**DSR TEST CASES**

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|  | Description | Expected Results | Actual Results |
| Route Discovery | Automatic route discovery | * DSR is successfully performs automatic route discovery. |  |
| On-Demand route discovery | * DSR is successfully performs route discovery only on demand. No periodic broadcasting involved. |  |
| Route Request | Sending route request | * DSR is successfully allows nodes firstly search their own route cache to see whether they have stored route to destination node * If nodes have the route, then nodes successfully sends that route to source node, else, nodes broadcast the route request message to their neighbours and attach their own ID to the route request message. |  |
| Route request frequency | * DSR is successfully allows source node to wait for a fixed amount of time before initiating another route request to avoid flooding the network. |  |
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| Hop limit | * DSR is successfully controls the route request to neighbourhood area to avoid unnecessary route reply message. |  |
| Restricted Propagation of Route Request | * DSR is successfully increase hop count proportionately when receiving no route reply messages to avoid network congestion an unnecessary route reply messages (i.e. start with distance 2, then when no reply message, increase distance to 3 and so on). |  |
| Route Cache | Maintaining route cache information | * Each node successfully maintains a route cache and remember the routes that it has learnt about |  |
| Route cache updates | * DSR is successfully maintains an up-to-date information in the route cache for each node |  |
| Route cache has no available information | * DSR is successfully initiate a new route discovery when no route cache information available. |  |
| Caching overhead routing information | * DSR is successfully allows node P to store overhear routing information in its route cache from node B to node C. DSR is also successfully use this information when node P receive route request from node B to node C. |  |
| Route Replay | Complete route discovery | * DSR is successfully send route reply message from destination node that has route to destination in its route cache. |  |
| Partial route discovery | * DSR is successfully send route reply message from intermediate node that has route to destination in its route cache |  |
| Waiting before replay | * All nodes successfully wait for a random a amount of time and listen to the traffic before sending route reply message to avoid network congestion and packet collisions. |  |
| Accumulated route reply | * DSR is successfully send route reply message back to the source node using accumulated route (the nodes through which it has passed). |  |
| Route reply storm | * DSR is successfully avoid route reply storm (many nodes try to send route reply for the same destination which may flood the network). |  |
| Route Maintenance | Alternative route for broken route | * DSR is successfully uses alternative route stored in route cache when priority route is broken. |  |
| New route discovery for broken route | * DSR is successfully discover new route when priority route is broken and route cache has no alternative route stored. |  |
| Active acknowledgment | * DSR is successfully retransmit packet for a fixed number of times if no acknowledgement received. |  |
| Passive acknowledgement | * DSR is successfully send acknowledgement to node A when node A overhear the forwarding of the packet to node B and knows that node B successfully received the packet. |  |
| Spreading route Error Message | * DSR is successfully send error message if the nodes do not receive any acknowledgement after retransmit message for a fixed number of times. |  |
| On-Demand route maintenance | * DSR is successfully operates route maintenance only on demand. No periodic broadcasting involved. |  |
| Changing in communication pattern | * Number of overhead packets increases and DSR is successfully performs new route discovery and new route discovery packets are the overhead packets. | ` |
| Packet salvaging | * DSR is successfully indicates to the other nodes that the packet sent has been salvaged when the node receives route error message and re-send the packet that cause route error. |  |
| Automatic route shortening | * DSR is successfully performs automatic route shortening. * Destination node informs source node that it can ignore several intermediate nodes |  |
| Others | Packet Size | * DSR is successfully send smaller size of overhead packets (DSR is designed to send smaller packet). |  |
| Drop packets when nodes are static | * DSR is successfully drop the number of overhead packets to zero when the nodes are static and all routes have been discovered. |  |
| Energy-efficient | * DSR is successfully showing more energy-efficient and does not congest the network with too many control messages. |  |
| Unique ID | * DSR is successfully assign unique ID for each node. |  |
| Promiscuous mode of operation | * DSR is successfully allows each node to overhear or not to overhear other nodes' transmission. |  |