



August 2002

NTCIP 2304 (Draft) National Transportation Communications for ITS Protocol (NTCIP) – Application Profile for Data Exchange ASN.1 (DATEX – ASN)

Overview

The National Transportation Communications for Intelligent Transportation System (ITS) Protocol (NTCIP) is a family of standards that provides both the rules for communicating (called protocols) and the vocabulary (called objects) necessary to allow electronic traffic control equipment from different manufacturers to operate with each other as a system. The NTCIP is the first set of standards for the transportation industry that allows traffic control systems to be built using a “mix and match” approach with equipment from different manufacturers. Therefore, NTCIP standards reduce the need for reliance on specific equipment vendors and customized one-of-a-kind software. To assure both manufacturer and user community support, NTCIP is a joint product of the National Electronics Manufacturers Association (NEMA), the American Association of State Highway and Transportation Officials (AASHTO), and the Institute of Transportation Engineers (ITE).

Human communications—the exchange of ideas and information—relies on rules of etiquette to enable the members of a conversation group to communicate in an orderly manner. Computer communication—the exchange of data and information—relies on a similar set of rules called “protocols” that allow computers to exchange information. Just as different rules of etiquette apply to small and large groups and differing communications media, NTCIP establishes sets of differing protocols (called profiles) suited to specific networked and non-networked communications needs.

What is this standard for?

This standard, **NTCIP 2304 – Application Profile for Data Exchange ASN.1 (DATEX-ASN)**, is one of two center-to-center protocols defined by the NTCIP, the other being NTCIP 2305, Common Object Request Broker Architecture (CORBA). This standard specifies how DATEX-ASN is to be used within the United States. DATEX-ASN is also an international standard (ISO 14827 Parts 1 and 2) developed by the NTCIP Center-to-Center Working Group in cooperation with the International Organization for Standardization (ISO). The main DATEX-ASN specification permits various options; this standard ensures all implementations of DATEX-ASN within the United States use the same base options and therefore can be made to interoperate. If different traffic or transit management centers were to select different options, it could lead to a failure to interoperate, even though both use DATEX-ASN.

Who uses it?

This standard is used by planners and deployers of center-to-center communications using DATEX-ASN. It is particularly useful for those responsible for preparing specifications or requirements for center-to-center communications. Those responsible for supplying DATEX-ASN based software in the United States may also refer to this document for base requirements.

How is it used?

Users refer to this standard, **NTCIP 2304 – Application Profile for Data Exchange ASN.1 (DATEX-ASN)**, to determine which DATEX-ASN options are appropriate for their applications. Of particular importance are the requirements for use of octet encoding rules (OER) for message encoding. The document also provides a “profile requirements list,” which is a

The NTCIP family of standards is a joint project of the following standards development organizations:

American Association of State Highway and Transportation Officials (AASHTO)

Institute of Transportation Engineers (ITE)

National Electrical Manufacturers Association (NEMA)

(Contact information is shown at the end of this fact sheet)

Expected Publication Date: April 2003
For current information on the status of this standard, check the Web site at the bottom of this page.

checklist that can be used to choose between the various secondary options allowed by DATEX-ASN. The format of this checklist enables the user to see the interdependencies between options so that compatible options can be chosen.

Scope

This standard serves primarily as a pointer to detailed requirements in the ISO 14827 protocol standard. In addition to introductory material, it contains information on conformance and a profile requirements list.

Related documents

A detailed list of related documents is available on the [NTCIP 9001 – NTCIP Guide](#) fact sheet. (The NTCIP Guide is also available on-line at www.ntcip.org). Additional DATEX information is available in the following documents:

ISO 14827-1 – Transport Information and Control Systems—Data Exchanges Between Traffic Management and Information Centres, Part 1: Message Definition Requirements

ISO 14827-2 – Transport Information and Control Systems—Data Exchanges Between Traffic Management and Information Centre, Part 2: DATEX-ASN

ISO 8825 – Part 1, Information Technology—Open Systems Interconnection, Specification of Basic Encoding Rules for Abstract Syntax Notation One (BER)

[NTCIP 1102 – Octet Encoding Rules](#)

ISO/IEC 3309 – Information Technology, Telecommunications and Information Exchange Between Systems—High-level Data Link Control (HDLC) Procedures, Frame Structure

**American Association of State
Highway and Transportation
Officials (AASHTO)**

444 N. Capitol Street, NW
Washington, DC 20001
Tel: (202) 624-5800 Fax: (202) 624-5806
Web site: www.aashto.org

**Institute of Transportation Engineers
(ITE)**

1099 14th Street NW Suite 300 West
Washington, DC 20005
Tel: (202) 289-0222 x 131
Fax: (202) 289-7722
Web site: www.ite.org

**National Electrical Manufacturers
Association (NEMA)**

1300 North 17th Street
Arlington, VA 22209
Tel: (703) 841-3200 Fax: (703) 841-3300
Web site: www.nema.org