



Jenkins

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4. Configuring Role-based Strategy for Authorization

- Steps to Configure Role-based Strategy for Authorization
 - Steps to Create Users
 - Assign Roles





Configuring Role-based Strategy for Authorization



- Role-based access control (RBAC)
 - Method of restricting network access based on the roles of individual users within an enterprise
 - Lets employees have access rights only to the information they need to do their jobs
 - Prevents them from accessing information that doesn't pertain to them



Steps to Configure role-based strategy for authorization



Step 1:

- Go to Jenkins dashboard
- Manage Jenkins->Manage Plugins->search in Available plugins for Role-based Authorization Strategy
- Select checkbox and install without restart
- After installation we can find plugin in available plugins section



Cont'd...



Step 2

- Go to Jenkins dashboard->Manage Jenkins->Configure Global security
- Under Access control->Authorization-> select Role-Based Strategy
- Save and Apply

Jenkins > Configure Global Security

Configure Global Security

☒ Enable security
Disable remember me ☐
Access Control

Security Realm

- ☐ Delegate to servlet container
- ☒ Jenkins' own user database
 - ☒ Allow users to sign up
- ☐ LDAP
- ☐ Unix user/group database

Authorization

- ☐ Anyone can do anything
- ☐ Legacy mode
- ☐ Logged-in users can do anything
- ☐ Matrix-based security
- ☐ Project-based Matrix Authorization Strategy
- ☒ Role-Based Strategy

Enables defining authorizations using a role-based strategy. Once the strategy is enabled, it can be configured via a separate page in the Manage Jenkins window.
(from [Role-based Authorization Strategy](#))

Save Apply



Cont'd...



Step 3:

- Create users
- To create user:
 - Go to Manage Jenkins->Manage Users->Create User->
 - Enter user name, password, full name and email-id
 - Click on save

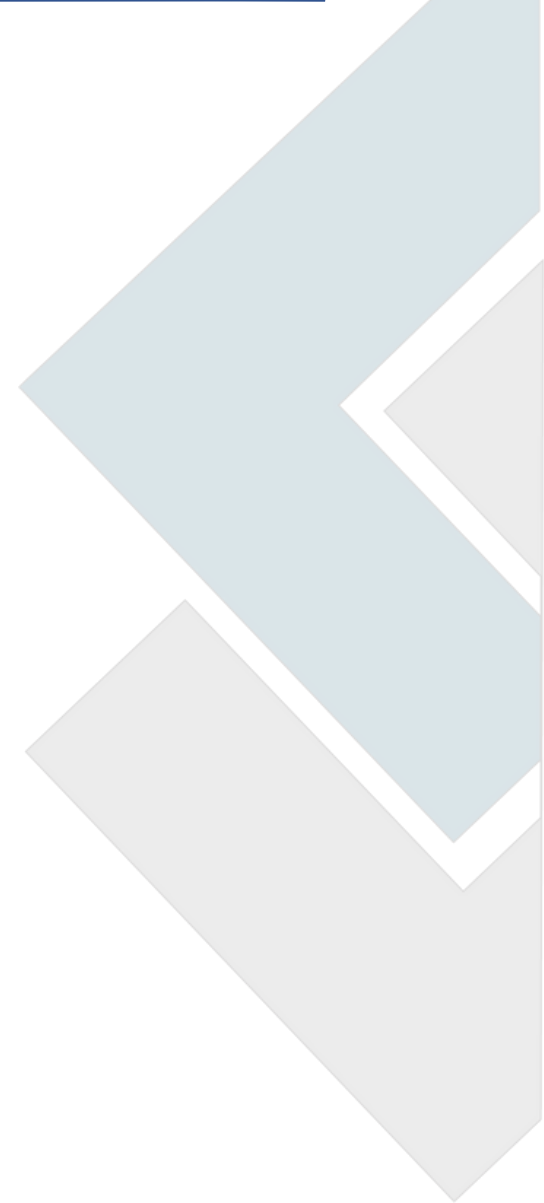


Cont'd...



Step 4:

- Created 3 users
 - user-a, user-b and user-c
 - Follow next slide for steps to create users





Steps to create users

- Select Manage Users

The screenshot shows the Jenkins web interface at the URL `0.0.0.0:8080/manage`. The page lists several management options, each with an icon and a description:

- System Information**: Displays various environmental information to assist trouble-shooting.
- System Log**: System log captures output from `java.util.logging` output related to Jenkins.
- Load Statistics**: Check your resource utilization and see if you need more computers for your builds.
- Jenkins CLI**: Access/manage Jenkins from your shell, or from your script.
- Script Console**: Executes arbitrary script for administration/trouble-shooting/diagnostics.
- Manage Nodes**: Add, remove, control and monitor the various nodes that Jenkins runs jobs on.
- About Jenkins**: See the version and license information.
- Manage Old Data**: Scrub configuration files to remove remnants from old plugins and earlier versions.
- Manage Users**: Create/delete/modify users that can log in to this Jenkins. (This option is highlighted with a red box in the original image.)
- Prepare for Shutdown**: Stops executing new builds, so that the system can be eventually shut down safely.



Cont'd...

- Select Create User

The screenshot shows the Jenkins web interface at the URL 0.0.0.0:8080/securityRealm/. The page title is 'Jenkins' and the breadcrumb is 'Jenkins > Jenkins' own user database'. The left sidebar contains links: 'Back to Dashboard', 'Manage Jenkins', and 'Create User' (highlighted with a red box). The main content area is titled 'Users' and contains a table of users.


User ID	Name	Actions
Admin	Admin	
user-a	user-a	
user-b	user-b	
user-c	user-c	

Page generated: Jul 10, 2019 5:32:40 PM UTC Jenkins ver. 2.176.1





Cont'd...


- Give credentials

 **Jenkins**

Jenkins Jenkins' own user database

 [Back to Dashboard](#)

 [Manage Jenkins](#)

 [Create User](#)

Create User

Username:

Password:

Confirm password:

Full name:


E-mail address:

Create User



Cont'd...

- User created

**Jenkins**










[Admin](#) | [log out](#)

[Jenkins](#) > [Jenkins' own user database](#) [ENABLE AUTO REFRESH](#)

[Back to Dashboard](#)
[Manage Jenkins](#)
[Create User](#)

Users

These users can log into Jenkins. This is a sub set of [this list](#), which also contains auto-created users who really just made some commits on some projects and have no direct Jenkins access.

User ID	Name	
Admin	Admin	
user-a	user-a	 
user-b	user-b	 
user-c	user-c	 
user-e	user-e	 

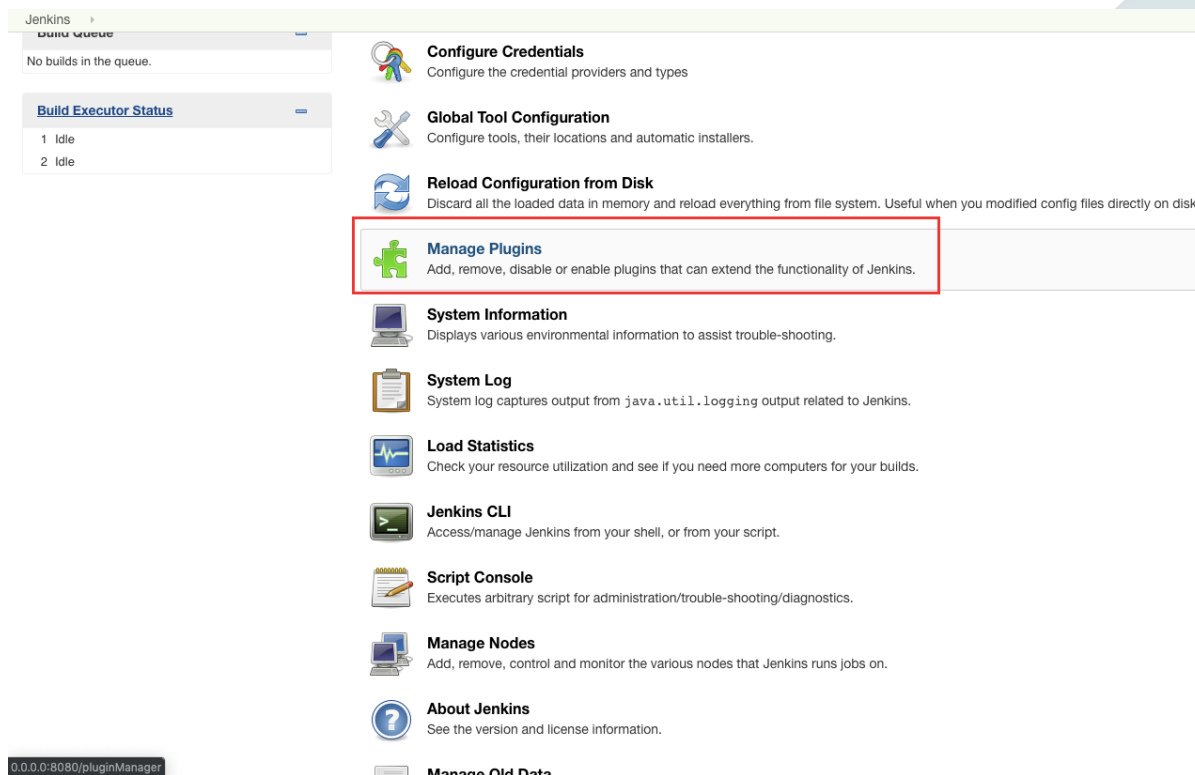


Cont'd...



Step 6:


- To create user roles we need to follow the steps below.
 - Go to Jenkins dashboard
 - Manage Jenkins->Manage plugins->Go to available ->Select Role-based Authorization Strategy
 - click on Install without restart





Cont'd...



**Jenkins**

search

Admin | log out

Jenkins > Plugin Manager

Back to Dashboard

Manage Jenkins

Update Center

Filter:

Updates

Available

Installed

Advanced

Install ↓	Name	Version
<input checked="" type="checkbox"/>	Role-based Authorization Strategy Enables user authorization using a Role-Based strategy. Roles can be defined globally or for particular jobs or nodes selected by regular expressions.	2.12
<input type="checkbox"/>	CloudBees AWS Credentials Allows storing Amazon IAM credentials within the Jenkins Credentials API. Store Amazon IAM access keys (AWSAccessKeyId and AWSSecretKey) within the Jenkins Credentials API. Also support IAM Roles and IAM MFA Token.	1.27

Install without restart

Download now and install after restart


Update information obtained: 4 hr 20 min ago

Check now



Cont'd...



**Jenkins**

search

Admin | log out

Jenkins

New Item

People

Build History

Manage Jenkins

My Views

Credentials

Lockable Resources

New View

Build Queue

No builds in the queue.

Build Executor Status

1 Idle


2 Idle

Manage Jenkins


It appears that your reverse proxy set up is broken.

More Info


Dismiss

**Configure System**


Configure global settings and paths.

**Configure Global Security**


Secure Jenkins; define who is allowed to access/use the system.

**Configure Credentials**


Configure the credential providers and types

**Global Tool Configuration**


Configure tools, their locations and automatic installers.

**Reload Configuration from Disk**


Discard all the loaded data in memory and reload everything from file system. Useful when you modified config files directly on disk.

**Manage Plugins**


Add, remove, disable or enable plugins that can extend the functionality of Jenkins.

**System Information**

Displays various environmental information to assist trouble-shooting.

**System Log**

System log captures output from java.util.logging output related to Jenkins.

**Load Statistics**

0.0.0.0:8080/configureSecurity

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Cont'd...



Now go to Configure global security->select Role Based Strategy

Jenkins search Admin log out

Jenkins > Configure Global Security

Configure Global Security

☒ Enable security ?
☐ Disable remember me ?

Access Control

Security Realm

- ☐ Delegate to servlet container ?
- ☒ Jenkins' own user database ?
 - ☐ Allow users to sign up ?
- ☐ LDAP ?
- ☐ Unix user/group database ?

Authorization

- ☐ Anyone can do anything ?
- ☐ Legacy mode ?
- ☐ Logged-in users can do anything ?
- ☐ Matrix-based security ?
- ☐ Project-based Matrix Authorization Strategy ?
- ☒ Role-Based Strategy ?

Markup Formatter

Markup Formatter: Plain text
Treats all input as plain text. HTML unsafe characters like < and & are escaped to their respective character entities.

Agents

TCP port for inbound agents: ☒ Fixed : 50000 ☐ Random ☐ Disable ?

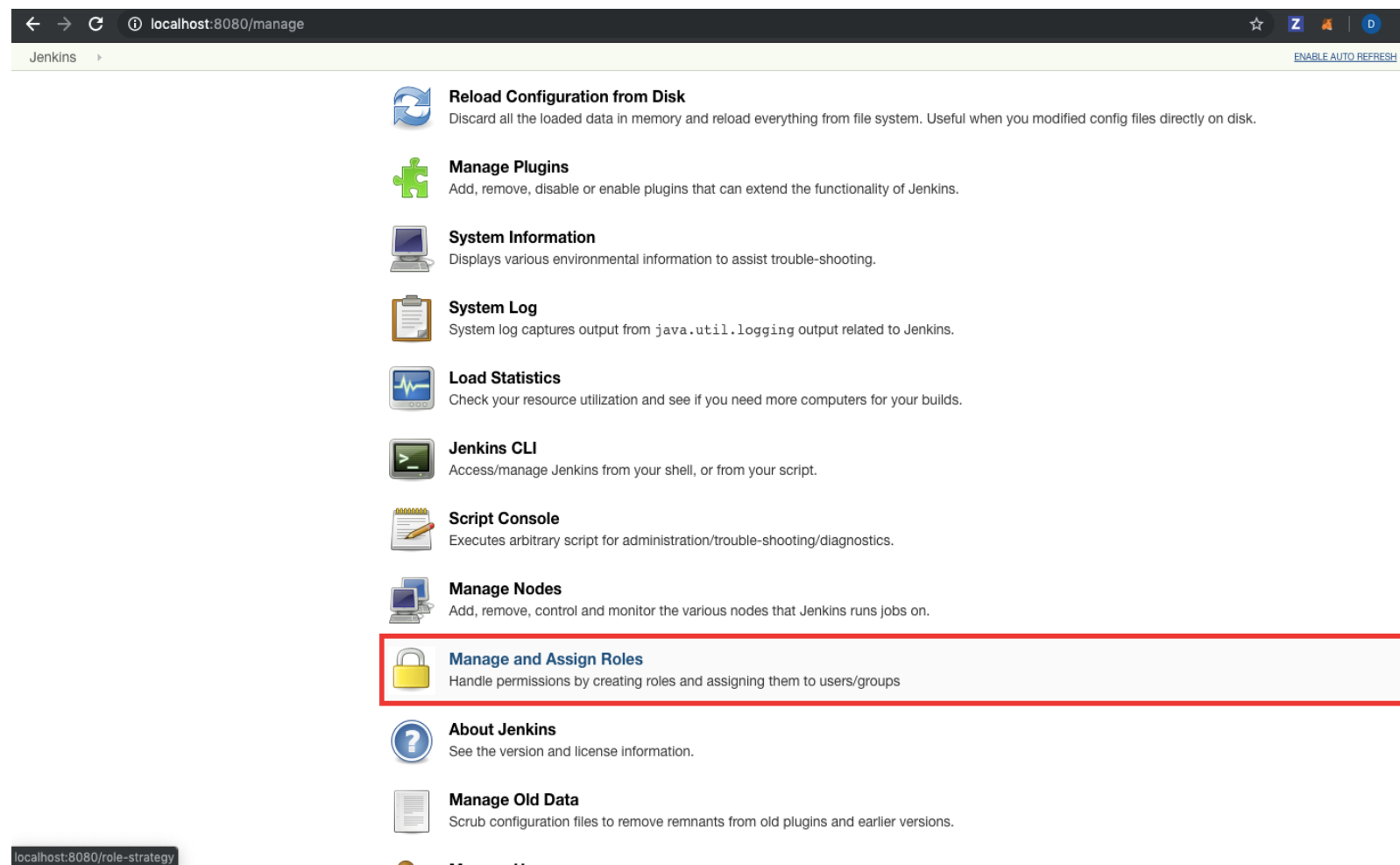
Save **Apply**



Create roles

- To create roles:


Go to Manage Jenkins-
>Manage and Assign Roles







Cont'd...


- Click on Manage Roles


**Jenkins**


Jenkins > Manage and Assign Roles


 [New Item](#)


 [People](#)


 [Build History](#)


 [Manage Jenkins](#)

 [My Views](#)


 [Credentials](#)

 [Lockable Resources](#)

 [New View](#)


Build Queue 

No builds in the queue.


[Build Executor Status](#) 

1 Idle


2 Idle



Manage and Assign Roles


[Manage Roles](#)

[Manage Roles](#)

[Assign Roles](#)

[Assign Roles](#)

Assign Roles

[Role Strategy Macros](#)

[Provides info about macro usage and available macros](#)



Cont'd...



- Create Global roles and project roles

localhost:8080/role-strategy/manage-roles

Jenkins > Manage and Assign Roles

Manage Roles

Global roles

Role	Overall	Credentials					Agent					Job							
		Administer	Read	Create	Delete	ManageDomains	Update	View	Build	Configure	Connect	Create	Delete	Disconnect	Provision	Build	Cancel	Configure	Create
admin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
employee	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Role to add:

Project roles

Role	Pattern	Credentials					Job					Run					SCM		Loc
		Create	Delete	ManageDomains	Update	View	Build	Cancel	Configure	Create	Delete	Discover	Read	Workspace	Delete	Replay	Update	Tag	
Nodejs-Developer	*Node.*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intern	*Hello.*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tester	*Test.*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Role to add:

Pattern:

Slave roles

Role	Pattern	Credentials					Agent					Lockable Resources	
		Create	Delete	ManageDomains	Update	View	Build	Configure	Connect	Delete	Disconnect	Provision	Reserve

Role to add:



Cont'd...



- Here we have added employee as global role, Under that we have created 3 Project roles as shown before
 - Global Role
 - Employee
 - Project Role
 - Nodejs-Developer - Pattern: Node.*
 - Tester - Pattern: Test.*
 - Intern - Pattern: Hello.*
- Created 3 new roles as developer, tester and intern
- Gave pattern of jobs
 - Nodejs-Developer only can access jobs which starts with Node.*
 - Tester can only access jobs with starts with Test.*
 - Interns can only access jobs starts with Hello.*



Assign Roles

- To assign roles:
 - Enter user name in User/group to add and click on Add to add user

Jenkins

Jenkins > Manage and Assign Roles

New Item

People

Build History

Manage Jenkins

My Views

Credentials

Lockable Resources

New View

Manage and Assign Roles

[Manage Roles](#)
Manage Roles

[Assign Roles](#)
Assign Roles

[Role Strategy Macros](#)
Provides info about macro usage and available macros

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle



Cont'd...



Jenkins > Manage and Assign Roles

New Item

People

Build History

Manage Jenkins

My Views

Credentials

Lockable Resources

New View

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Assign Roles

Global roles

User/group	admin	employee
Admin	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>

User/group to add

user-a

Add

Item roles

User/group	Intern	Nodejs-Developer	Tester
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

User/group to add

Add

Node roles

User/group
Anonymous

User/group to add

Add



Cont'd...



- Assign the global role as employee for the created 3 users

Jenkins 1 search Admin | log out

Jenkins > Manage and Assign Roles

Assign Roles

Global roles

User/group	admin	employee
Admin	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>
user-a	<input type="checkbox"/>	<input type="checkbox"/>
user-b	<input type="checkbox"/>	<input type="checkbox"/>
user-c	<input type="checkbox"/>	<input type="checkbox"/>

User/group to add: Add

Item roles

User/group	Intern	Nodejs-Developer	Tester
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Build Queue
No builds in the queue.

Build Executor Status

- 1 Idle
- 2 Idle



Cont'd...

- Add users to assign for project roles

Jenkins

Manage and Assign Roles

New Item

People

Build History

Manage Jenkins

My Views

Credentials

Lockable Resources

New View

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Assign Roles

Global roles

User/group	admin	employee	
<input type="checkbox"/> Admin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> user-a	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> user-b	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> user-c	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

User/group to add

user-c

Add

Item roles

User/group	Intern	Nodejs-Developer	Tester	
<input type="checkbox"/> Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Cont'd...

- Add users to assign for project roles
- Save and exit

Credentials

Lockable Resources

New View

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	
user-a	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
user-b	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
user-c	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

User/group to add

Add

Item roles

User/group	Intern	Nodejs-Developer	Tester
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
user-a	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
user-b	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
user-c	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

User/group to add

Add

Node roles

User/group

Anonymous

User/group to add

Add


Save Apply



Cont'd...



- Logout and login as user-a
- As user-a is a developer, access to jobs which starts with Node

 **Jenkins**

user-a | log out

[Jenkins](#)

[DISABLE AUTO REFRESH](#)

People

Build History

My Views

Lockable Resources

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

All

S	W	Name ↓	Last Success	Last Failure	Last Duration	
		NodeMarketplace	21 hr - #1	N/A	0.62 sec	
		NodeNotification	21 hr - #1	N/A	60 ms	

Icon: [S](#) [M](#) [L](#)


[Legend](#) [RSS for all](#) [RSS for failures](#) [RSS for just latest builds](#)



Cont'd...



- Login as user-c
- To access jobs which starts with Hello

**Jenkins**

search

user-c | log out

Jenkins

People

Build History

My Views

Lockable Resources

Build Queue







No builds in the queue.

Build Executor Status




1 Idle

2 Idle

All

S	W	Name ↓	Last Success	Last Failure	Last Duration
		HelloNodejs	21 hr - #1	N/A	35 ms 
		Hellotest	21 hr - #1	N/A	81 ms 

Icon: [S](#) [M](#) [L](#)

[Legend](#)  [RSS for all](#)  [RSS for failures](#)  [RSS for just latest builds](#)



Cont'd...



- Login as user-b
- To access jobs which starts with Test

Jenkins search user-b | log out

Jenkins > [DISABLE AUTO REFRESH](#)

People
Build History
My Views
Lockable Resources

Build Queue
No builds in the queue.

Build Executor Status
1 Idle
2 Idle

All

S	W	Name ↓	Last Success	Last Failure	Last Duration
		TestMarketplace	21 hr - #1	N/A	34 ms
		TestNotification	21 hr - #1	N/A	82 ms

Icon: [S](#) [M](#) [L](#)

[Legend](#) [RSS for all](#) [RSS for failures](#) [RSS for just latest builds](#)



Cont'd...



- Login as Admin to access all jobs
- Create role-based access for the users in Jenkins

The screenshot displays the Jenkins dashboard. At the top, there's a black header with the Jenkins logo, a red box with the number '1', a search bar, and links for 'Admin' and 'log out'. Below the header is a light green navigation bar with 'Jenkins' and a 'DISABLE AUTO REFRESH' link. On the left, a sidebar contains links for 'New Item', 'People', 'Build History', 'Manage Jenkins', 'My Views', 'Credentials', 'Lockable Resources', and 'New View'. Below the sidebar, there are two expandable sections: 'Build Queue' (showing 'No builds in the queue.') and 'Build Executor Status' (showing two 'Idle' executors). The main content area shows a table of jobs under the 'All' filter. The table has columns for status (S), weather (W), name, last success, last failure, and last duration. Each row represents a job with a blue sphere icon, a sun icon, a link to the job, and a clock icon. At the bottom right, there's a legend for RSS feeds: 'RSS for all', 'RSS for failures', and 'RSS for just latest builds'.

S	W	Name ↓	Last Success	Last Failure	Last Duration
		HelloNodejs	21 hr - #1	N/A	35 ms
		Hellotest	21 hr - #1	N/A	81 ms
		NodeMarketplace	21 hr - #1	N/A	0.62 sec
		NodeNotification	21 hr - #1	N/A	60 ms
		TestMarketplace	21 hr - #1	N/A	34 ms
		TestNotification	21 hr - #1	N/A	82 ms

Icon: [S](#) [M](#) [L](#)

Legend [RSS for all](#) [RSS for failures](#) [RSS for just latest builds](#)