $ /bin/sh -xe /tmp/jenkins9677375486196891547.sh
+ echo CPU Information:
CPU Information: 
+ lscpu
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 1
On-line CPU(s) list: 0
Thread(s) per core: 1
Core(s) per socket: 1
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 63
Model name: Intel(R) Xeon(R) CPU E5-2676 v3 @ 2.40GHz
Stepping: 2
  
```

35. At the end console output for Build #1, you can see the triggering of a new build for the second job, i.e., **RAM INFORMATION**.

```

L3 cache: 30720K
NUMA node0 CPU(s): 0
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx
rdtscp lm constant_tsc rep_good nopl xtTopology cpuid pn1 pclmulqdq ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt
tsc_deadline_timer aes xsave avx f16c rdrand hypervisor lahf_lm abm cpuid_fault invpcid_single pt1 fsgsbase bmi1 avx2 smep bmi2 erms
invpcid xsaveopt
Triggering a new build of RAM INFORMATION 
Finished: SUCCESS
  
```

36. On clicking on it, you would be taken to the second job.



The screenshot shows the Jenkins project management interface. On the left, there's a sidebar with icons for Back to Dashboard, Status, Changes, Workspace, Build Now, Configure, Delete Project, and Rename. Below this is a 'Build History' section with a search bar labeled 'find' and a single entry for build #1 on March 17, 2021, at 10:40 AM.

Project RAM INFORMATION



Upstream Projects

CPU INFORMATION

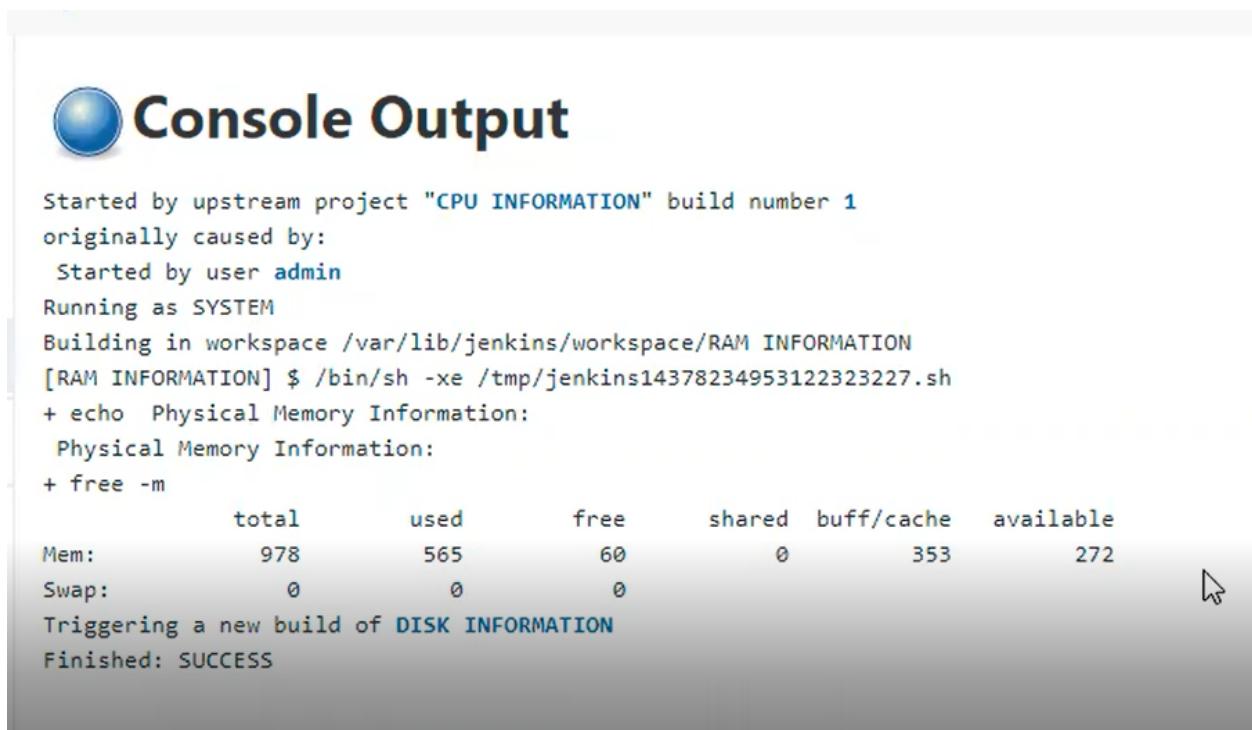
Downstream Projects

DISK INFORMATION

Permalinks

- Last build (#1), 22 sec ago
- Last stable build (#1), 22 sec ago

37. Click on the build number in the **Build History** to view the **Console Output**.



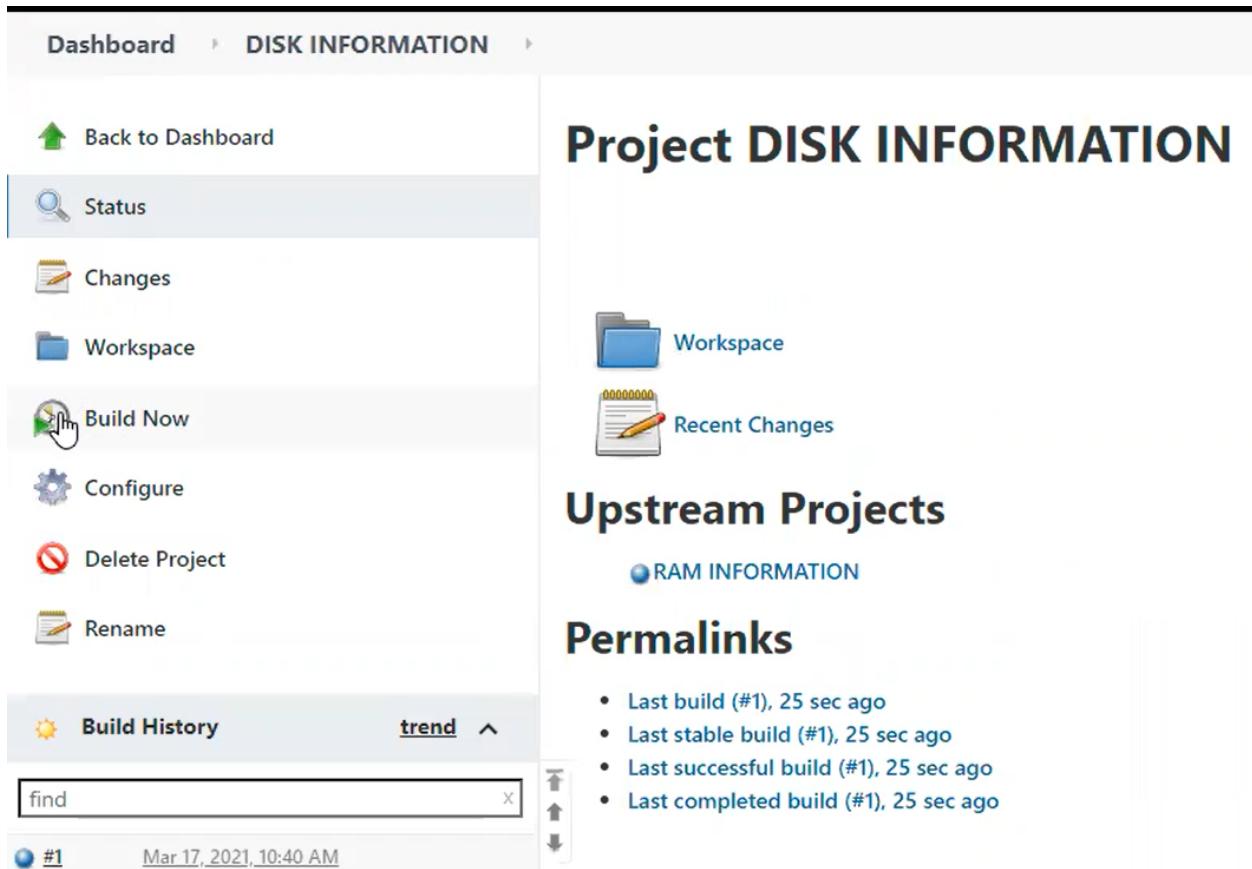
Console Output

```

Started by upstream project "CPU INFORMATION" build number 1
originally caused by:
  Started by user admin
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/RAM INFORMATION
[RAM INFORMATION] $ /bin/sh -xe /tmp/jenkins14378234953122323227.sh
+ echo Physical Memory Information:
  Physical Memory Information:
+ free -m
      total        used        free      shared  buff/cache   available
Mem:       978         565          60          0         353         272
Swap:          0           0           0
Triggering a new build of DISK INFORMATION
Finished: SUCCESS
  
```

38. At the end of the console output for Build #2, you can see the triggering of a new build for the third job, i.e., **DISC INFORMATION**. Select it by clicking on it.

39. You would move to the **DISC INFORMATION** job, as shown below. Click on the build number in the **Build History**.



The screenshot shows a software interface for managing a project named "Project DISK INFORMATION". On the left, there's a sidebar with various project management options like Status, Changes, and Build History. The Build History section is currently active, showing a single build entry: "#1 Mar 17, 2021, 10:40 AM". The main content area is titled "Project DISK INFORMATION" and contains sections for "Upstream Projects", "RAM INFORMATION", and "Permalinks". Under "Permalinks", there's a list of recent builds:

- Last build (#1), 25 sec ago
- Last stable build (#1), 25 sec ago
- Last successful build (#1), 25 sec ago
- Last completed build (#1), 25 sec ago

40. You can also view the **Console Output** for this particular job.

```
Started by upstream project "RAM INFORMATION" build number 1
originally caused by:
    Started by upstream project "CPU INFORMATION" build number 1
        originally caused by:
            Started by user admin
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/DISK INFORMATION
[DISK INFORMATION] $ /bin/sh -xe /tmp/jenkins16392978797625981091.sh
+ echo Disk free space:
Disk free space:
+ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            476M    0  476M   0% /dev
tmpfs           [ 98M  784K  98M   1% /run
/dev/xvda1       7.7G  2.7G  5.1G  35% /
tmpfs            490M    0  490M   0% /dev/shm
tmpfs            5.0M    0  5.0M   0% /run/lock
tmpfs            490M    0  490M   0% /sys/fs/cgroup
/dev/loop0         34M   34M    0 100% /snap/amazon-ssm-agent/3552
/dev/loop1         32M   32M    0 100% /snap/snapd/11036
/dev/loop2         33M   33M    0 100% /snap/snapd/11107
/dev/loop3         56M   56M    0 100% /snap/core18/1988
tmpfs             98M    0  98M   0% /run/user/1000
tmpfs             98M    0  98M   0% /run/user/111
Finished: SUCCESS
```