Message Flow Diagram – Mode 1 (Tasking Mode)

- **SSD/SSM association**
  - ASC_REQ: request association
  - ASC_GRANT: grant association
  - ASC_ADV: advertise capabilities
  - HBT_SCHED_SEND: send scan schedule
  - HBT_SCHED_SEND_ACK: scan schedule ack

- **TaskAgent/SSM association**
  - AUTH_REQ: request authorisation, capabilities, status
  - AUTH_GRANT: grant authorisation, send capabilities, scan schedule

- **scan scheduling**
  - SCHD_MOD: request mod to schedule
  - SCHD_MOD_ACK: ack for sched mod
  - process update to schedule

- **scan execute**
  - SCHD_STATUS_ACK – sched status response
  - Optional – either triggered by user or by SSD if “notify” flag is set

- **data publish**
  - DATA_PUB_CL: publish data
  - DATA_PUB_DM: publish data
  - SCHD_COMP_ACK: sched status response
  - HBT_SCHD_STATUS_ACK: status response
  - Periodic SSD heartbeat/resource advertisement/disconnect

- **SSD association currency**
  - HBT_ASC_RFR: refresh association
  - HBT_ASC_RFR_ACK: refresh association ack
  - ASC_DIS_SSD: instruct disassociate
  - ASC_DIS_SCOS: instruct disassociate

- **SCAN_TERM: terminate all scanning**
### Message Flow Diagram – Mode 2 (Basic Mode)

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<tr>
<th>SSD/SSM association</th>
<th>Data Client</th>
<th>DM</th>
<th>Tasking Agent</th>
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**Notes:**
- Sensor capabilities are assumed hardcoded in CR system
- Standard scheduled scans hardcoded in CR design

**Message Flow:**
- **HBT_SCAN:** current channel occupancy
- **ASC_REQ:** request association
- **ASC_GRANT:** grant association
- **AUTH_REQ:** request authorisation, status
- **AUTH_GRANT:** grant authorisation, status
- **SCHD_MOD:** request mod to schedule
- **SCHD_MOD_ACK:** ack for sched mod
- **SCHD_COMP_ACK:** sched status response
- **HBT_SCHD_SEND:** send scan schedule
- **DATA_PUB:** publish data
- **DATA_PUB_CL:** publish data
- **DATA_PUB_DM:** publish data
- **Periodic SSD heartbeat/resource advertisement/disconnect**
SSD State Diagram - Mode 2 (Basic Mode)

- **Off**
  - Poweron
  - Startup
- **Ready**
  - ASC_REQ
  - ASC_GRANT
  - Heartbeat timer exp
- **Associated**
  - ASC_DIS_SSD
- **Tasked Scanning**
  - HBT_SCHED_SEND
  - HBT_SCHED_SEND_ACK
- **Automatic Scanning**
  - HBT_SCHED_SEND
  - HBT_SCHED_SEND_ACK

Event:
- State
  - Stable system state

Action:
- Event
  - External trigger
  - Response to event

State change direction:
- Stable system state