
**Intelligent transport systems —
Roadside modules SNMP data
interface —**

**Part 7:
Support features**

*Systèmes de transport intelligents — Interface de données SNMP pour
les modules en bord de route —*

Partie 7: Service de support



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Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Conformance	2
5 User needs	4
5.1 Efficient exchange of data	4
5.1.1 Object group user need	4
6 Requirements	4
6.1 Local clock	4
6.1.1 Local clock definition	4
6.1.2 Local clock data exchange requirements	4
6.2 UTC clock	4
6.2.1 UTC clock definition	4
6.2.2 UTC clock data exchange requirements	4
6.2.3 UTC clock capabilities	5
6.3 Daylight saving time	6
6.3.1 Daylight saving time definition	6
6.3.2 Daylight saving time data exchange requirements	6
6.3.3 Daylight saving time capability requirements	7
6.4 Object group	7
6.4.1 Object group definition	7
6.4.2 Object group data exchange	7
6.4.3 Object group capabilities	8
6.5 SNMP target	9
6.5.1 Target definition	9
6.5.2 Target data exchange requirements	9
6.5.3 Target capabilities	9
6.6 SNMP target parameters	10
6.6.1 SNMP target parameters definition	10
6.6.2 SNMP target parameters data exchange requirements	10
7 Dialogues	11
7.1 Retrieve a complex object group	11
7.2 Set an object group value	11
7.3 Clear an object group list	12
8 Security vulnerabilities	12
Annex A (normative) Management information base (MIB)	13
Annex B (normative) Requirements traceability matrix (RTM)	37
Bibliography	43

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

A list of all parts in the ISO 20684 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

0.1 Background

The need for standardized communication with ITS field devices is growing around the world. Several countries have adopted Simple Network Management Protocol (SNMP) based field device communication standards.

There is a growing view and empirical evidence that standardizing this activity will result in improved ITS performance, reduced cost, reduced deployment time, and improved maintainability. The ISO 20684 series extends ISO 15784-2 by defining the management information necessary to monitor, configure and control features of field devices. The data elements defined in all parts of ISO 20684 series may be used with any protocol but were designed with an expectation that they would be used with one of the ISO 15784-2 protocols.

By using this approach, agencies can specify open procurements and systems can be expanded geographically in an open and non-proprietary manner, which reduces costs, speeds up deployment, and simplifies integration.

0.2 Overview

SNMP is a collection of well-thought-out and well-proven concepts and principles. SNMP employs the sound principles of abstraction and standardization. This has led to SNMP being widely accepted as the prime choice for communication between management systems and devices on the internet and other communications networks.

The original implementation of SNMP was used to manage network devices such as routers and switches. Since then, the use of SNMP has grown into many areas of application on the internet and has also been used successfully over various serial communications networks.

This document defines management information for ITS field devices following the SNMP conventions.

0.3 Document approach and layout

This document defines:

- a) the conformance requirements for this document ([Clause 4](#));
- b) a set of user needs for user-defined trigger conditions that can “fire” to initiate actions ([Clause 5](#));
- c) a set of detailed requirements for the identified user needs ([Clause 6](#));
- d) custom dialogues for the logging feature ([Clause 7](#));
- e) security considerations for the information defined in this document ([Clause 8](#));
- f) the management information bases that define the data for the defined requirements ([Annex A](#));
- g) the requirements traceability matrix (RTM) that traces the requirements to the design elements ([Annex B](#)).

Intelligent transport systems — Roadside modules SNMP data interface —

Part 7: Support features

1 Scope

Field devices are a key component in intelligent transport systems (ITS). Field devices include traffic signals, message signs, weather stations, traffic sensors, roadside equipment for connected ITS (C-ITS) environments, etc.

Field devices often need to exchange information with other external entities (managers). Field devices can be quite complex, necessitating the standardization of many data concepts for exchange. As such, the ISO 20684 series is divided several individual parts.

This document specifies user needs, requirements and design elements that are normatively used by other parts of the ISO 20684 series. Specifically, it defines an internal field device clock, a mechanism for grouping object values together to provide for more efficient transfer of data, and it provides formal requirements for the SNMP target and target parameters as defined in IETF RFC 3413.

NOTE 1 There are similarities between certain portions of NTCIP 1103 and NTCIP 1201 and this document.

NOTE 2 ISO 20684-1 provides additional details about how the ISO 20684 series relates to the overall ITS architecture.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 8825-1, *Information technology — ASN.1 encoding rules — Part 1: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)*

ISO/IEC 8825-7, *Information technology — ASN.1 encoding rules — Part 7: Specification of Octet Encoding Rules (OER)*

ISO 20684-1:2021, *Intelligent transport systems — Roadside modules SNMP data interface — Part 1: Overview*

IETF RFC 2578, *Structure of Management Information Version 2 (SMIv2)*, April 1999.

IETF RFC 2579, *Textual Conventions for SMIv2*, April 1999.

IETF RFC 2580, *Conformance Statements for SMIv2*, April 1999.

IETF RFC 3411, *An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks*, December 2002.

IETF RFC 3413, *Simple Network Management Protocol (SNMP) Applications*, December 2002.