🔧 What is "Build Periodically"?

The **"Build Periodically"** option in Jenkins uses **cron syntax** to schedule jobs at specific times—**regardless of code changes**. It's often used for:

- Nightly builds
- Frequent CI runs (e.g., every 15 minutes)
- Regular test deployments

📅 Cron Syntax in Jenkin

Format:

MIN HOUR DOM MONTH DOW

Field	Description	Possible Values
MIN	Minute	0–59
HOUR	Hour	0–23
DOM	Day of Month	1–31
MONTH	Month	1–12 or JAN–DEC
DOW	Day of Week	0–7 (0 and 7 = Sunday)

You can also use special characters:

- `*`: every value
- `H`: hash-based (spreads load)
- `/`: increments (e.g., `H/15`)
- `,`: separate values (e.g., `1,15`)
- `-`: ranges (e.g., `1-5`)
- `H/2 * * * *`: every 2 minutes (spreads load)

✅ Examples with Real-World Use Cases

Cron Pattern	Description	Use Case Example
`H/2 * * * *`	Every 2 minutes	Quick feedback loop for fast-moving projects
`0 * * * *`	Every hour	Hourly data sync or job summary builds
`H 3 * * *`	Every day at 3 AM	Nightly regression test suite
`15 2 * * 1-5`	2:15 AM on weekdays	Weekday-only early morning build jobs
`H 22 * * 5`	Every Friday at 10 PM	Weekly backup or environment refresh
`0 0 1 * *`	Midnight on the 1st of every month	Monthly reports or billing process
`*/15 9-17 * * 1-5`	Every 15 min between 9 AM–5 PM on weekdays	Frequent CI builds during work hours

🧠 Jenkins Special: Use of `H`

The `H` spreads jobs across time to **avoid load spikes** if multiple jobs use the same schedule.

- Example: If you set `H 4 * * *`, Jenkins will pick a random but stable minute for each job at hour 4 to distribute load.

👨‍💻 Your Configuration:

From your screenshot:

H/2 * * * *

- **Meaning**: Jenkins will run the job **every 2 minutes**.
- **Real-World Example**: Perfect for a continuously running integration pipeline that watches for issues quickly, such as a **staging environment build or test**.

✅ Jenkins Job: Assignment03 – Step-by-Step Detailed Explanation

Objective: Automatically build your Maven project every 2 minutes using Jenkins' `Build Periodically` feature (without requiring code changes).

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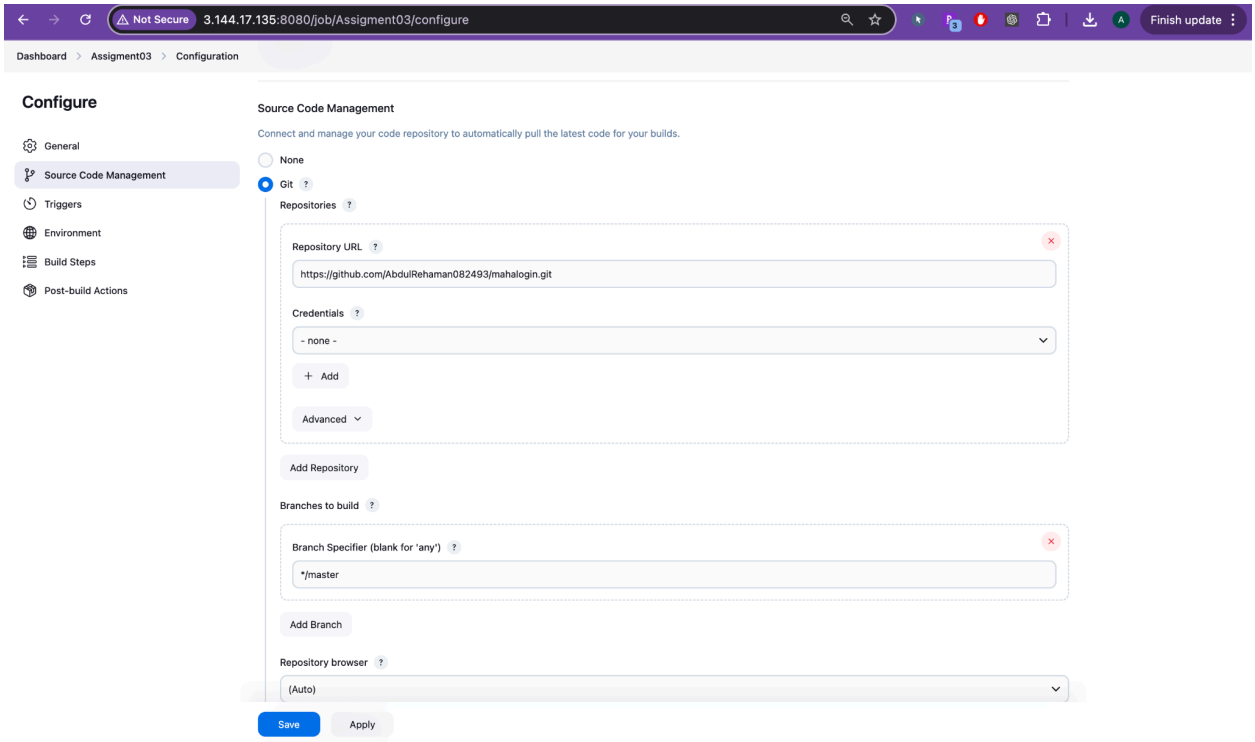
🔁 STEP 1: Job Setup

- Job Name: `Assignment03`
- Type: **Freestyle Project**
- Purpose: Clone the repo, compile, and package it via Maven every 2 minutes.

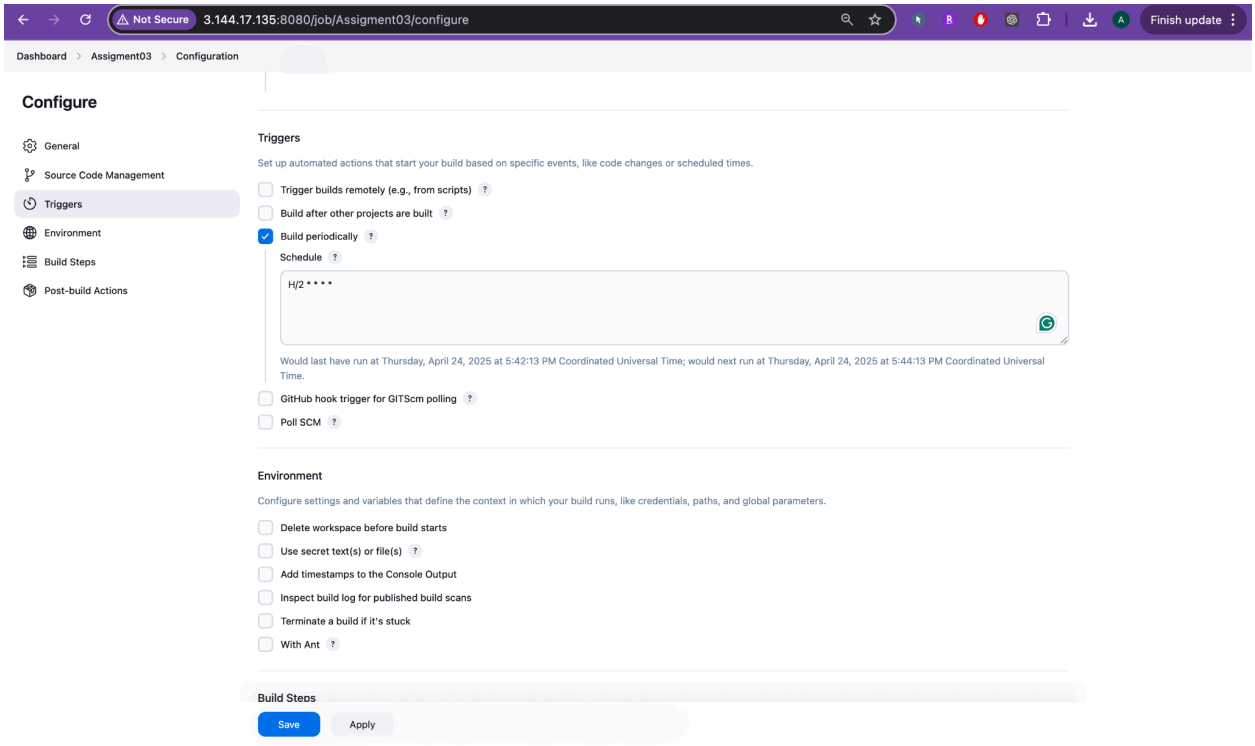


🔧 STEP 2: Source Code Management (Git)

Location: `Configure > Source Code Management`

Field	Value
Repository URL	`https://github.com/AbdulRehaman082493/mahalogin.git`
Credentials	`- none -` (public repo)
Branch	`*/master` (default main branch)

✔️ This allows Jenkins to pull code from the `master` branch of your GitHub repository.



⏱️ STEP 3: Build Trigger – `Build periodically`

Location: `Configure > Triggers`

You checked ✅ `Build periodically` and used this schedule:

H/2 * * * *

Field	Meaning
H/2	Randomized minute offset; builds every 2 minutes
***** (next four fields)	Every hour, day, month, and day of the week

🔁 **Effect**: Jenkins triggers this job **every 2 minutes** continuously — **even if no code changes** have happened.

✅ Useful for:

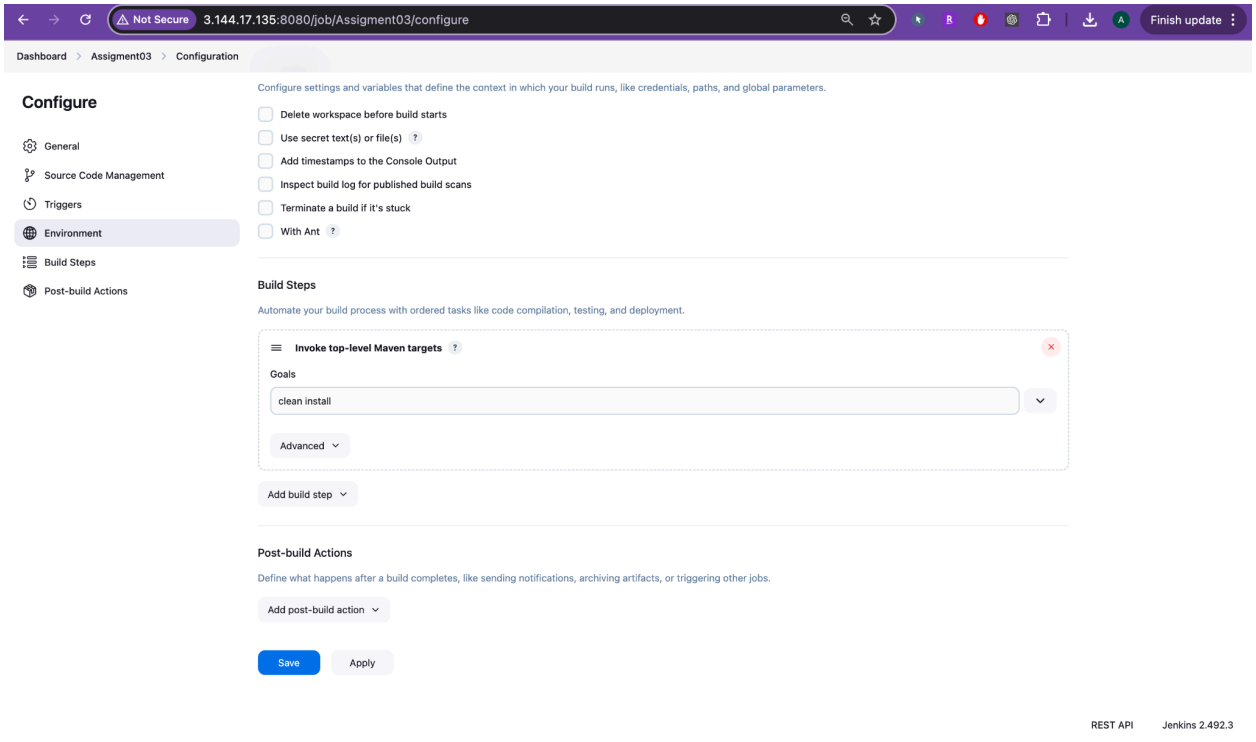
- Continuous testing
- Monitoring
- Scheduled builds

📌 **Not dependent** on Git commits or polling — it's purely based on time.

⚙️ STEP 4: Build Step – Maven

Location: `Configure > Build Steps`

Field	Value
Build Step	Invoke top-level Maven targets
Goals	`clean install`



✔️ What it does:

- `clean`: Deletes `target/` directory to ensure a fresh build.
- `install`: Compiles, runs unit tests, packages `.war`, and installs it to the local Maven repository.

Resulting artifact:

/var/lib/jenkins/workspace/Assignment03/target/mahaLogin-2.0.war

🧪 STEP 5: Environment and Post-Build (Optional)

None configured in your setup. You may optionally:

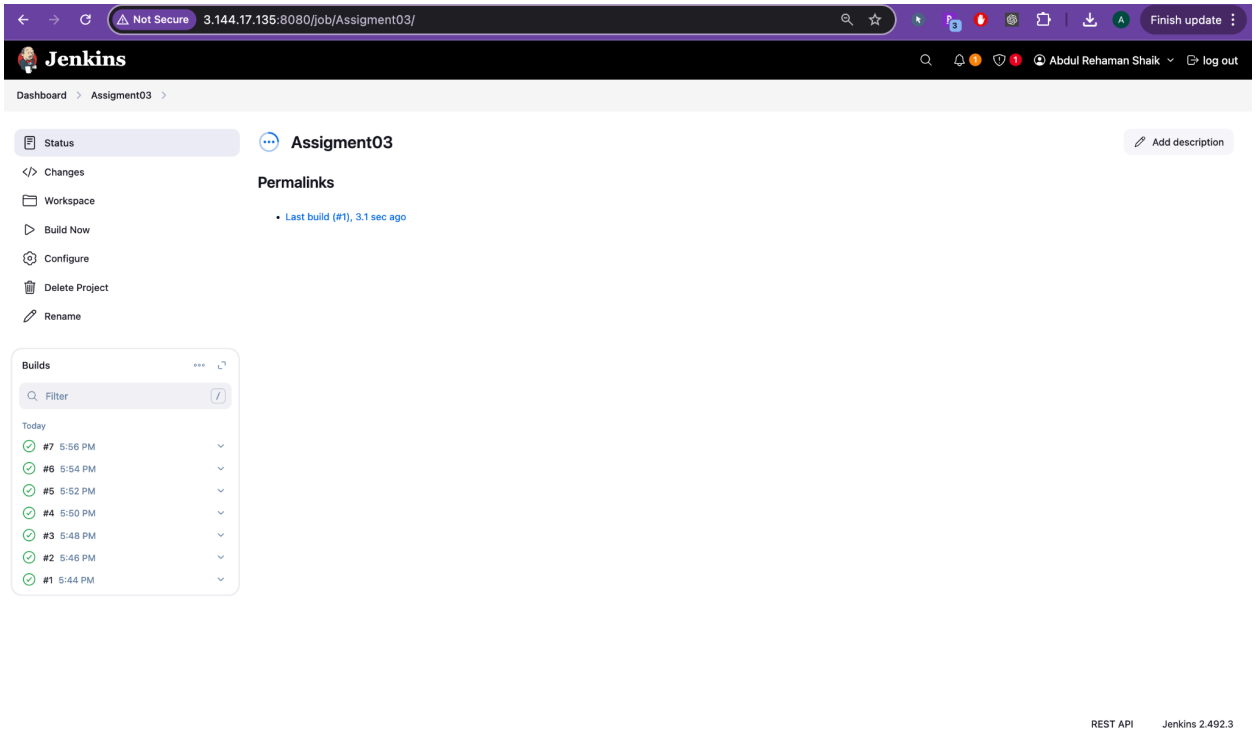
- Delete workspace before build
- Add post-build steps like notifications or deployment

📋 STEP 6: Jenkins Build Output

Location: `Assignment03 > Status`

- You see a list of builds triggered every 2 minutes (✅ Build #1 through #7).
- Each build was successful (green check).
- Builds are automatically triggered without manual clicks.

✅ Final Outcome



Componet	Configuration
Git Repo	GitHub repo with master branch
Trigger	Every 2 minutes (`H/2 * * * *`)
Build Step	Maven: `clean install`
Output	`.war` file built and installed to local `.m2`
Status	Multiple successful automated builds

🔄 Optional Enhancements

Want to:

- Deploy `.war` file to Tomcat?
- Add webhook for GitHub triggers?

- Archive build artifacts?
- Email build results?

Let me know and I'll guide you step-by-step!