ITU-T
The leader on ASN.1 Standards

ASN.1 and its Encoding Rules

X.680, Basic Notation

X.681, Information objects

X.682, Constraint Notation

X.683, Parameterization

X.690, Basic Encoding Rules (BER), Canonical Encoding Rules (CER), and Dis-tinguished Encoding Rules (DER)

X.691, Packed Encoding Rules (PER)

Latest

X.692, Encoding Control Notation (ECN)

X.693, XML Encoding Rules (XER)

For more information on ASN.1:

Study Group 17
http://www.itu.int/itu-t/asn1

Module Database
http://www.itu.int/itu-t/asn1/database/

OID
http://asn1.elibel.tm.fr/oid/

ASN.1 Consortium
http://www.asn1.org

ASN.1 means

- A revolution of new possibilities
  - VoIP (Voice over Internet Protocol)
  - 3GPP (UMTS)
  - RFID (Radio Frequency Identification)
  - Secure emails
  - Network Security
  - Biometrics
  - ITS (Smart Highway)
- Seamless information transfer in any format (audio, data, video, XML markup, text, etc.) regardless of programming language, data structure, OS, or target platform characteristics.

ASN.1 Adoption Forecast

ASN.1 is being increasingly used outside of telecommunication industry in such areas as Security, Transportation, Banking, Genetic Research and many others.

Logistics:
FedEx, FAA, ICAO, etc.

Manufacturing:
Ford, Mercedes Benz, Mitsubishi, etc.

Information Network:
Microsoft, Cisco, Intel, IBM, HP, Compaq, Sun, etc.

Financial Services:
American Express, GTE, MasterCard, Visa, etc.

Telecommunication:
AT&T, MCI, Motorola, Nokia, Sprint, France Telecom, etc.

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International Telecommunication Union

ASN.1

Abstract Syntax Notation One

Your Interoperability Solution

The Power of International Standards

ASN.1 - Compact, Efficient,Reliable Information Transfer

Extensibility:
Interworking between deployed systems: older and newer, updated versions designed years apart

Reliability:
From embedded systems to enterprise systems, ASN.1 has been implemented with success

Scalability:
Infinitely scalable from prototype to mission critical deployment

Interoperability:
Platform and language independent. Tools on almost all operating systems support ASN.1

ASN.1
Human Friendly Schema Language

Simplicity:
Easy to learn, easy to use.

Efficiency:
ASN.1 supports multiple encoding rules that can transmit the messages in text formats such as XML or in compact binary formats which can be 1/100th the size of XML

Modularity:
Makes possible using one standard as the building blocks of another standard

Readability:
XER allows data display in human readable format in the browser of your choice

Flexibility:
In use since 1984 and continues to evolve to meet current and future industry needs

ASN.1 is a notation (unique in the world, currently) that allows the definition, in a language and platform and encoding independent manner, of the content of messages that are exchanged between computers. ASN.1 describes such a definition as an «abstract syntax for the communication».

It can be contrasted to the concept in ABNF of «valid syntax», or in XSD of a «valid document», where the focus is entirely on what are valid encodings of data, without concern with any meaning that might be attached to such encodings. That is, without any of the necessary semantic linkages.

An ASN.1 definition can be readily mapped (by a pre-run-time processor) into a C or C++ or Java data-stricture that can be used by applicationcode, and supported by run-time libraries providing encoding and decoding of representations in either an XML or a TLV format, or a very compact packed encoding format.

ASN.1 is widely used in industry sectors where efficient (low-bandwidth, low-transaction-cost) computer communitcations are needed, but is also being used in sectors where XML-encoded data is required (for example, transfer of biometric information).

ITU-T Study Group 17 is responsible for studies related to data communication. For more detailed information, see http://www.itu.int/ITUT/studygroups/com17.