INTERNATIONAL STANDARD

ISO/IEC 17811-3

First edition
2014-10-01

Information Technology — Device control and management —

Part 3: Specification of Reliable Message Delivery Protocol

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

Partie 3: Spécification du protocole de livraison fiable de messages

Reference number
ISO/IEC 17811-3:2014(E)

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Published in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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.

ISO/IEC 17811-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommitte SC 6, *Telecommunications and information exchange between systems*.

ISO/IEC 17811 consists of the following parts, under the general title *Information technology — Device control and management*:

— *Part 1: Architecture*

— *Part 2: Specification of Device Control and Management Protocol (DCMP)*

— *Part 3: Specification of Reliable Message Delivery Protocol (RMDP)*

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Introduction

As the IT industry continues to grow, a large number of smart devices have been deployed in the market. Major consumer electronics companies have already provided a variety of smart devices and appliances; thus, it is expected that the number of smart devices will exceed more than 50% of PCs in the near future. With the growth of smart devices, there is a crucial need for “smart” applications in the market. A smart application represents an application/service that is used to control and manage a lot of smart devices with its own purpose over the network, as shown in the examples of smart home appliances, e-health, smart car, and smart works.

To provide smart applications or services, the essentially required functionality is to control and manage many devices through the network. However, it is not easy to design the device control and management functions, since the specific requirements for those functions can be very different and affected by various device features, such as device types, capabilities, or manufacturers. In addition, the diverse network environments are also considered in the design of the device control and management function.

This International Standard is purposed to make the architecture and protocols for Device Control and Management (DCM). The DCM standard is designed to effectively control and manage various smart devices, regardless of the device features and underlying network environments. It is expected that the DCM is applicable to a wide range of smart applications.

DCM can support the various control and management services, regardless of the network protocols or interfaces. DCM is composed of two protocols: DCMP (Device Control and Management Protocol) and RMDP (Reliable Message Delivery Protocol).

This International Standard consists of the following parts:

— ISO/IEC 17811-1;

— ISO/IEC 17811-2;

— ISO/IEC 17811-3.

ISO/IEC 17811-1 describes the architecture of DCM which includes definition, general concept, requirements, design principles, and 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.

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

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Information Technology — Device control and management —

Part 3: Specification of Reliable Message Delivery Protocol

1 Scope

This part of ISO/IEC 17811 provides the specification of Reliable Message Delivery Protocol (RMDP), which is an application-layer protocol used to provide uniform and reliable message delivery among devices regardless of the underlying network protocols or interfaces.

The network security is out of scope in this part of ISO/IEC 17811. However, the security services might be necessary according to applications of RMDP. RMDP might 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
operations are purposed to control and manage the various smart devices. For this purpose, DCM is composed of the two protocols: DCMP (Device Control and Management Protocol) and RMDP (Reliable Message Delivery Protocol)

[SOURCE: ISO/IEC 17811-1:2014, 3.1]

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 17811-1:2014, 3.2]

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 17811-1:2014, 3.3]

3 Symbols and abbreviated terms

The following acronyms are used in this part of ISO/IEC 17811.

DCMP Device Control and Management Protocol

DCM Device Management Architecture and Protocol

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