The following Standard Development Report (SDR) is made in accordance with the Institute of Transportation Engineers (ITE) procedures for the Advanced Transportation Controller Application Programming Interface Standard.
1 LATEST VERSION OF THE DRAFT PROPOSED STANDARD

Appendix I contains User Comment Draft (UCD) ATC API Standard Version 02.12, Application Programming Interface (API) Standard for the Advanced Transportation Controller (ATC) (also known as API Standard v02.12 or API Standard V2). The previously approved version of this standard was API Standard v02.06b (considered Version 1).

2 SUMMARY STATUS

As part of the API Standard Version 2 Project, API Standard v02.12 is being distributed to the members of ITE and other standard development organizations (SDOs) for review. Comments from potential users of the standard are solicited. The standard is complete with user needs, software requirements and a detailed specification of the interface. Following this comment period, the comments received will be adjudicated by the API Working Group (WG), the API Standard will be updated accordingly, and the standard will be moved through the Recommended and Approved stages of the standards development process to Publication.

3 STATUS REPORT

In developing the previous approved standard, API Standard v02.02, it was apparent that a uniform interface to set, manage and view system-wide parameters was needed for ATC controller units. At that time, such an effort was considered out of scope for the API project. The API Standard Version 2 Project completes this task identifying the user needs, establishing the requirements and defining the design content for an ATC configuration interface.

The Version 2 standard defines five configuration utility applications and a Configuration Menu in which to select them. The Configuration Menu is extensible so that utility programs can be developed in the future and added in a manner consistent with the API standard. Five configuration utility applications that are to be included with each API implementation are defined: "System Time," "Ethernet Configuration," "Enable/Disable System Services," "Linux/API Information" and "Host EEPROM Information."

On April 8, 2010, the API WG submitted API Standard v02.12 to the ATC JC for review as a proposed UCD standard. The ATC JC approved the document for distribution following their teleconference on April 22, 2010 via electronic ballot (11 yeas, no nays, and no abstentions).

4 COMMENTS LISTING

Comments are being solicited at this time.

5 COMMITTEE OBJECTIVES

The objectives of the API WG are to define software facilities and a programmatic interface that, when combined with the operating system (O/S) defined in the ATC Controller Standard, forms a universal interface for application programs designed to run on ATC controllers. This interface allows application programs to be written so that they may run on any ATC controller unit regardless of the manufacturer. It also defines a software environment that allows multiple application programs to be interoperable on a single controller unit by sharing the fixed resources of the controller. The sharable fixed resources managed by the API software include the controller’s front panel and field input/output (I/O) devices.
6 COMMITTEE MEMBERS

This standard has been developed under the oversight of the ATC Joint Committee (JC) which is made up of representatives from the American Association of State Highway and Transportation Officials (AASHTO), the Institute of Transportation Engineers (ITE), and the National Electrical Manufacturers Association (NEMA). The work in developing this standard was performed by the ATC API Working Group (WG), a technical subcommittee of the ATC JC.

ATC API Working Group

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Ed Seymour, Texas Transportation Institute
Mohamed Talas, New York City Department of Transportation
Douglas Tarico, McCain
John Thai, City of Anaheim
John Wyatt, Intelligent Devices

7 OTHER MATERIAL OF INTEREST

The documents listed below are consistent with those listed within the API Standard. Newer versions with minor revisions may be available.
ATC Controller Standard Revision v5.2b, ATC JC, 26 June 2006. Available from the Institute of Transportation Engineers.

ATC Standard for the Type 2070 Controller v01.05, ATC JC, 29 March 2001. Available from the Institute of Transportation Engineers.

GNU Coding Standards, 8 May 2006. Available from Free Software Foundation, Inc.


NEMA Standards Publication TS 2-2003 v02.06 Traffic Controller Assemblies with NTCIP Requirements. Available from the National Electrical Manufacturers Association.

8 DECLARATION REGARDING OTHER KNOWN NATIONAL AND INTERNATIONAL STANDARDS

This statement confirms that other known national and international standards have been examined with regard to harmonization and duplication of content, and no significant conflicts with another known standard have been identified.

9 ABSTRACT OF THE STANDARD

Purpose

The Advanced Transportation Controller (ATC) Standards are intended to provide an open architecture hardware and software platform that can support a wide variety of Intelligent Transportation Systems (ITS) applications including traffic management, safety, security and other applications. The ATC Standards are being developed under the direction of the ATC Joint Committee (JC) which is made up of representatives from the American Association of State Highway and Transportation Officials (AASHTO), the Institute of Transportation Engineers (ITE), and the National Electrical Manufacturers Association (NEMA).

This document defines a software interface for application programs intended to operate on ATC controller units. It has been prepared by the ATC Application Programming Interface (API) Working Group (WG), a technical subcommittee of the ATC JC. It establishes a common understanding of the user needs, requirements, and specification of the interface for:

a) The local, state, and federal transportation agencies who specify ATC equipment;
b) The software developers, consultants, and manufacturers who develop application programs for ATC equipment;
c) The public who benefits in the application programs that run on ATC equipment and directly or indirectly pays for these products.
Overview

The ATC Controller Standard defines a controller that can grow with technology. It is made up of a central processing unit (CPU), an operating system (O/S), memory, external and internal interfaces, and other associated hardware necessary to create an embedded transportation computing platform. The goal of the interface described in this standard is to define a software platform that, when combined with the ATC O/S, forms a universal interface for application programs. This interface allows application programs to be written so that they may run on any ATC controller unit regardless of the manufacturer. It also defines a software environment that allows multiple application programs to be interoperable on a single controller unit by sharing the fixed resources of the controller. The sharable fixed resources supported include the controller’s front panel and field input/output (I/O) devices. The API Standard specifies the interface. Software developed in compliance to the API Standard is known as the ATC Application Programming Interface (API). Figure 1 illustrates the layered architecture of the ATC software.

![ATC software layered organization](image)

**Figure 1.** ATC software layered organization.

Document Organization

This standard is made up of four sections, appendixes and an index. Section 1, “Introduction”, provides an overview of the entire document. Section 2, “Overall Description”, provides background information and the user needs for the requirements defined in the subsequent section. Section 3, “Specific Requirements”, defines the requirements that must satisfied by the ATC API. Section 4, “Application Programming Interface”, specifies the ATC API. Appendix A of the standard is a traceability matrix showing the relationship between the user needs, the software requirements and the functions of the ATC API.
APPENDIXES
Appendix I

UCD API Standard v02.12