# KIP-571: Add option to force remove members in StreamsResetter

## Status

**Current state**: Adopted for 2.6

**Vote thread**: [Vote] KIP-571: Add option to force remove members in StreamsResetter

**Discussion thread**: [Discuss] KIP-571: Add option to force remove members in StreamsResetter

**JIRA**: *KAFKA-9146*

## Motivation

Sometimes people want to reset the stream application sooner but blocked by the left-over members inside the group coordinator, which only expires after session timeout. When the user configures a long session timeout, it could prevent the group from clearing. We should consider adding support to clean up members by forcing them to leave the group. To do that, we could enhance KafkaAdminClient#removeMembersFromConsumerGroup to support remove all members(static&dynamic) in a certain group.

## Public Interfaces

Client side changes:

kafkaAdminClient related changes:

**RemoveMembersFromConsumerGroupOptions**

```
public class RemoveMembersFromConsumerGroupOptions {
        // newly added method
        public boolean removeAll() {}

        // newly added constructor
        public RemoveMembersFromConsumerGroupOptions() {}
}
```

CmdLine API change:

**kafka.tools.StreamsResetter**

```
forceOption = optionParser.accepts("force", "Force remove members when long session time out has been
configured, please make sure to shut down all stream applications when this option is specified to avoid
unexpected rebalances")
```

## Proposed Changes

KIP-571 plan to support the ability to force remove members in **StreamsResetter**, this involves public interfaces changes as below:

**1)** Changes related to **kafkaAdminclient**

The old constructor RemoveMembersFromConsumerGroupOptions(Collection<MemberToRemove> members) will imply the **non removeAll** or **remove-specific members** scenario and it will throw IllegalArgumentException if empty **members** is provided.

When the newly added constructor RemoveMembersFromConsumerGroupOptions() is used, it implies the **removeAll** scenario, underlyingly it set field **members** to an empty set and **removeAll()** will return true, in this case, KafkaAdminClient#removeMembersFromConsumerGroup will remove all members in the given group, it will first query the members of the given group and then issue a LeaveGroupRequest with all members specified. Accordingly, the RemoveMembersFromConsumerGroupResult also adds a new private method **removeAll()** to imply different handling in RemoveMembersFromConsumerGroupResult#all,memberResult. .Under the **removeAll** scenario, RemoveMembersFromConsumerGroupResult#memberInfos should be empty, the memberResult() is not applicable, the all() should check if RemoveMembersFromConsumerGroupResult#future 100% succeed, if not, it will throw the first exception captured.

**2)** Add cmdline option **--force** to **StreamsResetter**

While with the new option, the StreamsResetter will force remove all active members by calling KafkaAdminClient#removeMembersFromConsumerGroup with **removeAll** specified. All the deleted members' info will be logged out if all removals succeed. Otherwise,  the first member removal error will be thrown.

The detailed member removal error cases could be found in KIP-345, which introduced static membership and batch removal on the broker side.

Broker side logic has no change, GroupCoordinator#handleLeaveGroup can handle both dynamic and static member removals since 2.4.

Operational steps of the **StreamsResetter:**

1. Stop all the consumers (of streams instances), and wait until the shutdown is complete, otherwise, unexpected rebalance will be triggered.
2. Use StreamsResetter with **--force** in case the stopped consumers are still registered at the broker side, without --force, it will fail with an exception suggesting using --force.

# Compatibility, Deprecation, and Migration Plan

1. Because no classes/method will be removed but only deprecated, change 1) will be backward compatible
2. The new cmdline option **--force** is also backward compatible because it's a new feature, if not specified, the StreamsResetter's behavior remains unchanged.

The requirement to use this feature:

| | **Release version requirement** | **Expected error if requirement not satisfied** |
|---|---|---|
| broker side | >= 2.4 | **UnsupportedVersionException** will be thrown because the batch removal feature was introduced since version 2.4 |
| client side | update to this KIP | "force is not a recognized option" will be in the client side log |

# Rejected Alternatives

*None*