INTERNATIONAL STANDARD

ISO/IEC 17811-2

First edition
2015-02-15

Information technology — Device control and management —

Part 2: Specification of Device Control and Management Protocol

Technologies de l'information — Commande et gestion de périphériques —

Partie 2: Spécifications du protocole de commande et gestion de périphériques

Reference number
ISO/IEC 17811-2:2015(E)

© ISO/IEC 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2015

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Terms and definitions **1**
3 Abbreviation **2**
4 Overview **2**
5 Protocol Operation **4**
5.1 Device Discovery 4
5.2 Device Advertisement 5
5.3 Device Information Retrieval 5
5.4 Device Control 5
5.5 Event Notification 6
5.6 Event Subscription 6
5.7 Get File Information 7
5.8 File Download 7
5.9 File Upload 8
5.10 Apply 9
5.11 Device Registration 9
5.12 Service Registration 10
6 Messages **10**
6.1 DCMP Message Structure 10
6.2 Messages according to the Operations 12
6.3 Error Types of DCMP 13
6.4 Payload Messages 15
Annex A (normative) **Unit Types and Codes** **50**
Annex B (normative) **Device Types** **51**
Annex C (informative) **XML Schema and Example of DCMP Payload Message** **52**
Bibliography **130**

© ISO/IEC 2015 – All rights reserved

Foreword

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.

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 document 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 and IEC 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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

ISO/IEC 17811-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology* SC 6, *Telecommunications and information exchange between systems*.

 © ISO/IEC 2015 – All rights reserved

Introduction

This International Standard provides the architecture for device control and management (DCM). DCM can support the various control and management services, regardless of the network protocols or interfaces. DCM is composed of two protocols; device control and management protocol (DCMP) and reliable message delivery protocol (RMDP).

This International Standard, ISO/IEC 17811, consists of the following parts:

— Part 1: Architecture

— Part 2: Specification of Device Control and Management Protocol

— Part 3: Specification of Reliable Message Delivery Protocol

ISO/IEC 17811-1 describes the architecture of DCM, which includes definition, general concept, requirements, design principles, service scenarios for device management control, and management.

ISO/IEC 17811-2 specifies the Device Control and Management Protocol (DCMP), which includes the functional entities, protocol operations, message structure, and detailed parameter format associated with DCMP.

ISO/IEC 17811-3 specifies the Reliable Message Delivery Protocol (RMDP), which includes the interworking with DCMP, protocol operations, and message structure associated with RMDP.

The International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this International Standard may involve the use of a patent concerning the message structure of DCMP given in Clause 7.

ISO and IEC take no position concerning the evidence, validity, and scope of this patent right.

The holder of this patent right has assured the ISO and IEC that he is willing to negotiate licences either free of charge or under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO and IEC. Information may be obtained from:

Patent Holder: Electronics and Telecommunications Research Institute (ETRI)

Address: 138 Gajeongno, Yuseong-gu, Daejeon, 305-700, Korea

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO (www.iso.org/patents) and IEC (http://patents.iec.ch) maintain on-line databases of patents relevant to their standards. Users are encouraged to consult the databases for the most up to date information concerning patents.

© ISO/IEC 2015 – All rights reserved

Information technology — Device control and management —

Part 2: Specification of Device Control and Management Protocol

1 Scope

This part of ISO/IEC 17811 provides the specification of Device Control and Management Protocol (DCMP), which is an application-layer protocol used to control and manage the various devices. DCMP supports the device and network status information retrieval, device initialization, firmware and software update, file transmission, and so on. This part of ISO/IEC 17811 specifies the protocol operations and message structure of DCMP.

The network security is out of scope in this part of ISO/IEC 17811. However, the security services can be necessary according to applications of DCMP. DCMP can suffer from many network specific threats. To countermeasure those threats, some security mechanism can be deployed.

2 Terms and definitions

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

2.1
device control and management
DCM
purposed to control and manage the various smart devices

Note 1 to entry: For this purpose, DCM is composed of the two protocols; Device Control and Management Protocol (DCMP) and Reliable Message Delivery Protocol (RMDP).

[SOURCE: ISO/IEC 17811-1]

2.2
device control and management protocol
DCMP
used to perform various management operations which are categorized into information retrieval, control, diagnostic, and debugging

[SOURCE: ISO/IEC 17811-1]

2.3
reliable message delivery protocol
RMDP
used to provide uniform and reliable message delivery among devices regardless of the underlying network protocols or interfaces

[SOURCE: ISO/IEC 17811-1]

2.4
administrative domain
represents a network area where a single administrator can configure and manage a network with the same policy

[SOURCE: ISO/IEC 17811-1]

© ISO/IEC 2015 – All rights reserved