NMEA protocol handler

The NMEA protocol handler parses the NMEA 0183 protocol (f.e. from GPS devices). For input both GenericPush and GenericPull can be used in combination with File or UDP transport handler. This protocol can also be used for output, to write NMEA sentences.

Supported Sentences

ID	Description	Fields
DPT	Depth of Water	depth, offset
GGA	Global Positioning System Fix Data. Time, Position and fix related data	time, latitude, latitudeHem, longitude, longitudeHem, gpsQuality, numberOfSattelites, horizontalDilution, antennaAltitude, antennaAltUnits, geoidalSeparation, geoidalSepUnits, ageOfDgps, differentialRefId
GLL	Geographic Position – Latitude /Longitude	latitude, latitudeHem, longitude, longitudeHem, time, status
HDG	Heading - Deviation & Variation	heading, deviation, deviationDir, variation, variationDir
MTW	Water Temperature	degrees, unit
MWV	Wind Speed and Angle	angle, reference, speed, speedUnit, status
RMC	Recomended Minimum Navigation Information	time, status, latitude, latitudeHem, longitude, longitudeHem, speedOverGround, trackMadeGood, date, magneticVariation, magneticHem, signalIntegrity
RPM	Revolutions	source, number, speed, pitch, status
RSA	Rudder Sensor Angle	starboard, sbStatus, portboard, pbStatus
TTM	Tracked Target Message	targetNumber, targetDistance, bearing, bearingUnit, targetSpeed, targetCourse, courseUnit, closestPointOfApproach, timeUntilClosestPoint, distanceUnit, targetLabel, targetStatus, referenceTarget, time, typeAcquisition
VDM	AIS (Automatic Identification System) Message	fragmentsCount, fragmentId, messageId, channel, message, fillBits
VDO	Same as VDM for own ship	see VDM
VTG	Track Made Good and Ground Speed	headingTrack, trackReference, headingMagnetic, magneticReference, speedKnots, speedKnotsUnits, speedKilometers, speedKilometersUnits
EXT	X, Y and Z acceleration data (Proprietary sentence)	Acceleration X, Acceleration Y, Acceleration Z
AS HR	Aiding Ship Heading Rotation (Proprietary sentence)	time, heading, roll angle, pitch angle, heave, roll angle accuracy, pitch angle accuracy, heading angle accuracy, aiding status, IMU status
OSD	Own Ship Data	heading, status, course, course reference, vessel speed, speed reference, vessel set, vessel drift, speed units

Default Fields

All above mentioned sentences have default fields derieved from Sentence.

Field	Type	Description
beginChar	char	The first character, the nmea sentence starts with (e.g. $ or !)
talkerId	String	The two digit talker ID (Single character 'P' for proprietary sentence types)
sentenceId	String	Mostly three digit sentence ID for standard types mentioned in first column in table above. (Or proprietary sentences, starting with three digit manufacturer code)

Options

- **delay:** Delay of reading in milliseconds (Only in GenericPull mode)

Example

PQL

NMEA Protocol Handler

```
/// Read from File
input = ACCESS({source='FileInput', wrapper='GenericPull',
        transport='File', protocol='NMEA', dataHandler='KeyValueObject',
        options=[['filename','...'], ['delay','100']]
})

/// Read from UDP on Port 4711
inputGps = ACCESS({source='GpsInput', wrapper='GenericPush',
        transport='UDPServer', protocol='NMEA', dataHandler='KeyValueObject',
        options=[['port', '4711']]
})

/// UDP Broadcast on Port 6003
output = SENDER({sink='SinkGps', wrapper='GenericPush',
        transport='UDPClient', protocol='NMEA', dataHandler='KeyValueObject',
        options=[['host', '255.255.255.255'],['port', '6003']]
}, inputGps)
```

CQL

NMEA Protocol Handler

```
TODO
```

Selection/Projection

If only GPS Positions are needed, only latitude and longitude informations can be extracted from the sentences. In "Supported Sentences" table can be seen, that the sentences GGA, GLL and RMC do have the needed information. To extract this information a Selection can be done, to get only these sentence types and a Projection, to extract only the needed informations.

PQL

NMEA Selection/Projection

```
/// Listen on UDP prot 4711
input = ACCESS({source='input', wrapper='GenericPush',
        transport='UDPServer', protocol='NMEA', dataHandler='KeyValueObject',
        options=[['port', '4711']]
})

/// Select GGA, GLL, RMC
gps = SELECT({predicate=KeyValuePredicate('sentenceId="GGA" OR sentenceId="GLL" OR sentenceId="RMC"')}, input)

/// Project only the latitude and longitude
latLon = PROJECT({paths = [['latitude', 'String'], ['longitude', 'String']]}, gps)
```