

Manage Jenkins – Components Explained

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1. Configure System


- **Global configuration for Jenkins**
- Set environment-wide variables, paths, URLs
- Integrate tools like JDK, Maven, Git, Docker, etc.
- Set Jenkins root URL, email server, quiet period

 Example:

Set [JAVA_HOME](#), [MAVEN_HOME](#), Git path, Docker host path

2. Global Tool Configuration

- Define tools that jobs can use:
 - JDK installations
 - Maven, Gradle, Ant
 - Git, Docker
 - NodeJS, Python

 Example:

Add Maven 3.8.7 so jobs can use it in pipelines or freestyle projects

3. Manage Plugins

- **Install, update, or remove Jenkins plugins**
- Explore available plugins via Update Center
- Plugin types: UI enhancements, SCM, Notifiers, Build tools

 Tabs:

- **Updates** – see plugins with updates
- **Available** – discover and install new plugins
- **Installed** – view/remove current ones
- **Advanced** – install manually via `.hpi`

4. Manage Users

- View, create, or delete users
- Change passwords or assign permissions

Note: Only visible if Jenkins is configured with an internal user database

5. Configure Global Security

- Set authentication and authorization:
 - Matrix-based security (RBAC)
 - Project-based Matrix Authorization

- Logged-in users only
- Enable/disable:
 - CSRF protection
 - CLI access
 - Remember Me
 - Agent-to-master security

✓ Integrate with:

- LDAP
 - GitHub OAuth
 - SAML
 - Active Directory
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6. Credentials

- Central location to **store and manage secrets** securely
- Types:
 - Username/Password
 - Secret Text
 - SSH Keys
 - AWS Credentials
- Scoped globally, per folder, or per job

✓ Tip: Use **Credential Binding Plugin** to inject secrets into builds



7. Manage Nodes and Clouds

- Manage Jenkins master and agents (nodes)
- Configure:
 - Number of executors
 - Labels (tags for job assignment)
 - Remote FS root
- Connect static/dynamic agents (via SSH, JNLP, Docker, etc.)



Add EC2, Kubernetes, or Docker-based auto-scaling agents



8. Configure Clouds

- Part of **Manage Nodes and Clouds** (for dynamic provisioning)
 - Use plugins to connect to:
 - Amazon EC2
 - Kubernetes
 - Azure VM
 - Docker Swarm
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9. Reload Configuration from Disk

- Re-load Jenkins config from `JENKINS_HOME`

- Useful if configs were modified manually (e.g., job XML files)

⚠ Warning: Doesn't restart Jenkins but re-parses configs

10. Restart Jenkins Safely

- Option to restart Jenkins after current builds complete
 - CLI or URL based:
`http://<jenkins_url>/safeRestart`
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11. Manage Old Data / Disk Usage

- Clean up unnecessary job builds, artifacts
 - View disk space usage by jobs, plugins, etc.
 - Useful for freeing up space in large Jenkins setups
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12. System Information

- Shows **environment variables**, **JVM settings**, system properties
- OS, Jenkins version, memory usage, CPU info, etc.

✅ Debug tool when diagnosing system-related issues

13. System Log

- View logs from the Jenkins instance

- Searchable log console
 - Create custom log recorders (e.g., logs for a specific plugin)
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14. Load Statistics

- Graphical charts showing:
 - Queue length
 - Executor usage
 - Build trends
 - Helps analyze Jenkins performance over time
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15. About Jenkins

- Shows Jenkins version, build date, license, and component info
 - Helpful for upgrades or plugin compatibility
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16. Test Configuration

- Used by some plugins to verify connection (e.g., SMTP, GitHub, Docker)
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17. Prepare for Shutdown

- Prevents new builds from being scheduled

- Current builds complete normally
 - Jenkins goes into a "quiet" state
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18. Script Console

- Powerful Groovy-based scripting tool to:
 - Modify jobs
 - Change config
 - Access Jenkins internals

✓ Example:

```
Jenkins.instance.getAllItems().each { println it.name }
```

⚠ Admin access required. Use with caution!

Summary Table

Section	Purpose
Configure System	Global config
Global Tool Config	JDK, Maven, Git
Plugins	Install/manage plugins
Security	User/RBAC setup
Credentials	Store secrets
Nodes	Add/manage agents
System Info	View environment
Logs	Jenkins logs

Disk Usage

Monitor space

Restart

Safe reboot

Script Console

Groovy scripting
