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# Terms

1. **Member = Client** = Producer, Consumer.

# When will Rebalance Occur?

## Source 01: <https://youtu.be/kJEtxWGpv3Q?t=309>

1. Rebalance occurs whenever there is anything changed to membership as well as the resource of topic partitions.
2. A screenshot of a computer

   Description automatically generated

# Membership Change So Triggering Rebalancing.

## How to detect changes. <https://www.youtube.com/watch?v=kJEtxWGpv3Q>

### Heartbeat Protocol:

1. Normal Consumers periodically send heartbeats to Worker Side Group Coordinator.   
   Worker Coordinator responds to the heartbeat to indicate the receiving of the heartbeat.  
   Suppose, now one consumer goes down and Group Coordinator doesn’t receive heartbeat for a specified time period **(**session.timeout.ms**)** and it assumes the consumer unavailable, and triggers rebalance to assign its partitions to some other consumers in the group.
2. **session.timeout.ms** (broker side): The shorter, the more sensitive to detect such consumer failures but higher chances for false positive.

A screen shot of a whiteboard

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### Gracefully Shutdown

1. A screen shot of a computer

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### Adding a New Consumer

1. A screen shot of a computer

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### Resubscribing to other topics

1. Existing consumer sends “join-group” request to subscribe to other topics.  
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2. This is what happen during rebalancing.  
   A white paper with black text

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3. A screen shot of a computer

   Description automatically generatedrebalance.timeout.ms: if any consumer pending till the timeout, it will not be considered member of this generation group but the next generation group.  
   By this time, we have all the members (consumers) and their subscription info.