

INTERNATIONAL STANDARD

**Information technology –
Automated infrastructure management (AIM) systems – Requirements, data
exchange and applications**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2016 ISO/IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about ISO/IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

INTERNATIONAL STANDARD

**Information technology –
Automated infrastructure management (AIM) systems – Requirements, data
exchange and applications**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 35.200

ISBN 978-2-8322-3665-9

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references.....	6
3 Terms, definitions and abbreviations	6
3.1 Terms and definitions	6
3.2 Abbreviations	9
4 Conformance.....	10
5 Automated infrastructure management (AIM) systems	10
5.1 Functional elements	10
5.2 System requirements.....	10
5.3 Functional requirements	10
5.3.1 Documentation and maintenance of information within AIM software	10
5.3.2 Management and usage of information within AIM software.....	11
5.3.3 Integrity of information within AIM software.....	11
5.4 Functional recommendations	12
6 AIM solutions: business benefits	12
6.1 General.....	12
6.2 Intrinsic benefits of stand-alone AIM systems.....	12
6.2.1 Accurate documentation.....	12
6.2.2 Asset management	12
6.2.3 Capacity management.....	13
6.2.4 Change management	13
6.2.5 Incident management.....	13
6.3 Extrinsic benefits of AIM when linked with other business information and network management systems.....	14
6.3.1 General	14
6.3.2 IT-related systems	14
6.3.3 Building management systems	16
6.3.4 Data centre infrastructure management (DCIM)	17
6.3.5 Configuration management database (CMDB) applications	18
7 AIM solutions: Data exchange framework	19
7.1 General.....	19
7.2 Data exchange format and protocols.....	19
7.3 Commands.....	19
7.4 Common data model definition	21
7.4.1 General	21
7.4.2 Element reference ID	21
7.4.3 Element and attribute definitions	21
7.4.4 Containment rules and hierarchy	27
Annex A (informative) Hierarchy and containment rules	28
Annex B (informative) Field descriptions.....	30
Annex C (normative) Implementation requirements and recommendations	31
C.1 General.....	31
C.2 Design	31

C.3	Specification	31
C.3.1	Business, operational and system requirements.....	31
C.3.2	Integration requirements for data exchange with other applications	32
C.3.3	System test plan	32
C.4	Installation	32
C.5	Operation.....	32
Annex D (informative)	Optional lower level data exchange framework	33
Bibliography	34
Figure 1	– Example of a helpdesk work flow integrated with an AIM system	15
Figure 2	–Relationship between AIM systems and CMDB applications	19
Figure A.1	– Spaces	28
Figure A.2	– Telecommunications equipment.....	28
Figure A.3	– Work orders	29
Table 1	– Work order management commands	20
Table 2	– Asset management.....	20
Table 3	– Alarms and events.....	20
Table 4	– Circuit tracing.....	20
Table 5	– Attribute key	21
Table 6	– Connectivity	22
Table 7	– Premises/space	22
Table 8	– Furniture	22
Table 9	–Telecommunications equipment	23
Table 10	– Organizational Element.....	25
Table 11	– Work Order.....	25
Table 12	– Work Order Task	26
Table 13	– Event	26
Table 14	– Alarm	26
Table B.1	– AIM software fields	30
Table D.1	– Port level	33
Table D.2	– Port level work actions	33

INFORMATION TECHNOLOGY –

Automated infrastructure management (AIM) systems – Requirements, data exchange and applications

FOREWORD

- 1) ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.
- 2) The formal decisions or agreements of IEC and ISO on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees and ISO member bodies.
- 3) IEC, ISO and ISO/IEC publications have the form of recommendations for international use and are accepted by IEC National Committees and ISO member bodies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC, ISO and ISO/IEC publications is accurate, IEC or ISO cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees and ISO member bodies undertake to apply IEC, ISO and ISO/IEC publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any ISO, IEC or ISO/IEC publication and the corresponding national or regional publication should be clearly indicated in the latter.
- 5) ISO and IEC do not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. ISO or IEC are not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or ISO or its directors, employees, servants or agents including individual experts and members of their technical committees and IEC National Committees or ISO member bodies for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication of, use of, or reliance upon, this ISO/IEC publication or any other IEC, ISO or ISO/IEC publications.
- 8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this ISO/IEC publication may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 18598 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

INTRODUCTION

This International Standard is intended for

- premises owners and facility managers,
- suppliers of AIM solutions,
- planners of network infrastructures,
- network operation managers,
- data centre operation managers,
- IT process managers,
- suppliers of management system software,
- software integrators.

This International Standard is one of a number of documents prepared in support of International Standards and Technical Reports produced by ISO/IEC JTC 1/SC 25.

INFORMATION TECHNOLOGY –

Automated infrastructure management (AIM) systems – Requirements, data exchange and applications

1 Scope

This International Standard specifies the requirements and recommendations for the attributes of automated infrastructure management (AIM) systems.

This International Standard explains how AIM systems can contribute to operational efficiency and deliver benefits to

- a) cabling infrastructure and connected device administration,
- b) facilities and IT management processes and systems,
- c) other networked management processes and systems (e.g. intelligent building systems),
- d) business information systems covering asset tracking and asset management together with event notifications and alerts that assist with physical network security.

This International Standard specifies a framework of requirements and recommendations for data exchange with other systems

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

There are no normative references in this document.

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1

AIM-enabled port

port which is able to automatically detect the insertion and removal of a cord and process that event as part of an automated infrastructure management system

3.1.2

AIM hardware

combination of patch panels and controllers that are designed to automatically detect the insertion or removal of cords, to record connectivity information, and to exchange connectivity information with AIM software