NTCIP 2306 v01

National Transportation Communications for ITS Protocol

Application Profile for XML Message Encoding and Transport in ITS Center-to-Center Communications

A Joint Standard of AASHTO, ITE, and NEMA

version 01.69

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Application Profile for XML Message Encoding and Transport in ITS Center-to-Center Communications

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When NTCIP 2306 v01 was prepared, the following individuals were members of the NTCIP C2C WG:

- Michael Brown
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- Tom Passin
- Raman Patel
- Robert Rausch

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- Advanced Traffic Management Data Dictionary and External Message Sets for Traffic Management Center Communications (an ITE / AASHTO joint standard)
- Transit Communications Interface Profile (a standard of APTA)
- SAE-J2354, Message Sets for Advanced Traveler Information Systems (a standard of SAE)
- IEEE-1512, Standard for Common Incident Management Message Sets for Use by Emergency Management Centers (a standard of IEEE)

FOREWORD

NTCIP 2306 v01, an NTCIP standards publication, defines an application profile for communications between transportation management systems, using Internet standards based on the Extensible Markup Language (XML). NTCIP 2306 v01 defines requirements and optional and conditional clauses that are applicable to specific environments for which they are intended. NTCIP 2306 v01 uses only metric units.

NTCIP 2306 v01 is also an NTCIP Application Profile. An NTCIP Application Profile defines the upper three layers of the ISO seven-layer Open Systems Interconnect (OSI) Reference Model. For more information about NTCIP standards, visit the NTCIP website at www.ntcip.org.

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Approvals

This standards publication was separately balloted and approved by AASHTO, ITE, and NEMA after recommendation by the Joint Committee on the NTCIP. Each organization has approved this standard as the following standard type, as of the date:

AASHTO—Standard Specification; March 2008
ITE—Software Standard; March 2008
NEMA—Standard; June 2007

History

In 1992, the NEMA 3-TS Transportation Management Systems and Associated Control Devices Section began the effort to develop the NTCIP. The Transportation Section's purpose was to respond to user needs to include standardized systems communication in the NEMA TS 2 standard, *Traffic Controller Assemblies*. Under the guidance of the Federal Highway Administration's (FHWA's) NTCIP Steering Group, the NEMA effort was expanded to include the development of communications standards for all transportation field devices that could be used in an Intelligent Transportation Systems (ITS) network, and to C2C communications.

In 1996, an agreement was executed among AASHTO, ITE, and NEMA to jointly develop, approve, and maintain the NTCIP standards. In July 1996, the NTCIP Center-to-Center Working Group met for the first time, and began the effort to standardize C2C protocols. The working group first defined the DATEX-ASN and CORBA standards for center-to-center communications. In 2003, work began on a third C2C protocol based on web services and the Extensible Markup Language (XML).

The development of NTCIP 2306 v01 started in 2002 under funding provided by FHWA.

NTCIP 2306 v01.51. March 2005—Accepted as a User Comment Draft by the Joint Committee on the NTCIP. March 2005—NTCIP Standards Bulletin B0101 distributed for user comment.

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NTCIP 2306 v01.69. March 2008 to December 2008—Prepared standard for publication; edited format, front matter, and style.

Compatibility of Versions

To distinguish NTCIP 2306 v01 (as published) from previous drafts, NTCIP 2306 v01 also includes NTCIP 2306 v01.69 on each page header. All NTCIP Standards Publications have a major and minor version number for configuration management. The version number syntax is "v00.00a," with the major version number before the period, and the minor version number and edition letter (if any) after the period.

NTCIP 2306 v01 is designated, and should be cited as, NTCIP 2306 v01. Anyone using NTCIP 2306 v01 should seek information about the version number that is of interest to them in any given circumstance. The MIB, the PRL, and the PICS should all reference the version number of the standards publication that was the source of the excerpted material.

Compliant systems based on later, or higher, version numbers MAY NOT be compatible with compliant systems based on earlier, or lower, version numbers. Anyone using NTCIP 2306 v01 should seek information about the version number that is of interest to them in any given circumstance.

INTRODUCTION

NTCIP 2306 v01 represents the first of two identified phases for the development of an XML communications standard for C2C communications in the transportation domain (real-time management of public roads and transit systems).

The purpose of NTCIP 2306 v01 is to allow transportation agencies and center managers to specify and implement communications interfaces (message form, message usage, and transport) for transmitting information encoded in the Extensible Markup Language (XML) between their center and an external center. Message content is defined in other standards, such as: *Advanced Traffic Management Data Dictionary and External Message Sets for Traffic Management Center Communications* (an ITE/AASHTO joint standard); *Transit Communications Interface Profile* (a standard of APTA); *Message Sets for Advanced Traveler Information Systems* (SAE-J2354, a standard of the Society of Automotive Engineers); IEEE-1512, *Standard for Common Incident Management Message Sets for Use by Emergency Management Centers* (a standard of IEEE); and other standards defining XML messages content in the transportation domain.

A number of projects have begun to design and/or implement XML as part of their C2C communications efforts. NTCIP 2306 v01 provides projects with a reasonably complete standard with which to specify XML message usage and transport, and to provide a basis for testing of center system interfaces that communicate with external centers.

NTCIP 2306 v01 defines requirements that are applicable to all environments using NTCIP XML for C2C communications, and NTCIP 2306 v01 contains optional and conditional clauses that are applicable only to specific environments for which they are intended.

The following keywords apply to this document: AASHTO, ITE, NEMA, NTCIP, XML, WSDL, SOAP, C2C, data, message, center-to-center.

CONTENTS

Page

FIGURES

TABLES

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Section 1
GENERAL

1.1 SCOPE

NTCIP 2306 v01 is applicable to communications between any two management subsystems, also called centers, within the Intelligent Transportation Systems (ITS) environment.

This application profile lists the requirements for use of XML and related protocols for data exchange among ITS management systems.