



**I Didn't Know RDM Could Do That!**



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# **I Didn't Know RDM Could Do That!**

Saturday, October 23, 2010 : 11am – 12:30pm

## Panelists

- **Scott Blair- Barco/High End Systems**
- **Milton Davis – Doug Fleenor Design**
- **Bob Goddard – Goddard Design**
- **Robert Tooker – PRG**
- **Ulrich Kunkel – E3 Engineering & Education for Entertainment**

## ESTA Technical Standards Program

- ***The ESTA Technical Standards Program*** - responds to situations where the lack of standards, or the imposition of standards developed outside the entertainment industry, make difficult to conduct business safely & efficiently.
- ***The ESTA Technical Standards Program*** - is accredited by the American National Standards Institute. This accreditation ensures that all parties affected by a standard have had an “open-process” opportunity to participate in its development.
- ***The ESTA Technical Standards Program*** - is the largest and most effective volunteer driven program in the industry. Hundreds of volunteers are responsible for every aspect of the program.

## How Standards Are Written

- The working groups write the standards.
- The standards must reflect the consensus of opinion in the industry. To ensure that they do, each standard is sent to a formal public review at least once, although most are publicly reviewed three or more times.
- Reviewers offer comments on the draft standard, and the working group then has to attempt to revise the standard to the satisfaction of the commenter. For any comment that is not accepted, the working group has to provide a written reason why.
- The process of sending a draft standard to public review, receiving comments, and revising the standard on the basis of those comments is a slow one, but it ensures that the standards drafted are fair and technically sound.

## Getting Involved in the ESTA Technical Standards Program

- Join a Working Group! Membership in a working group is available to any party who has a legitimate interest in that group.
  - Principals, Alternates and Individual Members are voting members who must attend 4 meetings per year.
  - Observer members do not vote, and are not required to attend meetings, but are copied on all working group documents.
- You need not be an ESTA member to participate!
- You need not be a “subject matter expert” to participate. We need end users!

## **ANSI E1.20 RDM (Remote Device Management)**

- An enhancement to USITT DMX512 for configuration, status monitoring, and management of DMX512 based systems.
- An open standard developed by the ESTA Technical Standards Program that allows interoperability between many Manufacturers.
- Compliant DMX512 and DMX512-A devices are completely functional when RDM is present.

- “RDM eliminates climbing the truss to change configuration settings and DMX512 addresses . . . .”
- RDM will help continue the use of DMX512 in environments where an Ethernet control system is not justified.
- Standardized feedback accessible from all remote devices.

## What does it do?

- RDM gets you remote configuration and device management (available thru some of the DMX512 proprietary implementations).
- RDM functions are command based, but still run on DMX512's streaming data structure.





## Myth #1

- There's not many people really building RDM products...



# I Didn't Know RDM Could Do That! Who's Actually Using RDM?



- Altman
- Alderamin Group
- Artistic Licence
- AC Lighting/Spectrum Mfg.
- Barco/High End Systems
- Carralon/Pharos Controls
- Creative Lighting Systems
- CDS
- City Theatrical
- Cooper Controls/Zero88
- Doug Fleenor Design
- E:Cue/Traxxon
- ELC
- Enttec
- ETC
- GLP
- Goddard Design
- Howard Eaton Lighting
- iPIX
- Jands
- JESE
- Lanbox
- LSC
- Lumen Radio
- Luminex
- MA Lighting
- Martin Professional
- Novalight
- Open Lighting Project
- QMAXZ
- Pathway Connectivity
- PR Lighting
- Robe
- Sandnet Systems
- Seachanger
- Soundlight
- Tempest Lighting
- Wireless Solutions
- Whitelight
- Wybron

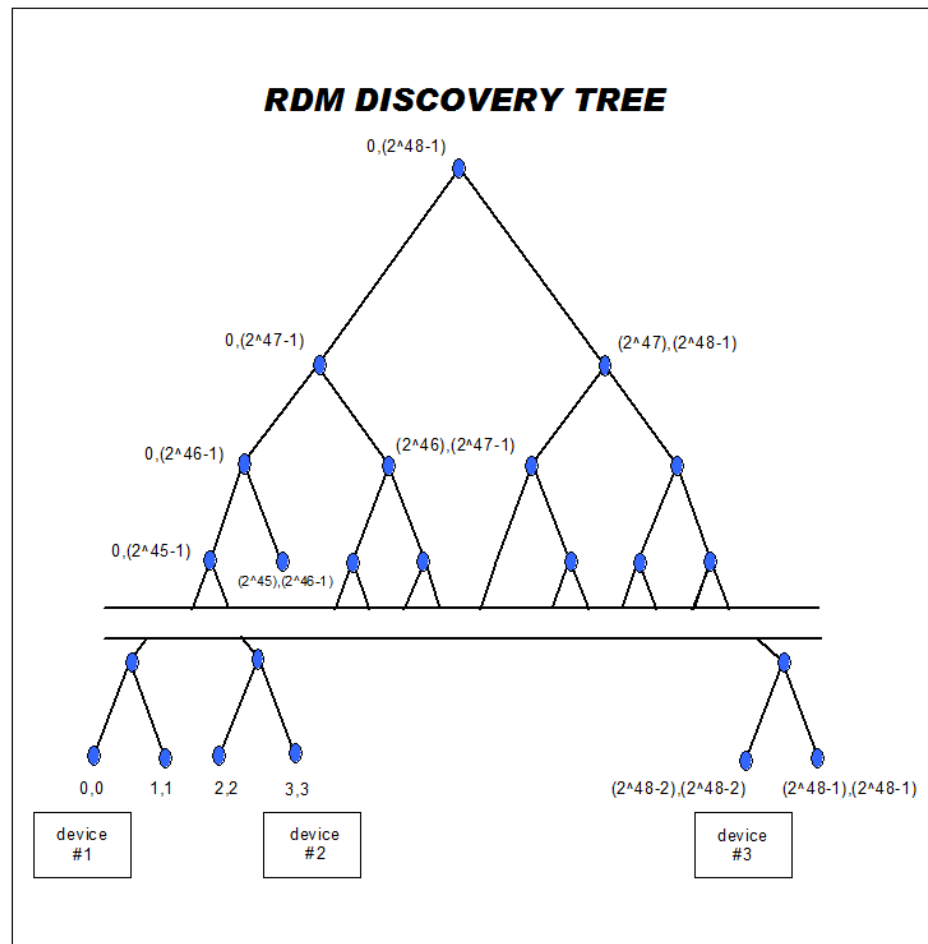
## Discovery

- Myth #2: Discovery is too slow.
  - Truth is it depends on the implementation.
  - Many optimizations are allowed for and built into the Standard, but are not widely utilized yet in many controllers.
  - Depends on quantity of device queries after initial discovery of device.

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## RDM DEVICE DISCOVERY

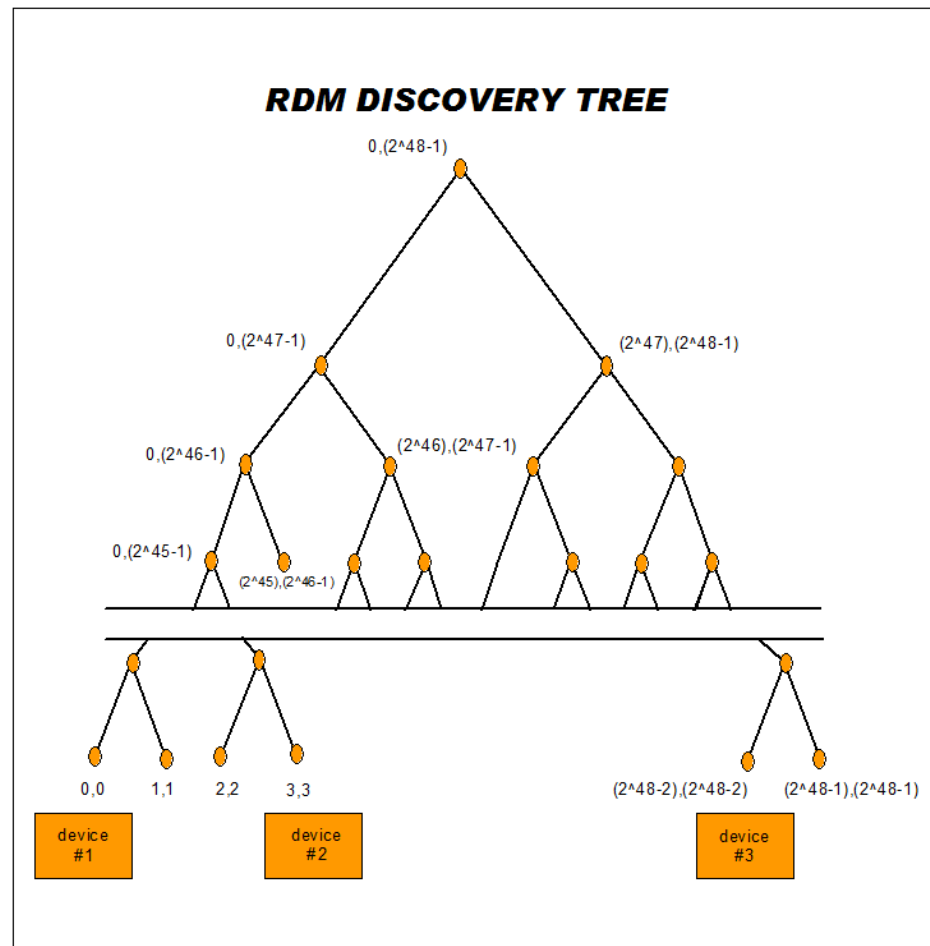
- STEP 1-THE CONTROLLER SENDS OUT DISCOVERY COMMAND



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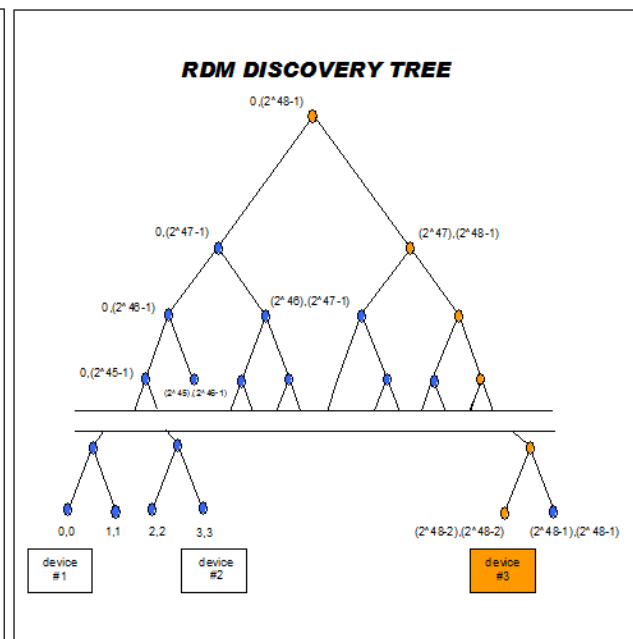
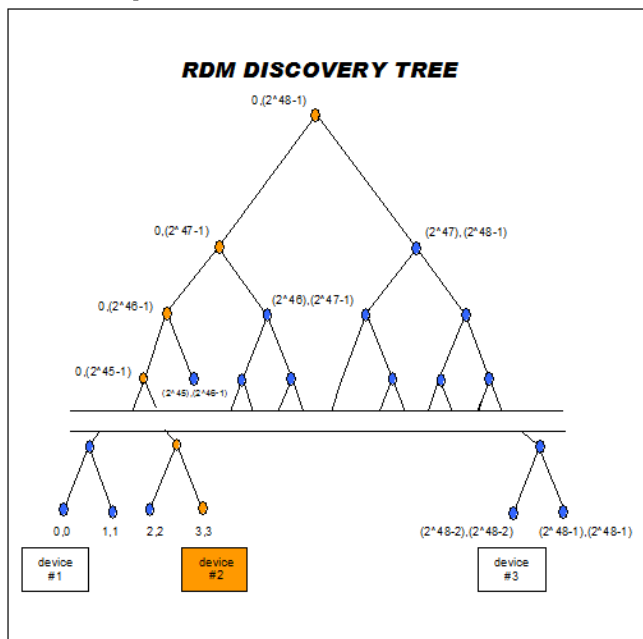
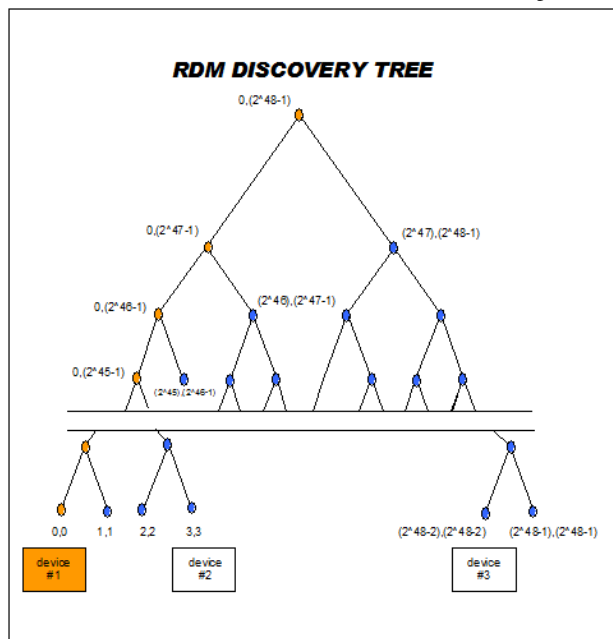
## RDM DEVICE DISCOVERY

- STEP 2 - ALL RDM DEVICE RESPOND



## RDM DEVICE DISCOVERY

- **STEP 3 - THE CONTROLLER GOES DOWN THE BRANCHES OF THE TREE TO FIND THE INDIVIDUAL DEVICES**
  - As the controller finds the RDM devices, it mutes them.
  - When the controller can no longer find devices to mute, discovery is complete.





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# Demonstrate Discovery



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# How Messaging Works

- Once Discovered, devices can be queried for useful information.
- Large Collection of GET and SET commands that allow access to common configuration options.
  - GET/SET DMX512 Starting Address (Slot)
  - GET DMX512 Slot Footprint
  - GET Device Model Type





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# How Messaging Works

- Also GET Commands for operating information.
  - GET Error and Status Messages.
  - GET Sensor which can include Temperature, Voltage, Wattage, Position, etc...
- Manufacturer's can create their own specific Commands as needed also.



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Demonstrate Device Info

Demonstrate Addressing

## Queued Messages

- Queued Messages allow a device to tell a controller about a parameter change even though the controller didn't specifically ask about it.
  - Controller sends a GET Queued Messages command
  - Response can be the response to any PID.
    - Example, someone changing the DMX address of the front panel of the fixture can notify the controller.



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# Demonstrate Queued Messages

## Status Messages

- Status messages allow devices to report errors or warnings back to the controller.
- They are retrieved at the same time as Queued Messages.
- Examples: Overtemp, Lamp Out, Homing Error.



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# Demonstrate Status Messages

## Sensor Messages

- Framework to define a very large range of sensor types.
- Allows for sensor values over a large range including defining ranges of normal operation for each sensor.
- Allows real-world units for sensors.



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# Sensor Message Demonstration



## Manufacturer-Specific Messages

- Allows Manufacturer's to create their own proprietary Get/Set messages for advanced functionality.
- Commonly used for Firmware Uploads.
- Content uploads/management



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# Manufacturer-Specific Messages Demonstration

## What's Next?

- BSR E1.37-1
  - Additional Get/Set Message sets for RDM.
  - Mainly covers Dimming systems; but also enhances Presets, Identify, Startup and DMX loss behavior.
  - Going out to 2<sup>nd</sup> Public Review.

## What's Next?

- BSR E1.33
  - Adds RDM capabilities to E1.31 (Streaming DMX over Ethernet)
  - Adds new network Discovery mechanism for E1.31.
  - Available in 1<sup>st</sup> Public Review by mid-2011.

## Other Resources...

- ESTA Connectivity Pavilion
  - Booth #1247
- “I Didn't Know ACN Could Do That!”
  - 1:30 - 3:00PM
- “ACN/RDM Perfect Together”
  - 3:30 - 5:00PM
- RDM Protocol Forums
  - <http://www.rdmprotocol.org>



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**Thank You For Attending!**

**Any Questions?**

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