

# **Inclusion Dependency Discovery in Akka**

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# Short overview about the flow

- Dependency Miner calculates in the handle(BatchMessage) method the combinations and stores it locally
- Dependency Worker notifies the Receptionist that it is created
- Receptionist notifies the Dependency Miner about a new worker
- Dependency Miner assigns the Dependency Worker a job
- Dependency Worker checks the given combination and send a completion message

# Results

- Master system (with 0 worker)  
Remote worker system with 1 worker  
=> 21854 ms
- Master system (with 0 worker)  
Remote worker system with 2 worker  
=> 7781 ms
- Master system (with 0 worker)  
1. Remote worker system with 2 worker  
2. Remote worker system with 2 worker  
=> 5542 ms
- Master system (with 0 worker)  
1. Remote worker system with 4 worker  
2. Remote worker system with 4 worker  
3. Remote worker system with 4 worker  
=> 4966 ms

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target — schumacher@MacBook-Air-von-Robin — ...to-ro/target — -zsh — 273x35

[20:37:59.468 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:37:59.483 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:37:59.495 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:37:59.507 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:00.923 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:00.939 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:01.870 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:02.264 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:03.157 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:03.151 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:03.154 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:03.170 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:03.239 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received 1 INOs!
[20:38:03.746 INFO ] ://ddm/user/master/dependencyMiner/resultCollector Received FinalizeMessage!
[20:38:03.746 INFO ] akka://ddm/user/master/dependencyMiner Finished mining within 21854 ms!
[20:38:04.169 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Leader is moving node [akka://ddm@10.10.0.112:7877] to [Exiting]
[20:38:04.181 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Exiting confirmed [akka://ddm@10.10.0.112:7877]
[20:38:05.193 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Leader is removing confirmed Exiting node [akka://ddm@10.10.0.112:7877]
[20:38:05.282 INFO ] akka://ddm/user/reaper Every local actor has been reaped. Terminating the actor system...
[20:38:05.286 INFO ] Association(akka://ddm) Association to [akka://ddm@10.10.0.112:7877] having UID [-2348340496568357780] has been stopped. All messages to this UID will be delivered to dead letters. Reason: ActorSystem terminated
[20:38:05.287 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Marked address [akka://ddm@10.10.0.112:7877] as [Leaving]
[20:38:06.197 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Leader is moving node [akka://ddm@10.10.0.112:7877] to [Exiting]
[20:38:06.198 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Exiting completed
[20:38:06.200 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Shutting down...
[20:38:06.200 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Successfully shut down
[20:38:06.201 INFO ] akka://ddm/system/clusterEventBusListener Message [akka.cluster.ClusterEvent$SeenChanged] to Actor[akka://ddm/system/clusterEventBusListener-1770178820] was unhandled. [1] dead letters encountered. This logging can be turned off or adjusted
with configuration settings 'akka.log-dead-letters' and 'akka.log-dead-letters-during-shutdown'.
[20:38:06.208 INFO ] akka://ddm/system/cluster/core/daemon Message [akka.cluster.InternalClusterAction$ReapUnreachableTick$] from Actor[akka://ddm/system/cluster/core/daemon-1496425678] to Actor[akka://ddm/system/cluster/core/daemon-1496425678] was not deli
vered. [2] dead letters encountered. If this is not an expected behavior then Actor[akka://ddm/system/cluster/core/daemon-1496425678] may have terminated unexpectedly. This logging can be turned off or adjusted with configuration settings 'akka.log-dead-letters' and 'akka
.log-dead-letters-during-shutdown'.
[20:38:06.210 INFO ] ://ddm@10.10.0.112:7877/system/remoting-terminator Shutting down remote daemon.
[20:38:06.211 INFO ] ://ddm@10.10.0.112:7877/system/remoting-terminator Remote daemon shut down; proceeding with flushing remote transports.
[20:38:06.230 INFO ] ://ddm@10.10.0.112:7877/system/remoting-terminator Remoting shut down.

~/Documents/ddm-akka-to-ro/target | main 74 |

target — schumacher@MacBook-Air-von-Robin — ...to-ro/target — -zsh — 273x35

> cd Dn/ddm-akka-to-ro/target
> java -jar ddm-akka-1.0.jar worker -w 1
[20:37:53.392 INFO ] local| Slf4jLogger started
Slf4j: A number (4) of logging calls during the initialization phase have been intercepted and are
Slf4j: now being relayed. These are subject to the filtering rules of the underlying logging system.
Slf4j: See also http://www.slf4j.org/codes.html#reply
[20:37:53.586 INFO ] ArteryTransport(akka://ddm) Remoting started with transport [Artery tcp]; listening on address [akka://ddm@10.10.0.112:7877] with UID [-2348340496568357780]
[20:37:53.593 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Starting up, Akka version [2.5.16] ...
[20:37:53.569 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Registered cluster JMX MBean [akka:type=Cluster]
[20:37:53.568 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Started up successfully
[20:37:53.682 INFO ] akka://ddm/system/cluster/core/daemon/dominionProvider SSR started. Config: strategy [KeepMajority], stable-after [20 seconds], down-all-when-unstable [15 seconds], selfUniqueAddress [akka://ddm@10.10.0.112:7877#-2348340496568357780], selfDc [default].
[20:37:53.854 INFO ] akka://ddm/user/reaper Watching worker
[20:37:54.165 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Received InitJoinAck message from [Actor[akka://ddm@10.10.0.112:7877/system/cluster/core/daemon-1496425678]] to [akka://ddm@10.10.0.112:7877]
[20:37:54.190 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Welcome from [akka://ddm@10.10.0.112:7877|20:38:03.772 INFO ] akka://ddm/user/reaper Every local actor has been reaped. Terminating the actor system...
[20:38:03.776 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Marked address [akka://ddm@10.10.0.112:7877] as [Leaving]
[20:38:04.177 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Exiting completed
[20:38:04.179 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Shutting down...
[20:38:04.179 INFO ] Cluster(akka://ddm) Cluster Node [akka://ddm@10.10.0.112:7877] - Successfully shut down
[20:38:04.187 INFO ] ://ddm@10.10.0.112:7877/system/remoting-terminator Shutting down remote daemon.
[20:38:04.188 INFO ] ://ddm@10.10.0.112:7877/system/remoting-terminator Remote daemon shut down; proceeding with flushing remote transports.
[20:38:04.236 WARN ] akka://ddm/system/Materializers/StreamSupervisor-1] Outbound connection to [akka://ddm@10.10.0.112:7877], message stream] Upstream failed, cause: StreamTcpException: The connection has been aborted
[20:38:04.237 WARN ] akka://ddm/system/Materializers/StreamSupervisor-1] Outbound connection to [akka://ddm@10.10.0.112:7877], large message stream] Upstream failed, cause: StreamTcpException: The connection has been aborted
[20:38:04.237 WARN ] akka://ddm/system/Materializers/StreamSupervisor-1] Outbound connection to [akka://ddm@10.10.0.112:7877], control stream] Upstream failed, cause: StreamTcpException: The connection has been aborted
[20:38:04.242 INFO ] ://ddm@10.10.0.112:7877/system/remoting-terminator Remoting shut down.

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