ANSI E1.37-2 – 2015
Entertainment Technology—
Additional Message Sets for ANSI E1.20 (RDM) –
Part 2, IPv4 & DNS Configuration Messages

Document number CP/2012-1001r7

This standard was approved as an American National Standard by ANSI's Board of Standards Review on 25 September 2015.

This standard was originally published when the Entertainment Services and Technology Association was operating under the name of PLASA North America.
ESTA has reverted to its original name, and this document has been rebranded with the current corporate name and logo. No changes have been made to the contents of the standard.

NOTICE and DISCLAIMER

ESTA does not approve, inspect, or certify any installations, procedures, equipment or materials for compliance with codes, recommended practices or standards. Compliance with a ESTA standard or an American National Standard developed by ESTA is the sole and exclusive responsibility of the manufacturer or provider and is entirely within their control and discretion. Any markings, identification or other claims of compliance do not constitute certification or approval of any type or nature whatsoever by ESTA.

ESTA neither guarantees nor warrants the accuracy or completeness of any information published herein and disclaims liability for any personal injury, property or other damage or injury of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on this document. In issuing and distributing this document.

In issuing this document, ESTA does not either (a) undertake to render professional or other services for or on behalf of any person or entity, or (b) undertake any duty to any person or entity with respect to this document or its contents. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstance.

Published by:

Entertainment Services and Technology Association
630 Ninth Avenue, Suite 609
New York, NY 10036
USA
Phone: 1-212-244-1505
Fax: 1-212-244-1502
standards@esta.org

The ESTA Technical Standards Program

The ESTA Technical Standards Program was created to serve the ESTA membership and the entertainment industry in technical standards related matters. The goal of the Program is to take a leading role regarding technology within the entertainment industry by creating recommended practices and standards, monitoring standards issues around the world on behalf of our members, and improving communications and safety within the industry. ESTA works closely with the technical standards efforts of other organizations within our industry, including USITT and VPLT, as well as representing the interests of ESTA members to ANSI, UL, and the NFPA. The Technical Standards Program is accredited by the American National Standards Institute.

The Technical Standards Council (TSC) was established to oversee and coordinate the Technical Standards Program. Made up of individuals experienced in standards-making work from throughout our industry, the Council approves all projects undertaken and assigns them to the appropriate working group. The Technical Standards Council employs a Technical Standards Manager to coordinate the work of the Council and its working groups as well as maintain a “Standards Watch” on behalf of members. Working groups include: Control Protocols, Electrical Power, Event Safety, Floors, Fog and Smoke, Followspot Position, Photometrics, Rigging, and Stage Lifts.

ESTA encourages active participation in the Technical Standards Program. There are several ways to become involved. If you would like to become a member of an existing working group, as have over four hundred people, you must complete an application which is available from the ESTA office. Your application is subject to approval by the working group and you will be required to actively participate in the work of the group. This includes responding to letter ballots and attending meetings. Membership in ESTA is not a requirement. You can also become involved by requesting that the TSC develop a standard or a recommended practice in an area of concern to you.

The Control Protocols Working Group, which authored this Standard, consists of a cross section of entertainment industry professionals representing a diversity of interests. ESTA is committed to developing consensus-based standards and recommended practices in an open setting.

Investors in Innovation

VISIONARY

Altman Lighting, Inc.
Boston Illumination group
Candela Controls Inc.
Clark-Reder Engineering
LDI
John T. McGraw
ProSight Specialty Insurance
Alan M. Rowe
Theatre Safety Programs
United States Institute for Theatre Technology
View One, Inc.
Steve A. Walker & Associates*
Ralph Weber

INVESTOR

Barbizon Electric
Louis Bradfield*
EGI Event Production Services*
ETC
Indianapolis Stage Sales & Rentals, Inc.*
H&H Specialties, Inc.
Ken Production Sevices Inc.
McLaren Engineering Group
Mountain Productions Inc.
Texas Scenic Company

SUPPORTER

AC Power Distribution
American Society of Theatre Consultants
Arjan van Vught
Roy Bickel
Bigger Hammer Production Services
ELS / Entertainment Lighting Services
Entertainment Structures Group
Tony Giovannetti
IATSE Local 514
IATSE Local 728
InCord
Jones-Phillips Associates, LLC
The Kentucky Center for the Performing Arts
Eddie Kramer
Lightstream Design, LLC
Musique Xpress Lights, Inc.*
Oasis Stage Werks
See Factor Industry
Stage Equipment and Lighting
Stage Labor of the Ozarks
Strohmeier Lighting, Inc.
TOMCAT
Total Structures*
Stephen Vanciel
Vincent Lighting Systems*

*Investor for over 15 years

All donations to the TSP support the Technical Standards Program in general and are not directed to or for the benefit of any particular technical standard project or any Working Group working on any particular standard or project.

Contact Information

Technical Standards Manager
Karl G. Ruling
Entertainment Services and Technology Association
630 Ninth Avenue, Suite 609
New York, NY 10036
USA
1-212-244-1505
karl.ruling@esta.org

Assistant Technical Standards Manager
Erin Grabe
Entertainment Services and Technology Association
630 Ninth Avenue, Suite 609
New York, NY 10036
USA
1-212-244-1505
erin.grabe@esta.org

Technical Standards Council Chairpersons

Mike Garl
Mike Garl Consulting LLC
1-865-389-4371
mike@mikegarlconsulting.com

Mike Wood
Mike Wood Consulting LLC
1-512-288-4916
mike@mikewoodconsulting.com

Control Protocols Working Group Chairperson

Michael Lay
Philips Color Kinetics
3 Burlington Woods Drive
Burlington, MA 01803
USA
1-781-418-9145
michael.lay@philips.com

Acknowledgments

The Control Protocols Working Group members when this document was approved by the working group on 25 September 2015 are shown below.

Voting members:

Daniel W. Antonuk; Electronic Theatre Controls, Inc.; MP
Paul Beasley; Walt Disney Company; U
Robert Bell; Acuity Brands Inc.; MP
Marcus Bengtsson; LumenRadio AB; MP
Scott M. Blair; Full Throttle Films/ VER; DR
Ian Campbell; Doug Fleenor Design, Inc.; MP
Milton Davis; Doug Fleenor Design, Inc.; MP
Casey Diers; DesignLab Chicago, Inc.; DR
Gary Douglas; Acuity Brands Inc.; MP
Bill Ellis; Candela Controls, Inc.; DE
Doug Fleenor; Doug Fleenor Design, Inc.; MP
Randy L. Fox; Walt Disney Company; U
Andrew Frazer; Stellascapes.com; MP
Robert Goddard; Goddard Design Co.; MP
Dennis Grow; I.A.T.S.E. Local 728; U
Mitch Hefter; USITT; U
Jeremy Hochman; Full Throttle Films/ VER; DR
Harrison Hohnholt; City Theatrical, Inc.; MP
Maurits van der Hoorn; Acuity Brands Inc.; MP
John Huntington; I.A.T.S.E. Local 1; U
Michael Karlsson; LumenRadio AB; MP
Paul Kleissler; City Theatrical, Inc.; MP
Edwin S. Kramer; I.A.T.S.E. Local 1; U
Ulrich Kunkel; E3 Engineering & Education for Entertainment GmbH; U
Roger Lattin; I.A.T.S.E. Local 728; U
Hans Lau; LumenRadio AB; MP
Michael Lay; Royal Philips; MP
Joshua Liposky; Lex Products Corp.; CP
Dan Lisowski; University of Wisconsin - Madison; DE
Kevin Loewen; Acuity Brands Inc.; MP
Tyrone Mellon, Jr.; Lex Products Corp.; CP
Joshua Moyerman; Stellascapes.com; MP
Peter Newman; Open Lighting Project; G

Simon Newton; Open Lighting Project; G
Maya Nigrosh; Electronic Theatre Controls, Inc.; MP
Andrew Nikel; City Theatrical, Inc.; MP
Kimberly Corbett Oates; Schuler Shook; DE
Claude Ostyn; Full Throttle Films/ VER; DR
Edward A. (Ted) Paget; Electronic Theatre Controls, Inc.; MP
Jason Potterf; Cisco; MP
Alan M. Rowe; I.A.T.S.E. Local 728; U
Larry Schoeneman; DesignLab Chicago, Inc.; DR
Dane Styczynski; University of Wisconsin - Madison; DE
Steve Terry; Electronic Theatre Controls, Inc.; MP
Ken Vannice; Ken Vannice LLC; G
Peter Willis; Howard Eaton Lighting Ltd.; CP

Observer members:

Christian Allabauer; Lighting Innovations, Hermann Sorger GmbH; CP
Simon Alpert; Lighttech Event Technologies; CP
Klaus Amling; Licht-Technik; MP
Matthew Ardine; IATSE Local 728; U
Robert Barbagallo; Solotech Inc.; U
Adam Bennette; Electronic Theatre Controls, Inc.; MP
David Bertenshaw; David Bertenshaw; G
Stephen Bickford; T. Kondos Associates; U
Torrey Bievenour; Vision Quest Lighting; G
Lee J. Bloch; Bloch Design Group, Inc.; G
David A. Boller; Organic Machines LLC; CP
Ron Bonner; PLASA EU; G
Stef Bressers; MagicFX B.V.; MP
André Broucke; André Broucke; G
Ken Bruns; Lumenpulse Lighting Inc.; MP
Justyn Butler; JBOTS; CP
Jean-Francois Canuel; A.C. Lighting Ltd.; CP
Steve Carlson; High Speed Design, Inc.; MP
Sang-Il Choi; Kyungpook National University; G
Jon Chuchla; Audio Visual Systems, Inc.; G
Soo-Myong Chung; Bloch Design Group, Inc.; G
Paul J. Clark; HxDx; CP
Edward R. Condit; Edward R. Condit; G
Fraser Connolly; Artistic Licence Holdings; DE
Eric Cornwell; West Side Systems; U

Stuart Cotts; Oregon Shakespeare Festival; U
Klas Dalbjorn; TC Group; MP
Ben Darrington; Wireless Solutions Sweden AB; MP
Jeremy Day; Lumenpulse Lighting Inc.; MP
Gilray Densham; CAST Group Inc; MP
Larry Dew; W.A. Benjamin Electric Co.; DE
Gary Dove; Dove Systems; MP
Tucker Downs; Tucker Downs; U
Yongshun Duan; Macostar International Ltd.; CP
Hamish Dumbreck; James Embedded Systems Engineering; MP
Lauren E. Dunn; Lauren E. Dunn (Larry); DE
Jerry Durand; Durand Interstellar, Inc.; CP
James Eade; ABTT; G
Andrew Eales; Rhodes University ; U
Matthew Earnshaw; acdc LED Ltd.; MP
Paul K. Ericson; Sparling & IES; DE
Jon R. Farley; Sixteenth Avenue Systems; CP
Martin Farnik; Robe Show Lighting s.r.o.; MP
Derek R. Flickinger; Interactive Homes, Inc.; U
Trevor Forrest; Helvar Lighting Control; MP
Howard Forryan; Harting KGAA; G
Steve Friedlander; Auerbach Pollock Friedlander; U
Ed Garstkiewicz; Harting KGAA; G
Jerry Gorrell; Theatre Safety Programs; G
Tom Grimes; Barco; MP
Rob Halliday; Rob Halliday; U
Sean Harding; High Output, Inc.; G
Douglas Heriot; Douglas Heriot; MP
Bill Hewlett; Hewlett Electronics; CP
Jim Holladay; Luxence; G
Wayne David Howell; Artistic Licence Holdings; DE
Il Soon Jang; Electronics and Telecommunications Research Institute; G
Sierk Janszen; Ground Zero; U
Eric Johnson; Eric Johnson; G
Rob Johnston; Interactive Technologies, Inc.; MP
Jussi Kallioinen; Eastway Sound & Lighting; U
Tae Gyu Kang; Electronics and Telecommunications Research Institute; G
Hyun Jong Kim; Electronics and Telecommunications Research Institute; G
Peter Kirkup; Peter Kirkup; G
Hiroshi Kita; Marumo Electric Co., Ltd.; MP

Phil Klapwyk; IATSE Local 891; U
Mark T. Kraft; Lehigh Electric Products Co.; MP
Kristen Kuipers; Newcomb & Boyd; DE
Jason Kyle; JPK Systems Ltd.; MP
Rick Leinen; Leviton Manufacturing Co., Inc.; MP
Hans Leiter; Electronic Theatre Controls, Inc.; MP
Jon Lenard; Applied Electronics; MP
Maarten Lepelaars; eldoLED; MP
Sang-Kyu Lim; Electronics and Telecommunications Research Institute; G
Mark Manthei; Shure Inc.; G
Paul F. Mardon; Pulsar Ltd.; MP
Mick Martin; ShowCAD Control Systems; MP
Paul Kenneth McEwan; Cooper Controls Ltd.; MP
Brian McKelvey; Brian McKelvey; G
John Mehltretter; Lehigh Electric Products Co.; MP
Jeff T. Miller; Walt Disney Company; U
Avraham "Avi" Mendall Mor; Lightswitch; U
John Musarra; John Musarra; U
Tobin Neis; Barbizon Companies; DR
Dan T. Nguyen; LynTec; MP
Lars F. Paape; Scientific Algorithms and Embedded Systems; U
Ben Peoples; Pittsburgh Hoist & Sandbag Company; CP
Gary Pritchard; LSC Lighting Systems PTY Ltd; MP
Torben Kaas Rasmussen; Martin Professional A/S; G
Charles Reese; Production Resource Group; DR
Charlie Richmond; Richmond Sound Design Ltd.; CP
Bernardo Benito Rico; Ben-Ri Electronica S.A.; MP
Steve Roberts; Carr & Angier; G
Erwin Rol; Erwin Rol; G
Dietmar Rottinghaus; Connex GmbH; MP
Richard Salzedo; Avolites Ltd.; MP
Yngve Sandboe; Sand Network Systems, Inc.; MP
Nicolai Gubi Schmidt; Gobo & Highlight A/S; DR
Martin Searancke; Dream Solutions Ltd.; MP
Ford Sellers; Chauvet Lighting; MP
John Sellers; AIM Northwest; G
Andrew Sherar; Lightmoves PLC; MP
Sean Sill; Open Lighting Project; G
Ashley Simper; TMB; DR
Storm K. Staley; Stormwerx; U

Eckart Steffens; Soundlight, the DMX Company; CP
Ralph Stillinger; Royal Philips; MP
Bart Swinnen; Luminex LCE; MP
Arnold Tang; Arnold Tang Productions; U
Geoffrey O. Thompson; IEEE 802.3/Nortel Networks; G
Christopher Tilton; Westlake Reed Leskosky; DE
Robert Timmerman; Royal Philips; MP
David Timmins; Jands Electronics; MP
Victoria Tisdale; Google Summer of Code 2013; G
J. B. Toby; Avolites Ltd.; MP
James Tomlinson; James Tomlinson; G
Bob Toms; Catalyst Microsystems LLC; G
Robert Tooker; Robert Tooker; U
Tad Trylski; Tad Trylski; U
Stephen J. Tyrrell; Quantum Logic; MP
Tracy Underhill; 4U Consulting; G
Steve Unwin; Pulsar Ltd.; MP
Samuli Valo; Picturall Ltd.; MP
Carlo Venturati; Clay Paky S.P.A.; MP
Will Wagner; Carallon Ltd.; MP
Oliver Waits; Avolites Ltd.; MP
John Warwick; Royal Philips; MP
Colin Waters; TMB; DR
Ralph Weber; ENDL Texas; G
Lars Wernlund; Capture Visualisation AB; MP
Michael (Mike) Whetstone; Integrated Theatre, Inc.; CP
Loren Wilton; Showman Systems; CP
C. S. Wong; Macostar International Ltd.; CP
Jiantong Wu; Beijing Special Engineering Design & Research Institute; G
Kehang Wu; Shure Inc.; G
David Yellin; LightMinded Industries, Inc.; MP
Larry Zoll; Zoll Design & Consulting, LLC; U

Interest category codes:

CP = Custom-market Producer
DE = Designer
DR = Dealer or Rental company
G = General interest
MP = Mass-market Producer
U = User

Table of Contents

Index of Tables

1 Introduction

1.1 E1.20 Basic Features

The ANSI E1.20 Remote Device Management Protocol (RDM) [RDM] permits intelligent bi-directional communication between devices from multiple manufacturers using a modified DMX512 data link. RDM is an EF 1.0 implementation of ANSI E1.11 (DMX512-A).

RDM permits a console or other controlling device to discover and then configure, monitor, and manage intermediate and end-devices connected through a DMX512 network. RDM provides intelligent control of devices on a DMX512 network.

RDM commands may also be sent over transports other than DMX512-A., for example, IPv4. The specification for sending RDM commands over non-DMX512-A transports is outside the scope of this standard.

1.2 Overview & Scope

This document provides additional Get/Set parameter messages (PIDs) for use with the ANSI E1.20 Remote Device Management protocol. Messages in this document are intended for configuring network interfaces, routing information and Domain Name System [DNS] settings on devices with IPv4 [IPv4] addresses.

The messages in this standard enable a controller to retrieve a list of network interfaces on a device, and for each interface, do the following:

- If appropriate, determine the EUI-48 hardware address [EUI]. Such addresses are commonly referred to as MAC addresses. Hardware addresses in a format other than EUI-48 are not covered by this standard.
- Retrieve and configure the IPv4 address & subnet mask. Addressing schemes other than IPv4 are outside the scope of this standard.
- Enable / disable DHCP [DHCPv4].
- Renew and release the DHCP lease.
- Enable and disable Zeroconf [IPv4LL].