

INTERNATIONAL  
STANDARD

ISO/IEC  
16513

First edition  
2005-02-15

---

---

**Information technology — Group  
management protocol**

*Technologies de l'information — Protocole de gestion de groupe*

---

---

Reference number  
ISO/IEC 16513:2005(E)



© ISO/IEC 2005

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO/IEC 2005

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 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](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## CONTENTS

	<i>Page</i>
1 Scope .....	1
2 Normative references .....	1
3 Definitions .....	1
3.1 Terms defined in ITU-T Rec. X.601 .....	1
3.2 Terms defined in ITU-T Rec. X.605 .....	2
3.3 Terms defined in this Recommendation   International Standard .....	2
4 Abbreviations .....	2
4.1 Message types .....	2
4.1.1 SM Message types .....	2
4.1.2 MM Message types .....	2
4.2 Miscellaneous .....	3
5 Conventions .....	3
6 Overview .....	3
6.1 Session Management .....	4
6.2 Membership Management .....	4
7 Protocol operations .....	6
7.1 Session Management .....	6
7.1.1 Session Creation .....	6
7.1.2 Session Announcement .....	7
7.1.3 Session Registration .....	7
7.1.4 Session Enrolment .....	8
7.1.5 Session Activation .....	8
7.2 Membership Management .....	9
7.2.1 Membership Update .....	11
7.2.2 User Information Request and Response .....	13
7.2.3 Session Leave .....	13
7.2.4 Session Termination .....	14
7.3 Security .....	15
8 GMP messages .....	17
8.1 Session Management message types .....	17
8.2 Session Management message formats .....	18
8.3 Membership Management message types .....	20
8.4 Membership Management message formats .....	20
9 GMP variables .....	22
9.1 Session-wide variables .....	22
9.2 Timers .....	22
Bibliography .....	23

## 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.

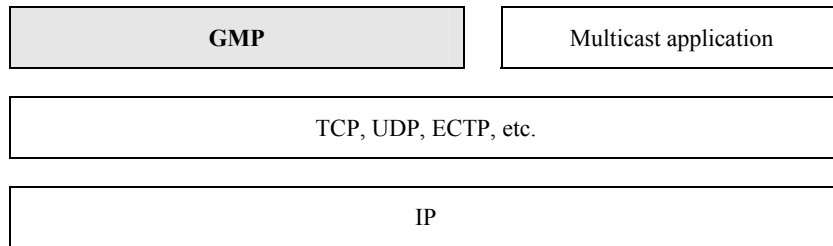
ISO/IEC 16513:2005 was prepared jointly by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems* in collaboration with ITU-T. The identical text is published as ITU-T Rec. X.602.

## Introduction

Conventional multicast transport protocols do not include a dynamic mechanism for group management according to the join/leave of receivers and for the modification of membership information.

GMP provides a framework for multicast session management (SM) mechanism and membership management (MM), which supports the required management of multicast sessions and their members. This protocol can be key to reliable multicast communications.

GMP will operate over conventional transport protocols and/or ECTP as shown in Figure 1.



**Figure 1 – GMP model (GMP protocol stack)**

**INTERNATIONAL STANDARD  
ITU-T RECOMMENDATION****Information technology – Group management protocol****1 Scope**

This Recommendation | International Standard provides a specification of a Group Management Protocol (GMP), which is an application-layer control protocol for creating a group session and for managing the group's participating members.

The GMP consists of session management (SM), membership management (MM), and the function of exchanging information between SM and MM. SM is responsible for session creation and deletion. MM manages the member lists based on session information retrieved from SM.

According to ITU-T Rec. X.601, "Multi-peer communications framework", the multi-peer communication service is achieved in seven distinct phases: registration, enrolment, activation, data transfer, deactivation, de-enrolment, and de-registration. Since one of these operations – data transfer – may be performed using ECTP or TCP, SM may perform the rest of operations: creation, announcement, registration, enrolment, activation, including session announcement. In addition, MM manages group members who are in enrolled or active groups.

SM may provide a convenient interface to users because it may be implemented on the Web. Operation of MM is transparent to users as in a transport protocol.

**2 Normative references**

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

- ITU-T Recommendation X.601 (2000), *Multi-peer communications framework*.
- ITU-T Recommendation X.605 (1998) | ISO/IEC 13252:1999, *Information technology – Enhanced Communications Transport Service definition*.
- ITU-T Recommendation X.606 (2001) | ISO/IEC 14476-1:2002, *Information technology – Enhanced Communications Transport Protocol: Specification of simplex multicast transport*.
- ITU-T Recommendation X.606.1 (2003) | ISO/IEC 14476-2:2003, *Information technology – Enhanced Communications Transport Protocol: Specification of QoS management for simplex multicast transport*.