

NTCIP 1201 v03

National Transportation Communications for ITS Protocol

Global Object (GO) Definitions

A Joint Standard of AASHTO, ITE, and NEMA

version 03.15

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- TransCore
- Trevilon
- Washington State DOT

FOREWORD

NTCIP 1201 v03 identifies and defines the common object definitions that may be supported by transportation devices that are NTCIP-conformant.

NTCIP 1201 v03 is an NTCIP Data Dictionary Standard. NTCIP Data Dictionary Standards provide definitions of data elements for use within NTCIP systems. NTCIP Data Dictionary Standards are approved by AASHTO, ITE, and NEMA, after recommendation by the NTCIP Joint Committee. The data is defined using the Simple Network Management Protocol (SNMP) object-type format as defined in RFC 1212 and NTCIP 8004 v02 format. This data is typically exchanged using one of the NTCIP 1103 recognized Application Layers (e.g., SNMP).

The following keywords apply to this document: AASHTO, ITE, NEMA, NTCIP, global, data, data dictionary, object.

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Approvals

NTCIP 1201 v03 was separately balloted and approved by AASHTO, ITE, and NEMA after recommendation by the Joint Committee on the NTCIP. Each organization has approved NTCIP 1201 v03 as the following standard type, as of the date:

AASHTO—Standard Specification; December 2010
ITE—Software Standard; December 2010
NEMA—Standard; August 2010

History

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 late 1998, the Global Object Working Group was tasked with updating the Global Object Definitions standard. The first meeting of the GO WG was held in January 1999. In March 2005, the Joint Committee voted to merge the Global Object Working Group with the Base Standards and Protocols Working Group.

From 1996 to 1999, a predecessor of NTCIP 1201 v03 was referenced as NEMA TS 3.4. However, to provide an organized numbering scheme for the NTCIP documents, the reference changed to a predecessor of NTCIP 1201 v03. The technical specifications of NTCIP 1201 v03 evolved as noted:

NEMA TS 3.4-1996 v96.01.7, April 7, 1997. October 1996—Version 1.5 approved by NEMA. April 1997—Version 1.7 published by NEMA with editorial corrections. October 1996—Accepted as a Recommended Standard by the Joint Committee on the NTCIP. Approved by AASHTO in 1997 and approved by ITE in December 1997.

NEMA TS 3.4 Amendment 1 v98.01.07. October 1998—Version 98.01.05 accepted as a Recommended Amendment by the Joint Committee on the NTCIP, and edited v01.07 referred for balloting and approval by NTCIP Standards Bulletin B0032 in May 1999. Approved by AASHTO in October 1999, approved by ITE in January 2001, and approved by NEMA in December 1999. Amendment 1 clarified ambiguities discovered during real-world implementations of this standard.

NTCIP 1201:1996 [assigned version 01.08]. August 1999—Assigned NTCIP 1201 document number in NTCIP Standards Bulletin B0038. August 2000—Joint NTCIP Standards Publication cover used over TS 3.4 contents.

NTCIP 1201:1996 v01.10, December 2001. January 2002—Formatted for printing: incorporated Amendment 1 v07 into the text; updated title page date and version number; modified and reorganized front matter to conform to NTCIP 8002. Most references to TS 3 standard designations were changed to equivalent NTCIP standard numbers.

NTCIP 1201 v02. December 2002—Developed to reflect additional lessons learned, to incorporate better documentation (in the Annex) of some of the logic required to implement the standards, and to add new features requested by the ITS community.

NTCIP 1201 v02.14. September 2001—Accepted by the NTCIP Joint Committee as a User Comment Draft. February 2002—NTCIP Standards Bulletin B0071 distributed NTCIP 1201 v02.16 for review and comment.

NTCIP 1201 v02.24. October 2002—Accepted by the NTCIP Joint Committee as a Recommended Standard. April 2004—NTCIP Standards Bulletin B0092 referred NTCIP 1201 v02.26 for balloting. Approved by AASHTO in October 2004, approved by ITE in March 2005, and approved by NEMA in November 2004.

NTCIP 1201 v02.31. February 2005—Disposed of ballot comments on backward compatibility, object deprecation, and others. In Section 1.3 Terms, added Deprecated and Obsolete definitions.

NTCIP 1201:2005 v02.32. October 2005—Edited document for publication with modified and reorganized front matter.

NTCIP 1201 v02.41+ Amendment 2 v09, November 2006 / NEVER PUBLISHED (see next history item), but items below were integrated into 1201 v03.03. Modified globalDaylightSaving with additional information regarding 'other' and added a set of begin and end daylight saving time (DST) objects to reflect changes enacted by U.S. Congress (Energy Policy Act of 2005) to take effect in 2007. Revised names of AuxIO objects that appeared in v02.31 and added the AuxIO object that appeared in NTCIP 1203 but is now listed as deprecated in 1203. Moved the object definitions previously defined under the globalReport node to NTCIP 1103. Amendment 2 v10. Included these additional changes:

- a) In NTCIP 1201 v02.32, the ACCESS of auxIOPort Direction and auxIO2PortDirection should have been listed as read-only as this was incorrect in NTCIP 1203 v01.15.
- b) In NTCIP 1201 v02.32, it was agreed the SYNTAX of auxIO2PortDescription should be changed from SIZE (0..50) to (0..255).
- c) In NTCIP 1201 v02.32, it was agreed the SYNTAX of auxIO2PortResolution should be changed from SIZE (1..255) to (1..32).
- d) In NTCIP 1201 v02.32, the maxAuxIO2TableNumDigitalPorts and maxAuxIO2TableNumDigitalPorts should not have been changed for 0..255 to 1..255 as this was what was shown in NTCIP 1203v01.15.
- e) In NTCIP 1201 v02.32, the node registration of the new AuxIO objects shown in the ISO figure should have been {global 7}.

NTCIP 1201 v03.03 November 2007—The Joint Committee accepted v03.03 as a User Comment Draft, after the Joint Committee withdrew acceptance of Amendment 2 v10 because of ballot comments on the daylight saving time mechanisms. The WG proposed major version v03 with updated DST mechanisms, and with additional changes, and for easier version tracking. Major version v03 includes:

- a) Revised the DST mechanism by replacing the previously proposed DST objects with new objects.
- b) Added the SNMP interface dialogs from NTCIP 1203v02 to become the generic standard for all NTCIP device standards.
- c) Deferred the addition of externally-developed test procedures to a future major version.

NTCIP 1201 v03.05 February 2008—Disposed of user comments. Main issues were associated with the new DST table.

NTCIP 1201 v03.08 April 2008—The NTCIP Joint Committee accepted v03.08 as the Recommended Standard. However, starting as early as the June 2006 BSP2 WG meeting, the WG proposed submitting a revised v03.08+ DST solution to the NTCIP Joint Committee as the Recommended Standard. Finally, during October to December 2009 teleconferences, the BSP2 WG resolved issues reported from deployment experience, and agreed on a revised approach to DST.

NTCIP 1201 v03.09e December 2009—Revised to address a DST compatibility issue with other standards. The original change deprecated the globalDaylightSaving object, which did not account for other standards that use this object to indicate whether DST was enabled.

NTCIP 1201 v03.10 March 2010—The NTCIP Joint Committee authorized their ballot action to accept the proposed replacement Recommended Standard, to include substantive revisions to reflect a revised approach to DST start and end dates, primarily in Section 2.4.2 and subsections. Other revisions, both related to DST and to other topics, addressed other issues. Annex B became Annex C, and Annex C became Annex B.

NTCIP 1201 v03.15 March 2011—In May 2010, version v03.13 was accepted as a replacement Recommended Standard. Standards Bulletin B0136 sent v03.13a to the SDOs for ballot and approval. After the December 2010 Joint Approval, NTCIP 1201 v03.15 was edited for publication.

Compatibility of Versions

To distinguish NTCIP 1201 v03 (as published) from previous drafts, NTCIP 1201 v03 also includes NTCIP 1201 v03.15 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 1201 v03 is designated, and should be cited as, NTCIP 1201 v03. Anyone using NTCIP 1201 v03 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 1201 v03 should also consult NTCIP 8004 v02 for specific guidelines on compatibility.

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Section 1 GENERAL

1.1 SCOPE

The messaging between the Transportation Management Center and field devices is accomplished by using the NTCIP Application Layer services to convey requests to access or modify values stored in a given device; these values are referred to as objects. NTCIP 1201 v03 identifies and defines object definitions that may be supported by multiple device types (e.g., actuated signal controllers and dynamic message signs). In the NTCIP family of standards, objects for a given device type are grouped in a device-type-specific data dictionary standard.