LDI 2003 Orlando

RDM - Remote Device Management

a bi-directional protocol for configuration and management of USITT DMX512 based systems.

What is RDM?

- An enhancement to USITT DMX512 (and the new DMX512-A) that enables bidirectional communication over the primary data pair.
- RDM provides for configuration and status monitoring. Standard DMX512 still does normal control.
- An open standard that allows interoperability between many Manufacturers.

Where does RDM fit in?

- Different from the ACN protocol, but designed to complement each other.
- RDM will help prolong the use of DMX512 in environments where an Ethernet control system is not justified.
- Compliant DMX512 and DMX512-A devices are completely functional when RDM is present.

RDM Background

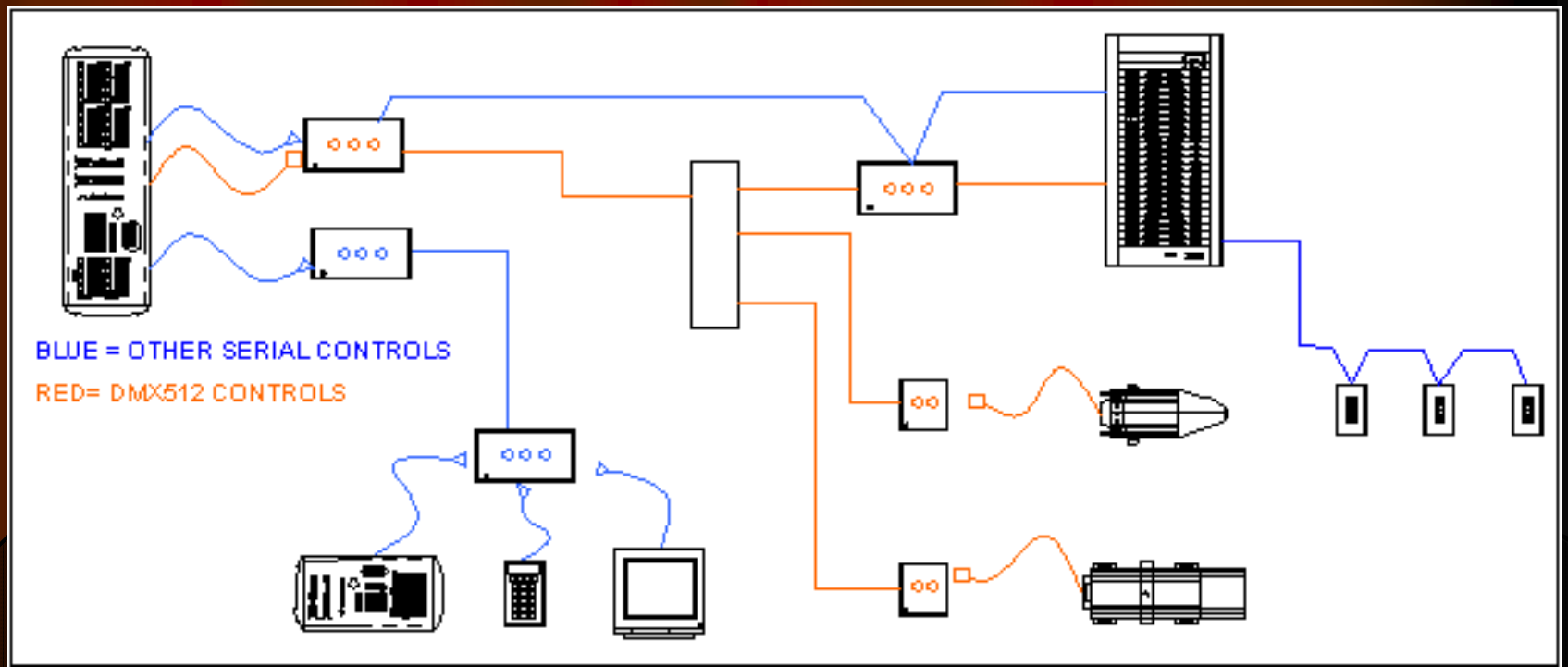
- Inspired by High End Systems Talkback protocol.
- Initial discussions developed several years ago during work on DMX512-A.
- ESTA Control Protocols Working Group approved RDM project with July 2001 CWPG meeting.

WHAT WILL RDM DO?

- “RDM eliminates climbing the truss to change configuration settings and DMX512 addresses.…"
  - It allows consoles from many manufacturers to set the DMX512 addresses for RDM Devices.
  - It allows a lighting console of one manufacturer to display the “feedback” information of another manufacturer's RDM device.

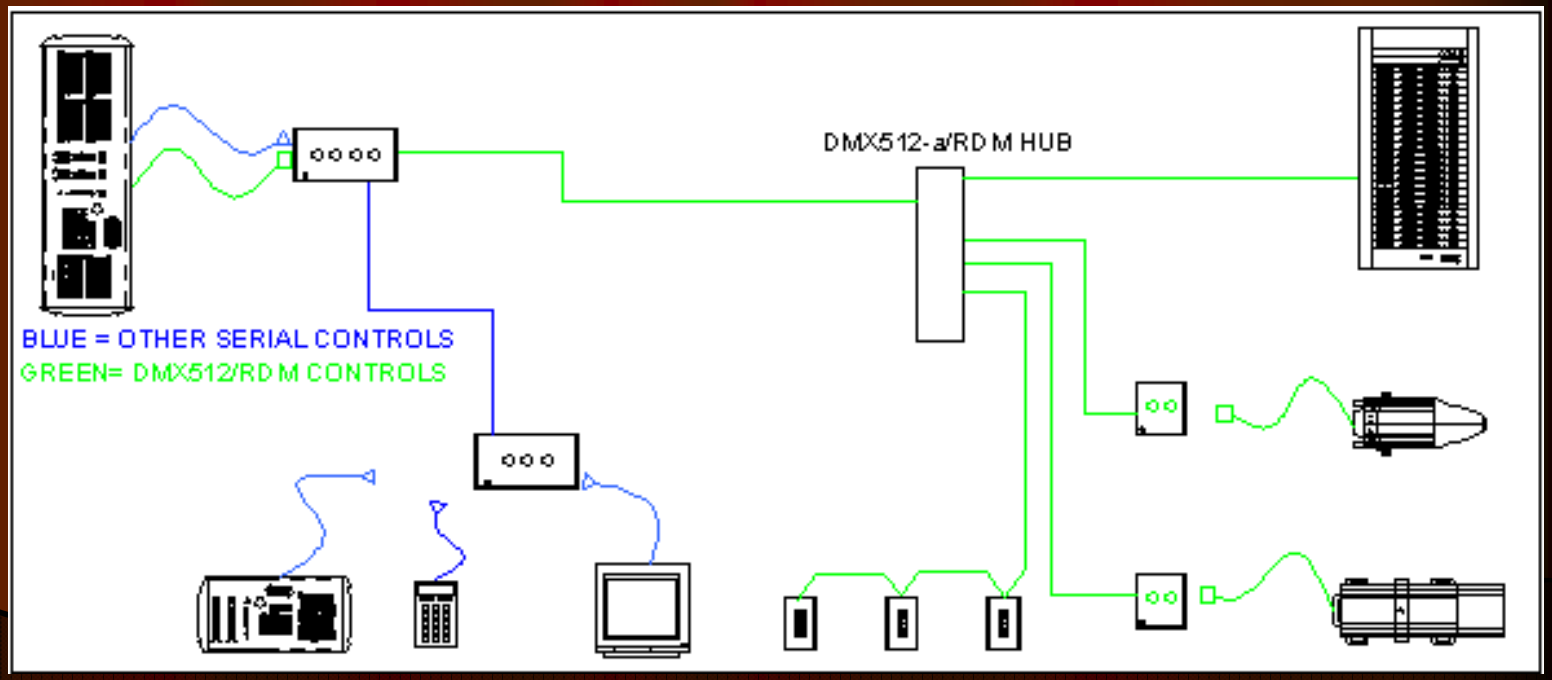
WHAT WILL RDM DO?

- Today's DMX512 systems "Enhanced" by multiple vendors adds additional wiring and lots of additional devices to operate, maintain and support.



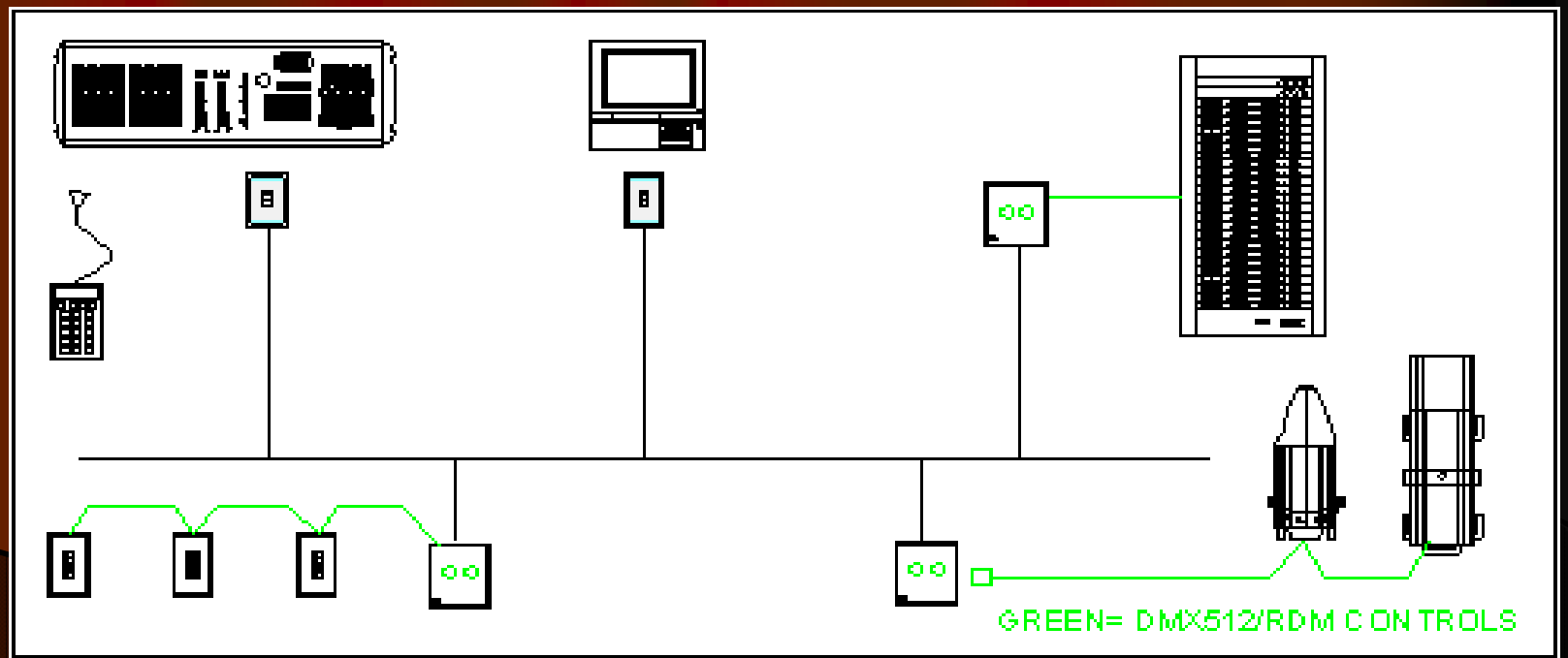
WHAT WILL RDM DO?

- Adding RDM to today's DMX512 system will reduce the set-up time needed to configure the system and reduce the number of proprietary serial interfaces.



WHAT WILL RDM DO?

- Using DMX512-A/RDM to ACN over TCP/IP gateways is the best way to “future proof” your system architecture. You get all the advantages and low cost of the existing DMX device with the flexible, scaleable Ethernet cabling.



WHAT WILL RDM DO?

- Allow for the development of “Universal configuration and monitoring equipment” on DMX512 systems.
- More sophisticated and comprehensive RDM/DMX512 test equipment.
  - Systems will be more stable and reliable in day to day operation.

WHY DO WE NEED RDM?

- RDM allows the addition of functions and features to DMX512 based systems.
- Manufacturers get a simple to implement standard feedback/remote configuration protocol.
- Rental houses will have fewer proprietary feedback systems to learn and maintain. RDM will simplify the set-up, maintenance, and repair of rental stock.

WHY DO WE NEED RDM?

- System integrators and Theatre Consultants will have more options when specifying components for new systems.

  (existing DMX512, RDM/DMX512, ACN over Ethernet nodes to RDM/DMX512-A)

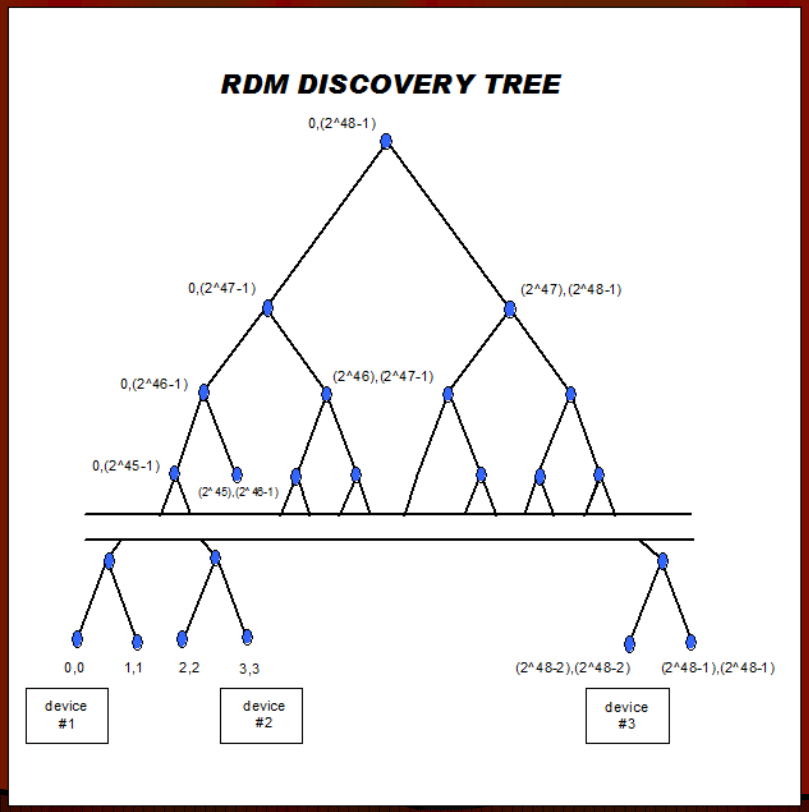
- End-users will get all the RDM features implemented on existing DMX512 wiring and free them from multiple proprietary feedback systems.

HOW DOES RDM WORK?

- DISCOVERY PROCESS
- HOW MESSAGING WORKS
- SYSTEM OPERATION AND PERFORMANCE

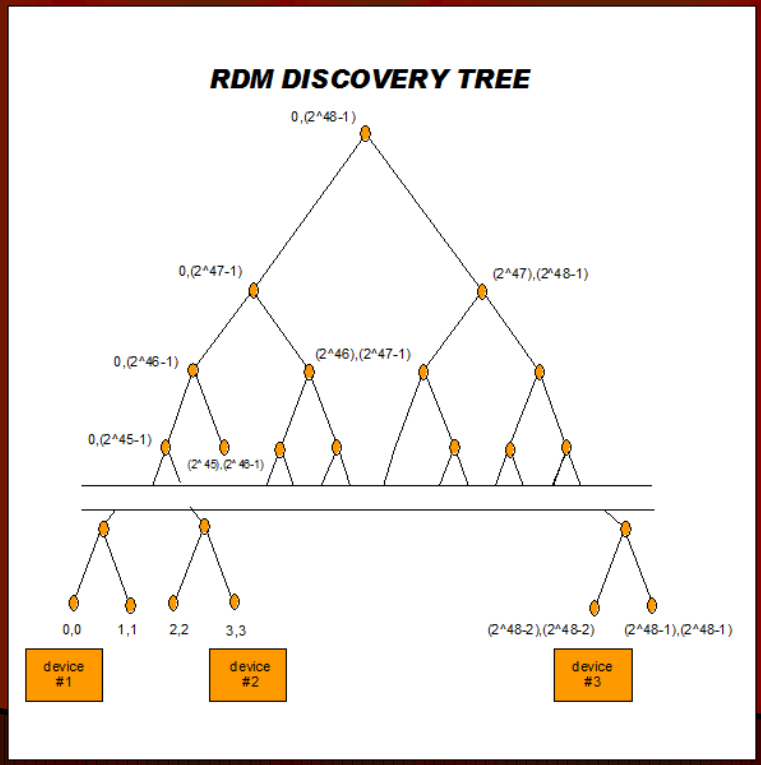
RDM DEVICE DISCOVERY

- STEP 1-THE CONTROLLER SENDS OUT DISCOVERY COMMAND



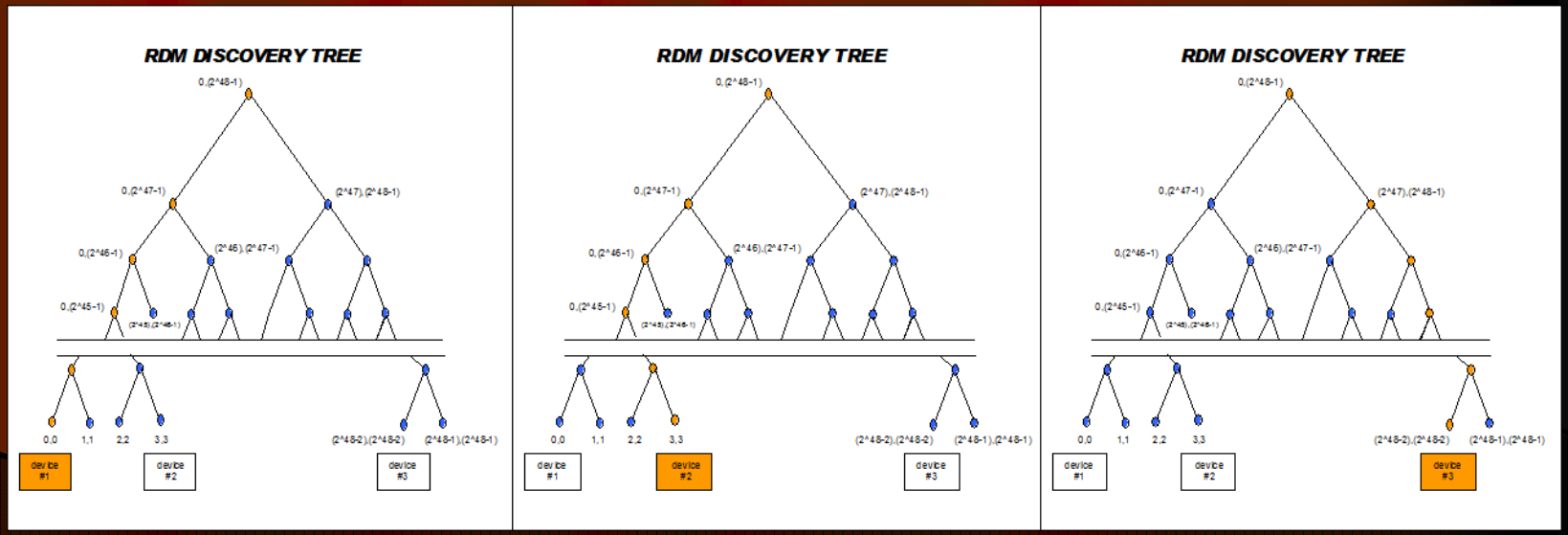
RDM DEVICE DISCOVERY

- STEP 2- ALL RDM DEVICES RESPOND



RDM DEVICE DISCOVERY

- STEP 3- THE CONTROLLER GOES DOWN THE BRANCES OF THE TREE TO FIND THE INDIVIDUAL DEVICES
  - As the controller finds the RDM devices and mutes them.
  - When the controller can no longer find devices to turn off discovery is complete.



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
  - GET/SET Fixture Library mode

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.

System Operation and Performance

- RDM Alternate START Code packets can be interleaved with normal DMX512 packets.
- Can still maintain 32 HZ refresh rate even with RDM Packets between every normal DMX512 Packet.

UPGRADE PATH TO RDM

- Manufacturer's can upgrade existing DMX512 product and/or incorporate RDM into new DMX512-A (E1.11) product.
  - Same connector (XLR 5pin) and pinout as DMX512
  - Protocol allows for additional "Manufacturer Manufacturer Specific" commands

- Interoperability of RDM devices will be established when a common Alternate START Code is defined.
  - This Alternate START Code will be defined by ESTA once the RDM protocol has become an ANSI standard.

WHEN WILL RDM BE READY?

- Work has progressed rapidly on the protocol draft.
- The RDM 1.0 draft was completed 6/24/03 and presented to the CPWG in July.
- the CPWG and the TSC have approved the RDM protocol draft as BSR E1.20 and released it for public comment. The first public review period ends December 9th , 2003
- The draft standard and comment forms are available online at www.esta.org

When will RDM be Ready?

- Currently many manufacturer's are implementing draft versions of the RDM protocol on existing product.
- The RDM working group has been conducting informal tests demonstrating compatibility between prototype products to prove concepts.
- A Reference Platform is also being developed within ESTA that fully implements and tests the Draft Standard.

“RDM-Ready”

- Not a universally defined or ESTA Supported term.
- Manufacturer’s term indicating they intend future support of RDM in some fashion.
- The cost and method may vary greatly between Manufacturer’s.
- Just about any “RDM-Ready” Product will require some kind of update (hardware or software) to be truly RDM compatible.
- Ask the Manufacturer exactly what “RDM-Ready” means for their products.

RDM-ACN THE NEXT STEP

- Both the RDM and ACN working groups are committed to making sure the interface between ACN and RDM protocols is as simple as possible.

- There are prototype gateway devices in the ESTA Connectivity Booth showing ACN/RDM communication.

RDM TODAY!

- The following manufacturer’s have graciously provided RDM development products implementing the current draft version of the RDM protocol to demonstrate some of its functions and features to prove concepts.

- These products are all Prototypes, and do not have this inter-operability between Manufacturers' in shipping products yet!

Today's Manufacturers RDM Demo

- Artistic Licence – Net-Lynx O/P and DMX-Split RDM
- Doug Fleenor Design – Isolated Bidirectional DMX512 Hub
- ESTA Reference Controller Platform
- EDI – Scrimmer using Wybron Dogbone upgrade
- High End Systems – Studio Color 250
- Howard Eaton Lighting – 20/40-way Splitter and LED Panels
- Wybron – CXI Scrollers and Watchdog Controller