AMASP Java Library

0.9.1

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Chapter 1

AMASPJavaLib

Amasp library for java.

This library implements the AMASP (ASCII Master/Slave Protocol) for JAva, a simple way to exchange messages between two computers using serial communication.

AMASP is free and uses four different packets:

MASTER -> SLAVE:

MRP - Master Request Packet CEP - Communication Error Packet

SLAVE -> MASTER:

SRP - Slave Response Packet SIP - Slave Interruption Packet CEP - Communication Error Packet

The protocol is transparent to the user that only needs to use the AMASP Java Library functions to implement his own applications.

AMASPJavaLib is under test and improvements, if you have any problem using it, please send a mail to the author (Spanish, Portuguese or English) adelai@gmail.com.

Contributors will be welcome!

Wants to design an AMASP library to other platforms? Be my guest!

Documentation about AMASP available here: https://doi.org/10.14209/jcis.2019.1

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Enjoy, it's free! :)

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

AMASPJava.AMASPSerial 7
AMASPJava.AMASPSerialMaster 10
AMASPJava.AMASPSerialSlave 11
AMASPJava.AMASPSerial.ErrorCheckType 13
AMASPJava.AMASPSerial.PacketData 14
AMASPJava.AMASPSerial.PacketType 15

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

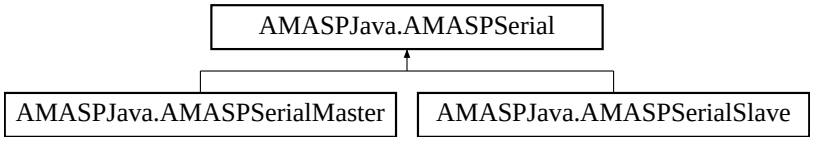
AMASPJava.AMASPSerial 7
AMASPJava.AMASPSerialMaster 10
AMASPJava.AMASPSerialSlave 11
AMASPJava.AMASPSerial.ErrorCheckType 13
AMASPJava.AMASPSerial.PacketData 14
AMASPJava.AMASPSerial.PacketType 15

Chapter 4

Class Documentation

4.1 AMASPJava.AMASPSerial Class Reference

Inheritance diagram for AMASPJava.AMASPSerial:



Classes

- enum ErrorCheckType
- class PacketData
- enum PacketType

Public Member Functions

- void setErrorCheckType (ErrorCheckType errorCheckType)
- ErrorCheckType getErrorCheckType ()
- boolean begin (SerialPort serialCom)
- void end ()
- void sendError (int deviceID, int errorCode)
- PacketData readPacket ()

Public Attributes

- final int **MSGMAXSIZE** = 4096

Protected Member Functions

- short **CRC16Check** (byte[ ] data, int dataLength)
- int **LRC16Check** (byte[ ] data, int dataLength)
- int **XORCheck** (byte[ ] data, int dataLength)
- int **checksum16Check** (byte[ ] message, int dataLength)
- int **fletcher16Checksum** (byte[ ] data, int dataLength)
- int **errorCheck** (byte[ ] data, int dataLength, ErrorCheckType eCheckType)

4.1.1 Detailed Description

AMASP Abstract class

Author

Andre L. Delai

4.1.2 Member Function Documentation

4.1.2.1 begin()

```
boolean AMASPJava.AMASPSerial.begin (
            SerialPort serialCom )
```

Establishes a serial connection.

Parameters

serialCom	A JSerialComm object to serial communication.

Returns

True if the serial connection was stablished or false if not.

4.1.2.2 end()

```
void AMASPJava.AMASPSerial.end ( )
```

Close the serial connection.

4.1.2.3 getErrorCheckType()

```
ErrorCheckType AMASPJava.AMASPSerial.getErrorCheckType ( )
```

Gets the current error checking algorithm to be used in the sent packets.

Returns

The current error checking algorithm.

4.1.2.4 readPacket()

```
PacketData AMASPJava.AMASPSerial.readPacket ( )
```

Check if a valid packet is available and read it.

Returns

A PacketData Object which contains the information and data from a packet.

4.1.2.5 sendError()

```
void AMASPJava.AMASPSerial.sendError (
            int deviceID,
            int errorCode )
```

Send a CEP packet (Communication Error Packet).

Parameters

deviceID	Id of the target device in communication.
errorCode	The communication error code (0 to 255).

4.1.2.6 setErrorCheckType()

```
void AMASPJava.AMASPSerial.setErrorCheckType (
            ErrorCheckType errorCheckType )
```

Sets the error checking algorithm to be used in the sent packets.

Parameters

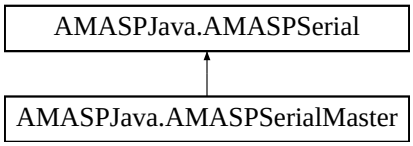
errorCheckType	The error checking algorithm.

The documentation for this class was generated from the following file:

- C:/Users/aldelai/Documents/Repositorio/amaspjavalib/AMASPJava/src/AMASPJava/AMASPSerial.java

4.2 AMASPJava.AMASPSerialMaster Class Reference

Inheritance diagram for AMASPJava.AMASPSerialMaster:



Public Member Functions

- void sendRequest (int deviceID, byte message[ ], int msgLength)
- void sendRequest (int deviceID, String message, int msgLength)

Additional Inherited Members

4.2.1 Detailed Description

AMASP Master class

Author

Andre L. Delai

4.2.2 Member Function Documentation

4.2.2.1 sendRequest() [1/2]

```
void AMASPJava.AMASPSerialMaster.sendRequest (
            int deviceID,
            byte message[],
            int msgLength )
```

Send a MRP packet to a slave computer.

Parameters

deviceID	Id of the requested device in slave.
message	The message in bytes to be send.
msgLength	The message length.

4.2.2.2 sendRequest() [2/2]

```
void AMASPJava.AMASPSerialMaster.sendRequest (
            int deviceID,
            String message,
            int msgLength )
```

Send a MRP packet to a slave computer.

Parameters

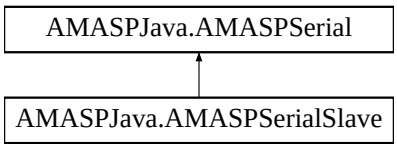
deviceID	Id of the requested device in slave.
message	The string message to be send.
msgLength	The message length.

The documentation for this class was generated from the following file:

- C:/Users/aldelai/Documents/Repositorio/amaspjavalib/AMASPJava/src/AMASPJava/AMASPSerialMaster.java

4.3 AMASPJava.AMASPSerialSlave Class Reference

Inheritance diagram for AMASPJava.AMASPSerialSlave:



Public Member Functions

- void sendResponse (int deviceID, byte[ ] message, int msgLength)
- void sendResponse (int deviceID, String message, int msgLength)
- void sendInterruption (int deviceID, int InterrupCode)

Additional Inherited Members

4.3.1 Detailed Description

AMASP Slave class

Author

delai

4.3.2 Member Function Documentation

4.3.2.1 sendInterruption()

```
void AMASPJava.AMASPSerialSlave.sendInterruption (
            int deviceID,
            int InterrupCode )
```

Send a SIP (Slave Interrupt Packet).

Parameters

deviceID	Id of the slave device who generated the interruption.
InterrupCode	The code of the interruption (0 to 255).

4.3.2.2 sendResponse() [1/2]

```
void AMASPJava.AMASPSerialSlave.sendResponse (
            int deviceID,
            byte [] message,
            int msgLength )
```

Send a SRP (Slave Response Packet) to a master computer.

Parameters

deviceID	Id of the slave device who answered.
message	The response message (in bytes) to be send.
msgLength	The message length.

4.3.2.3 sendResponse() [2/2]

```
void AMASPJava.AMASPSerialSlave.sendResponse (
            int deviceID,
            String message,
            int msgLength )
```

Send a SRP (Slave Response Packet) to a master computer.

Parameters

deviceID	Id of the slave device who answered.
message	The response message (string format) to be send.
msgLength	The message length.

The documentation for this class was generated from the following file:

- C:/Users/aldelai/Documents/Repositorio/amaspjavalib/AMASPJava/src/AMASPJava/AMASPSerialSlave.↩ java

4.4 AMASPJava.AMASPSerial.ErrorCheckType Enum Reference

Public Member Functions

- **ErrorCheckType** (int echeckValue)
- int **getValue** ()

Static Public Member Functions

- static ErrorCheckType **fromValue** (int value)

Public Attributes

- **None** =(0)
- **XOR8** =(1)
- **checksum16** =(2)
- **LRC16** =(3)
- **fletcher16** =(4)
- **CRC16** =(5)

4.4.1 Detailed Description

Enumeration to the error checking algorithms available in AMASP. None(0), XOR8(1), checksum16(2), LRC16(3), fletcher16(4), CRC16(5).

The documentation for this enum was generated from the following file:

- C:/Users/aldelai/Documents/Repositorio/amaspjavalib/AMASPJava/src/AMASPJava/AMASPSerial.java

4.5 AMASPJava.AMASPSerial.PacketData Class Reference

Public Member Functions

- PacketType getType ()
- int getDeviceId ()
- byte [ ] getMessage ()
- ErrorCheckType getErrorCheckType ()
- int getCodeLength ()

4.5.1 Detailed Description

Store the data and metadata of the packet.

4.5.2 Member Function Documentation

4.5.2.1 getCodeLength()

```
int AMASPJava.AMASPSerial.PacketData.getCodeLength ( )
```

Returns

the codeLength

4.5.2.2 getDeviceId()

```
int AMASPJava.AMASPSerial.PacketData.getDeviceId ( )
```

Returns

the deviceId

4.5.2.3 getErrorCheckType()

```
ErrorCheckType AMASPJava.AMASPSerial.PacketData.getErrorCheckType ( )
```

Returns

the errorCheckType

4.5.2.4 getMessage()

```
byte [] AMASPJava.AMASPSerial.PacketData.getMessage ( )
```

Returns

the message

4.5.2.5 getType()

```
PacketType AMASPJava.AMASPSerial.PacketData.getType ( )
```

Returns

the type

The documentation for this class was generated from the following file:

- C:/Users/aldelai/Documents/Repositorio/amaspjavalib/AMASPJava/src/AMASPJava/AMASPSerial.java

4.6 AMASPJava.AMASPSerial.PacketType Enum Reference

Public Member Functions

- **PacketType** (int typeValue)
- int **getValue** ()

Public Attributes

- **MRP** =(0)
- **SRP** =(1)
- **SIP** =(2)
- **CEP** =(3)
- **Timeout** =(4)

4.6.1 Detailed Description

Enumeration to the packet types available in AMASP and the Timeout condition. MRP(0), SRP(1), SIP(2), CEP(3), Timeout(4).

The documentation for this enum was generated from the following file:

- C:/Users/aldelai/Documents/Repositorio/amaspjavalib/AMASPJava/src/AMASPJava/AMASPSerial.java

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