Data types

Unless specified in a parameter description, these are the possible values for used types:

Type	Description
BOOL	Either **true** of **false**
BYTE	An integer value between **-128** and **127**
SHORT	An integer value between **-32768** and **32767**
INT	An integer value between **-2147483648** and **2147483647**
LONG	An integer value between **-9223372036854775808** and **9223372036854775807**
BIGINT	An integer value with **unlimited** range
DOUBLE	A decimal point value between **-1.7976931348623157E+308** and **1.7976931348623157E+308**
STRING	Any text with **unlimited** length

Parameter reference for XT4900

Parameter	Type	Description
bluetooth.dfu.result	SHORT	Bluetooth DFU result code.
bluetooth.dfu.target	SHORT	Bluetooth DFU target device.
bluetooth.peripheral.reset	SHORT	Bluetooth peripheral reset result.
command.argument[{index}]	STRING	Command nth argument.
device.activeConfigHash	DOUBLE	Active configuration hash.
device.assetName	STRING	Device asset name.
device.backupBattery	DOUBLE	Backup battery voltage in millivolts.
device.battery	DOUBLE	Battery voltage in millivolts.
device.cellular.cellId	INT	E-UTRAN cell identifier.
device.cellular.countryCode	DOUBLE	Mobile Country Code.
device.cellular.locAreaCode	INT	Sensor location area code.
device.cellular.mno	STRING	Mobile Network Operator (MNO) short alphanumeric format. Max 10 characters.
device.cellular.networkCode	DOUBLE	Sensor mobile network code
device.cellular.noPdpPer	DOUBLE	Percentage of time device hasn't had it's PDP context activated.
device.cellular.noServicePer	DOUBLE	Percentage of time device hasn't been in Hom, Roaming, LTE, or LTE Roaming for its registration.
device.cellular.pdpCount	DOUBLE	Number of times PDP context was activated

<table>
<tr><td>device.cellular.pdpState</td><td>DOUBLE</td><td>PDP context state.<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Disconnected/Deactivated</td></tr><tr><td>1</td><td>Connected/Activated</td></tr></table></td></tr>
<tr><td>device.cellular.reg</td><td>DOUBLE</td><td>Registration status.<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Registered, not searching for an operator to register to</td></tr><tr><td>1</td><td>Registered, home network</td></tr><tr><td>2</td><td>Not registered, trying to attach or searching for an operator to register to</td></tr><tr><td>3</td><td>Registration denied</td></tr><tr><td>4</td><td>Unknown, possibly out of coverage</td></tr><tr><td>5</td><td>Registered, roaming</td></tr></table></td></tr>
<tr><td>device.cellular.regPer</td><td>DOUBLE</td><td>GSM registration percentage.</td></tr>
<tr><td>device.cellular.rscpow</td><td>DOUBLE</td><td>Received Signal Code Power</td></tr>
<tr><td>device.cellular.rspow</td><td>DOUBLE</td><td>Reference Signal Received Power. Reported in raw dBm.<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>-141 dBm or less</td></tr><tr><td>1-96</td><td>From -140 dBm to -45 dBm with 1 dBm steps</td></tr><tr><td>97</td><td>-44 dBm or greater</td></tr><tr><td>255</td><td>Not Known or Not Detectable</td></tr></table></td></tr>
<tr><td>device.cellular.rsq</td><td>DOUBLE</td><td>Reference Signal Received Quality. Reported in raw dBm.<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>-19 dBm or less</td></tr><tr><td>1-33</td><td>From -19.5 dBm to -3.5 dBm with 0.5 dBm steps</td></tr><tr><td>34</td><td>-3 dBm or greater</td></tr><tr><td>255</td><td>Not Known or Not Detectable</td></tr></table></td></tr>
<tr><td>device.cellular.rssi</td><td>DOUBLE</td><td>Received Signal Strength Indication. Reported in raw dBm.<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Less than -110 dBm</td></tr><tr><td>1-62</td><td>From -110 to -49 dBm with 1dBm steps</td></tr><tr><td>63</td><td>-48 dBm or greater</td></tr><tr><td>99</td><td>Not Known or Not Detectable</td></tr></table></td></tr>
<tr><td>device.cellular.smsIn</td><td>DOUBLE</td><td>SIM CCID (Number of incoming SMS).</td></tr>
<tr><td>device.cellular.smsOut</td><td>DOUBLE</td><td>Number of successful outgoing SMS.</td></tr>
<tr><td>device.cellular.smsSpam</td><td>DOUBLE</td><td>Number of spam SMS.</td></tr>
<tr><td>device.configName</td><td>STRING</td><td>Configuration profile name.</td></tr>
<tr><td>device.counters.ackBytes</td><td>DOUBLE</td><td>Number of ACK bytes received.</td></tr>
<tr><td>device.counters.dataReceived</td><td>DOUBLE</td><td>Bytes received on session socket.</td></tr>
<tr><td>device.counters.dataSent</td><td>DOUBLE</td><td>Bytes sent on session socket.</td></tr>
<tr><td>device.counters.hoursOff</td><td>DOUBLE</td><td>Hours off counter.</td></tr>
<tr><td>device.counters.hoursOn</td><td>DOUBLE</td><td>Hours on counter</td></tr>
<tr><td>device.counters.powerUpReset</td><td>DOUBLE</td><td>Power-on resets.</td></tr>
<tr><td>device.counters.records</td><td>DOUBLE</td><td>Count of records.</td></tr>
<tr><td>device.counters.reset</td><td>DOUBLE</td><td>Reset counter for software, watchdogs, and brownouts.</td></tr>
<tr><td>device.firmware.bluetooth</td><td>STRING</td><td>Bluetooth firmware version.</td></tr>
<tr><td>device.firmware.cellChar</td><td>STRING</td><td>Cellular firmware version.</td></tr>
<tr><td>device.firmware.lowPower</td><td>STRING</td><td>Low-Power firmware version.</td></tr>
<tr><td>device.firmware.main</td><td>STRING</td><td>Main firmware version.</td></tr>
<tr><td>device.firmware.root</td><td>STRING</td><td>Sensor firmware version</td></tr>
<tr><td>device.firmware.sensor</td><td>STRING</td><td>Sensor main firmware version.</td></tr>
<tr><td>device.firmware.sensorBluetooth</td><td>STRING</td><td>Sensor bluetooth firmware version.</td></tr>
<tr><td>device.firmware.zigbee</td><td>STRING</td><td>ZigBee firmware version.</td></tr>
</table>

<table>
<tr><td>device.ipAddress</td><td>STRING</td><td>Device IP address.</td></tr>
<tr><td>device.powerUpMode</td><td>DOUBLE</td><td>Last power-up/reset mode<table><tr><th>Value</th><th>Description</th></tr><tr><td>1</td><td>Software Reset</td></tr><tr><td>2</td><td>DC Power On</td></tr><tr><td>3</td><td>Motion Sense</td></tr><tr><td>4</td><td>Interval Wakeup</td></tr><tr><td>5</td><td>No Motion Sense</td></tr><tr><td>6</td><td>Periodic Motion</td></tr><tr><td>7</td><td>Periodic No Motion</td></tr><tr><td>12</td><td>Input1</td></tr></table></td></tr>
<tr><td>device.timestamp</td><td>LONG</td><td>Date time. Seconds since 00:00:00 January 1, 1970 UTC.</td></tr>
<tr><td>device.vbus.speed</td><td>DOUBLE</td><td>VBUS speed. Speed from the vehicle BUS in kilometers per hour.</td></tr>
<tr><td>diagnostic.brownoutReset</td><td>SHORT</td><td>Brownout reset count.</td></tr>
<tr><td>diagnostic.chargeFault</td><td>BYTE</td><td>Charging fault.</td></tr>
<tr><td>diagnostic.chargeStatus</td><td>BYTE</td><td>Charging status.</td></tr>
<tr><td>diagnostic.hardwareWatchdogReset</td><td>SHORT</td><td>Hardware watchdog reset count.</td></tr>
<tr><td>diagnostic.id</td><td>SHORT</td><td>ID-task that caused swwd.</td></tr>
<tr><td>diagnostic.mask</td><td>SHORT</td><td>Mask of task that caused swwd: 0-4, 294, 967, 295.</td></tr>
<tr><td>diagnostic.name</td><td>STRING</td><td>Name of task that caused swwd: Up to 4 characters.</td></tr>
<tr><td>diagnostic.powerUpReset</td><td>SHORT</td><td>Power up reset count.</td></tr>
<tr><td>diagnostic.softwareWatchdogReset</td><td>SHORT</td><td>Software watchdog reset count.</td></tr>
<tr><td>diagnostic.tripLogReset</td><td>SHORT</td><td>Trip log reset count.</td></tr>
<tr><td>diagnostic.userPinReset</td><td>SHORT</td><td>User pin reset count.</td></tr>
<tr><td>engine.hours</td><td>DOUBLE</td><td>Engine hours in seconds.</td></tr>
<tr><td>event.code</td><td>INT</td><td>Event identifier.</td></tr>
<tr><td>event.deviceId</td><td>STRING</td><td>Device serial number.</td></tr>
<tr><td>event.guid</td><td>STRING</td><td>Telemetry record ID.</td></tr>
<tr><td>event.name</td><td>STRING</td><td>Named event identifier.</td></tr>
<tr><td>event.sequenceNo</td><td>DOUBLE</td><td>Event sequence number.</td></tr>
<tr><td>event.timestamp</td><td>LONG</td><td>Seconds since epoch. Midnight, Jan 1, 1970.</td></tr>
<tr><td>gps.accuracy</td><td>DOUBLE</td><td>GPS horizontal accuracy.</td></tr>
<tr><td>gps.altitude</td><td>DOUBLE</td><td>Altitude.</td></tr>
<tr><td>gps.bearing</td><td>DOUBLE</td><td>GPS heading (Horizontal dilution of precision in tenths of meters).</td></tr>
<tr><td>gps.geoCksum</td><td>DOUBLE</td><td>Geofence system checksum.</td></tr>
<tr><td>gps.hdop</td><td>DOUBLE</td><td>GPS PDOP.</td></tr>
<tr><td>gps.location.lat</td><td>DOUBLE</td><td>Latitude.</td></tr>
<tr><td>gps.location.lon</td><td>DOUBLE</td><td>Longitude.</td></tr>
<tr><td>gps.lockPer</td><td>DOUBLE</td><td>GPS lock percentage.</td></tr>
<tr><td>gps.lockStatus</td><td>DOUBLE</td><td>GPS lock status.</td></tr>
<tr><td>gps.odometer</td><td>DOUBLE</td><td>Virtual odometer GPS.</td></tr>
<tr><td>gps.poorLockPer</td><td>DOUBLE</td><td>Percentage of time device hasn't had at least 5 satellites.</td></tr>
<tr><td>gps.qualityLockPer</td><td>DOUBLE</td><td>GPS quality lock percentage.</td></tr>
<tr><td>gps.satellitesFix</td><td>DOUBLE</td><td>GPS satellites (Number of satellites used for position fix).</td></tr>
<tr><td>gps.speed</td><td>DOUBLE</td><td>GPS Speed. Speed from GPS in kilometers per hour.</td></tr>
<tr><td>payload.accelerometerX</td><td>DOUBLE</td><td>X-vector milli g.</td></tr>
<tr><td>payload.accelerometerY</td><td>DOUBLE</td><td>Y-vector milli g.</td></tr>
<tr><td>payload.accelerometerZ</td><td>DOUBLE</td><td>Z-vector milli g.</td></tr>
<tr><td>payload.beacons.actualCount</td><td>DOUBLE</td><td>Beacon message data. Count is the total number of instance/rssi pairs in the payload.</td></tr>
<tr><td>payload.beacons.currentIndex</td><td>DOUBLE</td><td>Beacon message current index.</td></tr>
<tr><td>payload.beacons.reportedCount</td><td>DOUBLE</td><td>Beacon message total count for report.</td></tr>
<tr><td>payload.beacons.values[{index}].mac</td><td>STRING</td><td></td></tr>
<tr><td>payload.beacons.values[{index}].rssi</td><td>DOUBLE</td><td></td></tr>
</table>

payload.bluetoothDoorSensor.accelerometerX	DOUBLE	Bluetooth door sensor accelerometer X-force
payload.bluetoothDoorSensor.accelerometerY	DOUBLE	Bluetooth door sensor accelerometer Y-force
payload.bluetoothDoorSensor.accelerometerZ	DOUBLE	Bluetooth door sensor accelerometer Z-force
payload.bluetoothDoorSensor.batteryVoltage	DOUBLE	Bluetooth door sensor battery voltage.
payload.bluetoothDoorSensor.calculatedAngle	DOUBLE	Calculated angle of bluetooth door sensor.
payload.bluetoothDoorSensor.checksum	DOUBLE	Bluetooth door sensor checksum.
payload.bluetoothDoorSensor.firmware	STRING	Bluetooth door sensor firmware.
payload.bluetoothDoorSensor.reedSwitchState	DOUBLE	Bluetooth door sensor reed switch state. **Value** / **Description** 0 Unknown 1 Open 2 Closed
payload.bluetoothDoorSensor.state	DOUBLE	Bluetooth door sensor state. **Value** / **Description** 0 Unknown 1 Open 2 Closed
payload.bluetoothDoorSensor.stateCount	DOUBLE	Bluetooth door sensor state count.
payload.bulkSensors.count	DOUBLE	Sensor bulk samples. Sample count.
payload.bulkSensors.values[{index}].primary	DOUBLE	
payload.bulkSensors.values[{index}].secondary	DOUBLE	
payload.bulkSensors.values[{index}].time	ANY	
payload.currentSolar	DOUBLE	Current provided by solar panel, represented as ADC counts.
payload.door.avgAdInterval	INT	Door sensor average ad interval rolling average of the interval between ads received by the configured door sensor during current wake cycle.
payload.door.lastNotice	INT	Number of milliseconds since the last door sensor advertisement was received.
payload.door.mac	STRING	Door sensor MAC address 12 character MAC address (eg C5461F218868).
payload.door.rssi	BYTE	Door RSSI. -127 to 20, 127 if RSSI not available.
payload.door.transitionCount	INT	Door sensor transition count.
payload.dsi.ad1Age	DOUBLE	DSI advertisement 1 age.
payload.dsi.ad2Age	DOUBLE	DSI advertisement 2 age.
payload.dsi.ad3Age	DOUBLE	DSI advertisement 3 age.
payload.dsi.appFirmware	STRING	DSI application firmware.
payload.dsi.bootFirmware	STRING	DSI boot loader firmware.
payload.dsi.config	STRING	DSI configuration.
payload.dsi.currentDoorState	DOUBLE	DSI current door state.
payload.dsi.currentStateTime	DOUBLE	DSI current door state time.
payload.dsi.deviceUid	STRING	DSI device UID.
payload.dsi.dsInternalBatteryVoltage	DOUBLE	DS internal battery voltage.
payload.dsi.dsRssi	DOUBLE	DSI DS RSSI.
payload.dsi.error0	STRING	DSI error 0.
payload.dsi.error1	STRING	DSI error 1.
payload.dsi.externalPowerVoltage	DOUBLE	DSI external power voltage.
payload.dsi.internalBatteryVoltage	DOUBLE	DSI internal battery voltage.
payload.dsi.internalTemperature	DOUBLE	DSI internal temperature.
payload.dsi.marRssi	DOUBLE	MAR DSI RSSI.
payload.dsi.previousDoorState	DOUBLE	DSI previous door state.
payload.dsi.previousStateTime	DOUBLE	DSI previous door state time.
payload.dsi.systemMode	STRING	DSI system mode.
payload.errorMsgAck	STRING	ACK, error on message receipt.
payload.externalAdc	DOUBLE	External ADC voltage.
payload.geoRev	STRING	Geofence system version.
payload.geofence.id	INT	Geofence ID.

<table>
<tr><td>payload.geofence.status</td><td>INT</td><td>Geofence status.</td></tr>
<tr><td>payload.ignitionStatus</td><td>DOUBLE</td><td>Ignition status.</td></tr>
<tr><td>payload.incline</td><td>DOUBLE</td><td>Inclinometer angle degrees</td></tr>
<tr><td>payload.input1State</td><td>DOUBLE</td><td>Sensor IN1 state</td></tr>
<tr><td>payload.input2State</td><td>DOUBLE</td><td>Sensor IN2 state</td></tr>
<tr><td>payload.input3State</td><td>DOUBLE</td><td>Sensor IN3 state</td></tr>
<tr><td>payload.mileageWithRollover</td><td>DOUBLE</td><td>Mileage with rollover (miles).</td></tr>
<tr><td>payload.outputState</td><td>DOUBLE</td><td>Output state.</td></tr>
<tr><td>payload.owbSensors.bulk.actualCount</td><td>DOUBLE</td><td>OWB sensor bulk samples. Sample count in payload.</td></tr>
<tr><td>payload.owbSensors.bulk.count</td><td>DOUBLE</td><td>OWB sensor bulk samples.</td></tr>
<tr><td>payload.owbSensors.bulk.values[{index}].primary</td><td>DOUBLE</td><td></td></tr>
<tr><td>payload.owbSensors.bulk.values[{index}].secondary</td><td>DOUBLE</td><td></td></tr>
<tr><td>payload.owbSensors.bulk.values[{index}].time</td><td>ANY</td><td></td></tr>
<tr><td>payload.owbSensors.detected.actualCount</td><td>DOUBLE</td><td>OWDI count in payload.</td></tr>
<tr><td>payload.owbSensors.detected.reportedCount</td><td>DOUBLE</td><td>OWB sensor count.</td></tr>
<tr><td>payload.owbSensors.detected.single.alertType</td><td>DOUBLE</td><td>OWB alert type.<table><tr><th>Value</th><th>Description</th></tr><tr><td>6</td><td>Temperature</td></tr><tr><td>7</td><td>Humidity</td></tr><tr><td>8</td><td>Light</td></tr></table></td></tr>
<tr><td>payload.owbSensors.detected.single.humidity</td><td>DOUBLE</td><td>OWB sensor data. Humidity.</td></tr>
<tr><td>payload.owbSensors.detected.single.id</td><td>STRING</td><td>OWB sensor ID.</td></tr>
<tr><td>payload.owbSensors.detected.single.light</td><td>DOUBLE</td><td>OWB sensor data. Light.</td></tr>
<tr><td>payload.owbSensors.detected.single.name</td><td>STRING</td><td>Name for OWB sensor.</td></tr>
<tr><td>payload.owbSensors.detected.single.temperature</td><td>DOUBLE</td><td>OWB sensor data. Temperature.</td></tr>
<tr><td>payload.owbSensors.detected.single.type</td><td>DOUBLE</td><td>OWB sensor type.<table><tr><th>Value</th><th>Description</th></tr><tr><td>1</td><td>Temperature</td></tr><tr><td>2</td><td>Temperature and humidity</td></tr><tr><td>3</td><td>Light</td></tr></table></td></tr>
<tr><td>payload.owbSensors.detected.status</td><td>DOUBLE</td><td>OWB sensor status.<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Cached/discovered sensor.</td></tr><tr><td>1</td><td>OWB sensor discovery in progress.</td></tr></table></td></tr>
<tr><td>payload.owbSensors.detected.values[{index}].id</td><td>STRING</td><td></td></tr>
<tr><td>payload.owbSensors.detected.values[{index}].name</td><td>STRING</td><td></td></tr>
<tr><td>payload.owbSensors.detected.values[{index}].type</td><td>DOUBLE</td><td></td></tr>
<tr><td>payload.pnEnergyRatio</td><td>DOUBLE</td><td>Ratio of received energy per PN chip to the total received power spectral density.</td></tr>
<tr><td>payload.sensor.alert</td><td>DOUBLE</td><td>Sensor alert.</td></tr>
<tr><td>payload.sensor.code</td><td>DOUBLE</td><td>Sensor code.<table><tr><th>Value</th><th>Description</th></tr><tr><td>1</td><td>Paired</td></tr><tr><td>2</td><td>Low Battery</td></tr><tr><td>3</td><td>Hardware Failure</td></tr><tr><td>4</td><td>Not Found</td></tr><tr><td>5</td><td>Incompatible Firmware Version</td></tr><tr><td>6</td><td>Orphaned Sensor (Network Address Collision)</td></tr></table></td></tr>
<tr><td>payload.sensor.data</td><td>DOUBLE</td><td>Sensor data.</td></tr>
<tr><td>payload.sensor.name</td><td>STRING</td><td>Sensor name (alias or unique ID).</td></tr>
<tr><td>payload.sensor.type</td><td>DOUBLE</td><td>Sensor type. Wireless inclinometer.</td></tr>
<tr><td>payload.serialPassPayload</td><td>STRING</td><td>Serial pass-through response payload.</td></tr>
<tr><td>payload.serialPassSize</td><td>DOUBLE</td><td>Size of serial pass-through response.</td></tr>
<tr><td>payload.temperature</td><td>DOUBLE</td><td>Sensor ambient temperature.</td></tr>
</table>

payload.timeBeforeOff	DOUBLE	Time before off (seconds).
payload.timeBeforeTaskPowerOff	DOUBLE	Time before power off (seconds).
payload.timeBeforeTaskSusp	DOUBLE	Time before suspend (seconds).
payload.timeBoom	DOUBLE	Boom utilization time (seconds).
payload.tpms.configuredAggregator	STRING	Expected/configured TPMS aggregator (BlueRex).
payload.tpms.count	DOUBLE	TPMS sensors count in alert.
payload.tpms.currentPage	DOUBLE	Current page number of TPMS message.
payload.tpms.messageRssi	DOUBLE	TPMS message RSSI.
payload.tpms.totalMessages	DOUBLE	Total number of TPMS messages.
payload.tpms.values[{index}].battery	DOUBLE	
payload.tpms.values[{index}].id	STRING	
payload.tpms.values[{index}].position	STRING	
payload.tpms.values[{index}].pressure	DOUBLE	
payload.tpms.values[{index}].status	STRING	
payload.tpms.values[{index}].temperature	DOUBLE	
payload.voltageHigh	DOUBLE	Number of counts the external voltage is greater than 16.0V .
payload.voltageLow	DOUBLE	Number of counts the external voltage was less than 9.0V .