



# ISO/IEC JTC 1/SC 25 **N 1410**

Date: 2007-09-18

Replaces ISO/IEC JTC 1/SC 25 N/A

**ISO/IEC JTC 1/SC 25**  
**INTERCONNECTION OF INFORMATION TECHNOLOGY EQUIPMENT**  
**Secretariat: Germany (DIN)**

**DOC TYPE:** Resolution of comments

**TITLE:** Preliminary resolution of comments on SC 25 N 1330 CD ISO/IEC 29104-1 Information technology – Centralized Management Protocol (CMP) for ubiquitous home network services - Part 1: Remote management of residential gateways

**SOURCE:** SC 25/WG 1

**PROJECT:** 25. 01.15.01

**STATUS:** The NWIP has been distributed with the SC 25 N 1208nd JTC 1 N 8174  
It has been approved as recorded in SC 25 N 1241  
The CD was distributed with SC 25 N 1330and did find substantial support as recorded in SC 25 N 1390  
The comments have been resolved preliminary by WG 1. According to resolution 18/18 from SC 25 plenary, 2007-09-07, see SC 25 N 1395 these preliminary resolution of comments I sent to the contributing partners (ITU-T, ETSI and DSL forum) for a four weeks review.  
Based on their feedback and more detailed information from the editor on the envisaged changes to the document this resolution of comments will be finalised.

**ACTION ID:** FYI

**DUE DATE:** n/a

**REQUESTED:** For information

**ACTION**

**MEDIUM:** Def

**DISTRIBUTION:** ITTF, JTC 1 Secretariat  
P-, L-, O-Members of SC 25

**No of Pages:** 9 (including cover)

**Preliminary resolution of comments on SC 25 N 1330 CD 29104-1: Information technology – Centralized Management Protocol (CMP) for ubiquitous home network services – Part 1: Remote management of residential gateways**

E: editorial, G: general, T: technical

Page	Line	Clause	E/G/T	ID	Comment	Proposed change	Resolution	Additional comments
0	00		G	J00	Many home automation services are already introduced in global stages. These services are operated by each contract or agreement of users between service providers. The privacy problems will occur, when these services are integrated and privacy information is combined with in one service. We vote as approval of these CDs under the conditions of making juridical and ethical aspects clear, as these proposals are not discussed yet. Though these proposals are welcomed in technically. We recommend to submit to SC27 as liaison.		Agree to submit to SC27, ITU-T, and ETSI for review.	
0	00		G	US-2	A security system unique to one country is proposed.	Align the security system proposed with established international protocols.	Agreed; reference IS or IETF specification, subject to input from SC27, ITU-T, and ETSI.	
0	00	0	G	AU0 1	Encryption protocols appear to be country specific (in this case Korea). International encryption protocols should be used.	Align document with/ensure IT references (ISO/IEC 15045).	Agreed; reference IS or IETF specification, subject to input from SC27, ITU-T, and ETSI..	
0	00	all	G	DE0 2	The Centralized Management Protocol (CMP) covers aspects of a Residential Gateway. These requirements should be coordinated with the JTC1 SC25 WG1 work item CD 15045-2, IT – Home electronic system (HES) gateway – Part 2: Modularity and protocol.	Align CMP and CD 15045-2 with each other.	Agreed	
0			T	IT1.3	ISO/IEC proposes to address the security issues of its communication protocol basing upon a Korean standard. On the other side, TR-069 CWMP security issues are addressed basing on standard IETF RFCs.		Agreed; reference IS or IETF specification, subject to input from SC27, ITU-T SG 17, and ETSI.	
0			G	Fr01	FRNC has no comment to offer at this time.		Noted	
0			G	FR0 2	Please find attached the French vote for above mentionned documents. Due to the vacation period, it has been difficult to establish a strong		Noted.	

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					French position. That's why despite the "approval of the draft as it is" position I send, I've added a comment stating that FRNC has nothing to offer. Nevertheless, French experts may have comments to propose at Jeju, if this document is on schedule.			
0			T	IT1.1	This document defines a remote management protocol for Residential Gateways (RG), i.e. an interface at the NE-EM layer, where the NE is the RG and the EM is the Management System of the RG: this is the same scope of the CWMP protocol defined by DSL Forum with the TR-069 management framework, and adopted by HGI and DVB, for the management of home gateways and home network terminals by means of a TR-069 management system (named ACS=Auto Configuration Server).		Noted.	
0			T	IT1.2	The ISO/IEC protocol is based on SOAP (XML over HTTP), exactly as TR-069 CWMP. TR-069 CWMP and ISO/IEC protocol are both access network agnostics, i.e. they rely on internet protocols and then may be used whatever is the access network technology (xDSL, Cable, Fiber, ...), if this supports TCP/IP communication.		Noted.	
0			T	IT1.4	Then the ISO/IEC proposal defines a set of management functionalities that have to be implemented as specific Remote Procedure Calls (RPC) over SOAP (e.g. Residential gateway disk resource information query function call = "getRgDiskRsc"). Each of these specific RPCs embeds both a management task and the corresponding management information.		Noted	
0			T	IT2.1	On the other side, TR-069 CWMP defines a basic set of generic RPCs that cover the management functionalities for Configuration Management (including provisioning and firmware upgrade tasks), Fault Management (including alarm management, troubleshooting and diagnostics tasks), Performance Management (including usage/statistics monitoring). Then, with other specification documents, DSL Forum defines the TR-069 data models for the management of specific devices and service features (i.e. sets of TR-069		Noted	

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					parameters that, using the CWMP protocol RPCs, allows the exploitation of the need management function); examples of TR-069 data models are TR-098 (xDSL Internet Gateway Device), TR-106 (generic device), TR-104 (VoIP device), WT-140 (Network Storage device), WT-135 (IPTV STB device).			
0			T	IT2.2	Comparing ISO/IEC specification with the set of DSL Forum TR-069 based specifications, it is evident that this ISO/IEC specification for management of RG currently includes a limited subset of the functionalities delivered by TR-069 + TR-098.		Noted.	
0			T	IT2.3	Generally speaking, because the ISO/IEC protocol merges the communication protocol and the information exchanged, it is less flexible than DSL Forum TR-069 approach.		Noted	
0			T	IT2.4	Indeed TR-069 remote management is also applicable to the direct management of home LAN devices behind the RG, while this option is not covered by the ISO/IEC protocol.		Noted	
0			T	IT2.5		For all of these technical reasons, it is suggested that instead of this new ISO/IEC protocol, DSL Forum TR-069 remote management is evaluated as a possible ISO/IEC standard.	WG 1 experts will review TR-069 and TR-098 for applicability to CMP.	
0	00		G	US-1	There is no reference to ISO/IEC 15045, the residential gateway written by WG1.	Include the appropriate reference and align the CMP project with ISO/IEC 15045.	Agreed	
0				ETSI	<b><i>The ISO/IEC JTC1/SC25 is invited to take into account ETSI/TC ATTM comments and proposal.</i></b>	For Rational see Annex 1: ETSI Liaison report	Agreed, subject to detailed review of ETSI proposal.	
0				DSL	The scope and specification of ISO/IEC JTC 1/SC25 N 1330 and related documents overlap with the DSL Forum existing TR-069 (CWMP) family of specifications. However, there are a number of key differences between the DSL Forum and ISO/IEC documents. These differences are outlined below, followed by more information about TR-069.	We welcome cooperation with industry standards bodies and other fora, and would support further discussions and collaboration.	Agreed, editor already had two-hour discussion with DSL document editor and is planning further contacts.	
7	97	1	G	BE1	The scope and specification of ISO/IEC JTC 1/SC25 N 1330, 1331, and 1339 overlaps with the DSL Forum	A liaison activity with the DSL Forum should be	WG 1 thanks the DSL Forum for their comments on the CMP CDs. Liaison	

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					<p>existing TR-069 family of specifications. There are a number of key differences between the DSL Forum and ISO/IEC documents.</p> <p>TR-069 CPE WAN Management Protocol (CWMP) is a widely accepted protocol for management of the home network. It has been adopted by service providers and vendors world wide for management of residential gateways, modems, set top boxes, VoIP devices, and storage devices and is now currently being used to manage millions of subscriber CPE across a range of service providers. It has been adopted by the Home Gateway Initiative (HGI), DVB, and others as the remote management protocol of choice. Its interoperability has been proven through a number of industry plugfests; to date over 30 vendors have participated in these plugfests, including representative of various "triple play" services, including gateways, VoIP adapters, and STBs.</p> <p>TR-069 describes the management protocol between an Auto-Configuration Server (ACS) and a piece of home networking equipment in the subscriber's home. Other DSL Forum documents describe the management objects of various devices, as well as the API requirements between the ACS and the provider backend (OSS/BSS). It consists of standard, widely deployed web protocols, including HTTP, SSL/TLS, SOAP, XML, TCP/UDP/IP. Its scope includes service provisioning, remote diagnostics and troubleshooting, performance monitoring, and firmware/image management.</p> <p>Because of TR-069's tested interoperability, generic applicability, and wide deployment, we cast a NO vote on ISO/IEC JTC 1/SC 25 N 1330, 1331, and 1339, and suggest the consideration of TR-069 and related documents as an alternate remote management protocol</p>	<p>started to facilitate alignment of ISO/IEC JTC 1/SC25 N 1330, 1331, and 1339 with the DSL Forum TR-069..</p>	<p>between SC 25 and DSL Forum already established. Editor of CMP is already talking with editor of DSL TR-069.</p>	

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8	126	2	T	BE2	Given the general comment above, the management protocol should consist of a normative reference to DSL Forum TR-069 and related technical reports.	Include a normative reference to DSL Forum TR-069.	Will consider appropriate parts of DSL TR-069 for inclusion or harmonization.	
8	126	2	T	US-3	Many of the Normative References are not ISO or IEC Standards	Remove the incorrect references.	Agreed.	
8	130	3.1	T	US-4	The definitions are not in proper form, i.e., "This is - - -", rather than stating the word that is being defined. More important, many of the items do not actually define the term but provide a reference to another source, and many of those references are to a commercial organization, e.g., subclause 3.3.2 "Jini - This is control middleware technology pursued by Sun Microsystems, Inc. "	Revise the definitions Clause 3.1 to provide correct definitions and remove commercial references.	Agreed.	
9	143	3.3.3	G/T	J01	"SEED" algorithm is not an international standard, though it is authorized in KOREA.	Replace with international standards. Or, it is should be submitted to SC27 as liaison.	Will reference appropriate IS or IETF specification, subject to review by SC27, ITU-T SG 17, ETSI TISPAN, and ATTM.	
10	175	5	T	BE3	Include a reference to DSL Forum TR-069 for all functionalities already covered in the DSL Forum Technical Report.	Include normative references to DSL Forum TR-069 for all functionality covered by TR-069.	Will consider appropriate parts of DSL TR-069 for inclusion or harmonization.	
10	173-174	4	G	DE01	The content of the Conformance Clause is TBD, i.e. it is empty.	State the requirements for conformance of devices with this document.	Agreed.	
10	173	4	G	US-5	Conformance Clauses not included in this CD; clause 4 simply marked "TBD"	Provide suitable text for Clause 4	Agreed.	
29	556	6.3	G/T	J02	See J01	See J01	Noted.	
29	557	6.3	G/T	J03	See J01	See J01	Noted.	
29	559	6.3	G/T	J04	See J01	See J01	Noted.	
29	568	6.3	G/T	J05	See J01	See J01	Noted.	
29	569	6.3	G/T	J06	See J01 and the rest of "SEED" is same as J01.	See J01	Noted.	

## **Annex 1: ETSI Liaison report**

### **Decision/action requested**

<i>The ISO/IEC JTC1/SC25 is invited to take into account ETSI/TC ATTM comments and proposal.</i>
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## **Introduction**

ETSI/ATTM has a number of concerns with CD ISO/IEC 29104-1, 29104-2, 29104-3 and have been reviewed these documents. Other ETSI Technical Committees have an interest in this area of work and may have similar concerns.

## **Comments**

There are many similarities with well-known environments in particular those of the DSL Forum, OSGi and UPnP.

Compared to the DSL Forum, the following points have been noted:

- HOMS (Home Network Management Waiter) = ACS
- Agent = TR-069 agent
- HRIP (Homs-rg Interfaces Protocol) = Tr-069 protocol
- HAIP = Northbound interfaces (Wt-131/132)

Concerning data there is not strictly a data model as in TR-069 but there is a whole list of functions taking into account input/output parameters. That seems to be close to TR-064.

Function specification close to UPnP has been noted, e.g. "Home device control function ", "Home device state query function", "Home device event application/release function", "home device description URL information".

In general WSDL, XML, SOAP, HTTP, TLS are used as DSL Forum (TR-069) and also as UPnP.

## **Rational**

TR-069 is well known and is widely adopted all around the world, in Europe especially. Many documents of International and European standardisation organizations are taken into account in this DSL Forum technical specification as well as the UPnP ones. That means numerous equipments are today deployed in the field.

In order to ensure compatibility and quality of services within the home we suggest that ISO/IEC JTC1/SC25 postpones approval of these Committee Drafts in their current form and requests an evolution of these documents.

## **Annex 2: Liaison Communicated By: Heather Kirksey**

**Date:** August 27, 2007

**Subject:** ISO/IEC Remote Management specifications

Ref: ISO/IEC JTC 1/SC25 N 1330, 1331 and 1339

Thank you for providing us with ISO/IEC JTC 1/SC25 N 1330 and related remote management documents. After review, the DSL Forum has the following comments on these specification documents.

The scope and specification of ISO/IEC JTC 1/SC25 N 1330 and related documents overlap with the DSL Forum existing TR-069 (CWMP) family of specifications. However, there are a number of key differences between the DSL Forum and ISO/IEC documents. These differences are outlined below, followed by more information about TR-069.

- JTC1/SC25N1330 is defined in a “tightly coupled” fashion, in which every management action is defined by a separate function call that embeds both a management task and the corresponding management information. This approach was considered but rejected by the DSL Forum because of scalability and interoperability issues. TR-069 defines a generic management protocol that can be used to manage any sort of device and to call a wide range of functions, and can, with various data model specifications, define the specific variables on which these generic methods act. This architecture is more similar to existing element management protocols, such as SNMP.

Requiring all functions to be implemented as separate calls is neither scalable, from an implementation perspective because it requires separate handling functions to be created for similar actions (setting and getting various pieces of data), nor from a specification perspective, because it requires the protocol itself to be changed as new capabilities are added to various devices. It also increases the interoperability burden since all new functions will have to be specified and tested for interoperability. The approach is also less flexible; a generic mechanism also ensures that the protocol can be used to manage new devices as they become available and widely deployed on the home network and as new services are deployed across existing devices.

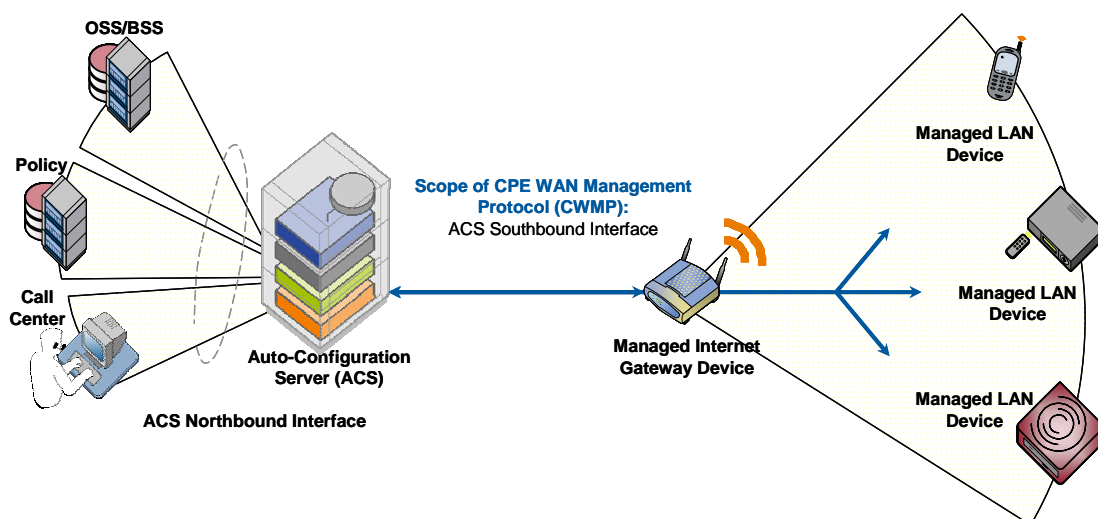
- TR-069 is based on global security standards defined by the IETF, such as HTTP Authentication and SSL/TLS. The ISO/IEC recommendation makes use of a geographically specific protocol. The specification also seems to mandate the use of shared secrets for security rather than certificates; many members of the DSL Forum felt that having the option for certificate-based authentication is important.
- The capabilities defined by the ISO/IEC document are a relatively limited subset of the capabilities defined within the TR-069 family of documents. There are, for example, numerous gateway parameters defined in TR-098, including parameters for management of QoS, various WAN and LAN interfaces, statistics gathering, and others, all of which are accessible via CWMP.
- The architecture of the ISO/IEC document seems to be incompletely specified. Although the document states that either HTTP or WAP binding may be used, the details of these bindings are not present. It is unclear how sessions are initiated, terminated, or retried, and it is not obvious how the devices under management are addressed by the Home Network Management Server (HOMS). This includes any assumption as to whether or not a TCP connection might be expected to be maintained by the device and server indefinitely. The specification also mentions SMS messages but does not explain how they would be intercepted by the gateway or other home devices and what form of security would be expected to be used with SMS.
- A number of methods and arguments are incompletely specified within the ISO/IEC document. For example, the document references security alert but does not define what security alerts there might be and how the consumer of the information is to use the information received. Similarly parameters such as deviceType are only defined as being “home device type” without indicating how that type is to be determined, what the available options are, and any constraints (such as variable length) on the variable itself.
- In considering the management of end terminals, the ISO/IEC documents seems to be making assumptions based on the use of UPnP using the terms description URL, state variable, etc., but it does not give details about how to encode UPnP information or actions across the WAN.
- The DSL Forum documents are also appropriate for direct remote management of end user devices by the remote management system, whereas the ISO/IEC specification seems to imply that all such management will be proxied by the gateway, an approach that is allowed but not mandated in the DSL Forum specifications.
  - Additionally DSL Forum documents define a mechanism by which end devices behind the gateway may be directly addressed by the management system, using a restricted subset of the STUN protocol. The ISO/IEC documents do not seem to recommend or specify a method by which devices behind a gateway may be addressed and managed directly.
  - The ISO/IEC documents do seem to include the capability to allow *users* to reach their home network appliances remotely, although this concept is unclear based on the documents and on what the dependencies on UPnP are. In any event, the UPnP Remote Access working group



within UPnP Forum is currently focusing on this matter, and we might suggest that the ISO/IEC liaise with UPnP Forum and align any work in this area with that organization.

TR-069: CPE WAN Management Protocol (CWMP) is a widely accepted protocol for management of the home network. It has been adopted by service providers and vendors world wide for management of residential gateways, modems, set top boxes, VoIP devices, and storage devices and is now currently being used to manage millions of subscriber CPE across a range of service providers. TR-069 has been adopted by the Home Gateway Initiative (HGI), DVB, and others. Its interoperability has been proven through a number of industry plugfests; to date over 30 vendors have participated in these plugfests, including representatives of various “triple play” services, including gateways, VoIP adapters, and STBs.

TR-069 describes the management protocol between an Auto-Configuration Server (ACS) and a piece of home networking equipment in the subscriber’s home. Other documents describe the management objects of various devices, as well as the API requirements between the ACS and the provider backend (OSS/BSS). It consists of standard, widely deployed web protocols, including HTTP, SSL/TLS, SOAP, XML, TCP/UDP/IP. Its scope includes service provisioning, remote diagnostics and troubleshooting, performance monitoring, and firmware/image management.



Because of TR-069’s tested interoperability, generic applicability, scalability, industry referencing and wide deployment, we are recommending a negative vote regarding ISO/IECJTC 1/SC 25 N 1330, 1331, and 1339, and suggest the consideration of TR-069 and related documents as an alternative remote management protocol.

We welcome cooperation with industry standards bodies and other fora, and would support further discussions and collaboration.

The next meeting of the DSL Forum is between December 10 and 13 in Lisbon, Portugal.

Sincerely,

Gavin Young  
DSL Forum Technical Chair

CC:

Greg Bathrick, Co-Chair DSLHome Technical Working Group  
Heather Kirksey, Co-Chair DSLHome Technical Working Group

**Attachments:**

TR-069 Amendment 1  
TR-098 Amendment 1  
TR-106 Amendment 1