

NTCIP 2301 v02

National Transportation
Communications for ITS Protocol

Simple Transportation Management
Framework (STMF) Application
Profile (AP) (AP-STMF)

A Joint Standard of AASHTO, ITE, and NEMA

version 02.19

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- Washington State DOT

FOREWORD

NTCIP 2301 v02, an NTCIP standards publication, defines an application profile (AP) that is a combination of standards intended to meet specific requirements for information management and information transfers to and from transportation devices in a networked environment. As an NTCIP application profile, the scope covers the application, presentation, and session layers of the OSI Basic Reference Model. NTCIP 2301 v02 contains mandatory requirements that are applicable to all devices claiming conformance to NTCIP 2301 v02. NTCIP 2301 v02 also contains optional and conditional requirements, which may be applicable to a specific environment in which a device is used. NTCIP 2301 v02 uses only metric units.

Annex A includes mandatory requirements that are defined as normative.

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Section, Paragraph, or Clause:
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Approvals

NTCIP 2301 v02 was separately balloted and approved by AASHTO, ITE, and NEMA after recommendation by the Joint Committee on the NTCIP. Each organization has approved NTCIP 2301 v02 as the following standard type, as of the date:

AASHTO—Standard Specification, May 2010
ITE—Software Standard, June 2010
NEMA—Standard, November 2009

History

From 1998 to 1999, a predecessor of NTCIP 2301 v02 was referenced as TS 3.AP-STMF. However, as part of an organized numbering scheme for NTCIP standards publications, the designation NTCIP 2301 v02 was developed. The technical specifications of NTCIP 2301 v02 are identical to the former reference, except as noted in the development history:

TS 3.AP-STMF v98.01.07. August 1998—Accepted as a User Comment Draft by the Joint Committee on the NTCIP. October 1998—NTCIP Standards Bulletin B0025 referred version 98.01.08 for comment.

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NTCIP 2301 v02.19, July 2010—From June to July 2010, NTCIP v02.19 was edited and prepared for publication.

Compatibility of Versions

To distinguish NTCIP 2301 v02 (as published) from previous drafts, NTCIP 2301 v02 also includes NTCIP 2301 v02.19 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 2301 v02 is designated, and should be cited as, NTCIP 2301 v02. Anyone using NTCIP 2301 v02 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 2103 v02 should also consult NTCIP 8004 v02 for specific guidelines on compatibility.

INTRODUCTION

NTCIP is one part of the Intelligent Transportation Systems standardization activities covering base standards, profiles, and registration mechanisms.

Base Standards define procedures and rules for providing the fundamental operations associated with communications and information that is exchanged over fixed-point communications links.

Profiles define subsets or combinations of base standards used to provide specific functions or services. Profiles prescribe particular subsets or options available in base standards necessary for accomplishing a particular function or service. This provides a basis for the development of uniform, nationally recognized conformance.

Registration Mechanisms provide a means to specify and uniquely identify detailed parameters within the framework of base standards and/or profiles.

BSP2WG is concerned with the methodology of defining profiles, and their documentation in Standards Publications. NTCIP 2301 v02 defines an application profile that is a combination of base standards intended to meet the requirements for the management of information related to the communications layers. NTCIP 2301 v02 may also be applicable to end-application information management. The objective is to facilitate the specification of ITS systems characterized by a high degree of interoperability and interchangeability of its components.

In 1992, the NEMA 3-TS Transportation Management Systems and Associated Control Devices Section began the effort to develop the NTCIP. Under the guidance of the Federal Highway Administration'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 ITS network.

In September 1996, an agreement was executed among AASHTO, ITE, and NEMA to jointly develop, approve, and maintain the NTCIP standards. In August 1997, the Joint Committee on the NTCIP formed a new working group to develop a method for organizing class profiles. The Profiles WG (now incorporated with the Base Standards and Profile 2 Working Group) first met in September 1997.

After research into how national and international standards organizations combine protocols and standards to address all seven layers of the ISO-OSI Basic Reference Model, the committee adopted the approach defined in the *NTCIP Profile Framework*. Following that approach, a protocol stack is specified by application, transport, and subnetwork profiles. An application profile addresses the application, presentation, and session layers. A transport profile addresses the transport and network layers. A subnetwork profile addresses the data link and physical layers. NTCIP 2301 v02 is an application profile for use in center-to-roadside and center-to-center communications.

In December 2001, developing NTCIP 2301 v02 was started to include changes made in the underlying standards and, specifically, to incorporate SFMP.

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Section 1 GENERAL

1.1 SCOPE

NTCIP 2301 v02 (this application profile (AP)) is applicable to transportation devices and management systems that operate in Intelligent Transportation Systems (ITS). As an AP, NTCIP 2301 v02 specifies a set of protocols and standards applicable to the application, presentation, and session layers of the OSI Basic Reference Model. NTCIP 2301 v02 is intended to provide message authentication, information management, and data representation services for devices and management stations.