



jASN1 User Guide

Fraunhofer Institute for Solar Energy Systems ISE

openmuc.org

Table of Contents

1. Intro	1
2. Distribution	1
2.1. Dependencies	1
3. How to use jASN1	1
3.1. ASN1 syntax:	1
4. Modifying and Compiling jASN1	2
5. Authors	2

1. Intro

jASN1 can be used for ASN.1 BER/DER encoding/decoding using Java. It consists of two projects: `jasn1-compiler` (licensed under GPLv3) and the `jasn1` library (licensed under LGPLv2.1). The `jasn1-compiler` is an application that creates Java classes from ASN.1 syntax. These generated classes can then be used together with the `jasn1` library to efficiently encode and decode messages using the Basic Encoding Rules (BER).

The software has been tested under Linux, Android and Windows.

For the latest release of this software visit <http://www.openmuc.org> .

2. Distribution

After extracting the distribution tar file the jASN1 libraries can be found in the directory *build/libs-all*. For license information check the *license* directory in the distribution. Run scripts to run the ASN.1 compiler are found in the folder *run-scripts*.

2.1. Dependencies

Besides the jASN1 libraries the folder *build/libs-all/* contains the following external library:

ANTLR

ANTLR, License: The BSD License, <http://www.antlr.org> Copyright (c) 2012 Terence Parr and Sam Harwell
All rights reserved.

The `jasn1-compiler` uses ANTLR to parse the ASN.1 definitions. The excellent grammar to generate the ANTLR parser was taken from the BinaryNotes ASN.1 Framework (<http://bnotes.sourceforge.net/> licensed under the Apache 2.0 license). Copyright 2006-2011 Abdulla Abdurakhmanov (abdulla@latestbit.com)

3. How to use jASN1

In a first step you have to compile the ASN.1 code of your choice to Java classes. To run the compiler you can use the run scripts for Linux and Windows found in the *run-scripts* folder. Executing the scripts without any parameters will print help information to the screen.

The generated classes can then be used to easily encode and decode BER encoded data. The encoded data will confirm to the DER syntax. For an example on how to use the generated classes see the folder *projects/jasn1-compiler/src/sample/java/org/openmuc/jasn1/sample/*.

3.1. ASN1 syntax:

In some cases it could be favorable not to decode elements of type ANY because it would involve big array copying. Therefor the compiler supports the alternative element type called `ANY_NODECODE` which can be used inside the

ASN.1 file in order to generate Java code that will not decode nor encode elements of these types.

4. Modifying and Compiling jASN1

We use the Gradle build automation tool. The distribution contains a fully functional gradle build file (*build.gradle*). Thus if you changed code and want to rebuild a library you can do it easily with Gradle. Also if you want to import our software into Eclipse you can easily create Eclipse project files using Gradle. Just follow the instructions on our [FAQ](#) site.

5. Authors

- Stefan Feuerhahn