

# Memory Management Code Walkthrough

## TradeEvent.java

This file defines the properties of the actual trade events that we're inserting into our system. The important thing to pay attention to here is the `@expires` attribute which is set to 5 minutes when we're running the explicit expiration test. Do note, that when you comment out/uncomment this line, you should rebuild the domain project to ensure that the change persists across other projects that don't need to use the 5 minute expiration time.

## ReportService.java

This file is responsible for generating and gathering the reports generated by the rules when they fire. Again, the only relevant line of code here is within the `fireAllRules` method. If we're running with a pseudo clock, the block of code that checks the clock state will also advance the pseudo clock by 6 minutes after reports are generated. This ensures that events in the system will be captured by the report, and then the clock is advanced to eliminate the event from memory due to its expiry.

## RemovalRule.drl

Just like any other rule, this rule will ensure there's a fact in memory, map it to a variable, and call the report service to generate the report. The main difference here is at the end we call the `retract` function to remove the fact we mapped to a variable earlier in order to ensure it's removed from memory to test this functionality.

## ExpiryRule.drl

Similar to `RemovalRule`, this file performs the same steps of ensuring that there's a fact in memory, mapping it to a variable, and calling the report service to generate a report. No further steps are taken because this rule operates under the assumption that the system is running with a pseudo clock and the clock will be programmatically advanced by the `ReportService`, thus eliminating the rule from memory.

## Cucumber .feature Files

Both feature files for the removal and expiry tests are nearly identical. Both provide a single fact, expect a report that logs a single fact in memory, then poll the `KieSession` to ensure no facts remain.