

02 – Thread Group Basics

Objective

Understand **how JMeter creates load**, what a **Thread Group** represents, and how to model **real users** correctly.

What is a Thread Group?

A **Thread Group** defines: - **How many users** (threads) - **How fast** they start (ramp-up) - **How many times** they repeat actions (loop count)

👉 Think of a Thread Group as a **crowd of users entering your system**.

Threads = Users (Golden Rule)

```
1 Thread  = 1 Virtual User
10 Threads = 10 Concurrent Users
```

Each thread: - Has its own session - Executes requests independently - Behaves like a real user

Key Thread Group Parameters

Number of Threads (Users)

```
Threads: 50
```

Meaning: - 50 users will hit the system - All users are active concurrently (after ramp-up)

👉 Not total requests — **concurrent users**.

Ramp-Up Period (Seconds)

```
Threads: 50
Ramp-Up: 10 seconds
```

Meaning:

50 users / 10 sec = 5 users per second

Why ramp-up matters: - Prevents sudden traffic spikes - Mimics real-world traffic - Avoids false failures

👉 Bad ramp-up:

50 users, ramp-up 1 sec → system shock

Loop Count

Loop Count: 1

Meaning: - Each user executes the test **once**

Loop Count: 10

Meaning: - Each user repeats the flow 10 times

Total requests = Threads × Loop Count × Samplers

Example Calculation

Threads: 50
Ramp-up: 10 sec
Loop: 2
Samplers: 3 APIs

Total requests:

$50 \times 2 \times 3 = 300$ API calls

Scheduling (Optional)

Thread Group can be scheduled by time: - Start delay - End after X seconds

Useful for: - Soak testing - Endurance testing

Common Beginner Mistakes

👉 Thinking ramp-up = test duration 👉 Using loop count = forever 👉 Starting with 1,000 users 👉 Testing login repeatedly for same user

Best Practice (Real Org Style)

Test Type	Threads	Ramp-Up	Loop
Smoke	1-2	1 sec	1
Load	50-200	30-60 sec	1
Stress	Increase gradually	Slow	1

Visual Flow

```
Thread Group
├─ User 1 → API calls
├─ User 2 → API calls
└─ User N → API calls
```

Hands-on Assignment

1. Add a Thread Group
 2. Set:
 3. Threads: 5
 4. Ramp-up: 5 sec
 5. Loop: 1
 6. Do NOT add any API yet
 7. Just understand the configuration
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Key Takeaways

- Threads = users, not requests
- Ramp-up controls **pressure**, not duration
- Loop count multiplies traffic

👉 Next file: **03_test_plan_structure.md**