

Technical Corner

Standards Update for 2007

As we move headstrong into this new year, it would be remiss of us not to take a moment to give a quick update as to the progress being made on several important fronts. However, with the redesign of the LONMARK web site (take a look to www.lonmark.org if you have yet to see these changes), information you want is even easier to find; members have an inside track to the progress of the various Task Groups; and new to the site, standardisation efforts have been given a presence. It is with this latter category that I start the New Year. In particular, I would like to draw your attention to the standards underway to open new paths for moving data from the ANSI/CEA 709.1 and EN 14908 1 level to the enterprise level.

oBIX – the Open Building Information Exchange Standard

The year 2006 saw the near-finalisation of oBIX, which is being developed through the Organization for the Advancement of Structured Information Standards (OASIS); an international, not-for-profit consortium self-tasked with the creation and promotion of such e-business standards. Mid-year, version 1.0 of oBIX saw public review resulting in only non-substantive, editorial changes, and an agreement to move that version forward. In early December, the participants (which included LONMARK International and some LONMARK member companies) approved the revised version 1.0 as an OASIS Committee Standard with

the goal of receiving full member support for finalising oBIX into an official OASIS standard early in this year.

What this means today: There are several manufacturers already working with what shall become the official oBIX v1.0 standard – a requisite for final OASIS approval. All needed source code is available on Source Forge (<http://sourceforge.net/projects/obix>) where the Java Toolkit can be downloaded. It includes the data model for object trees, an XML encoder/decoder, REST session management, and a Swing diagnostics tool – all in the public domain. LONMARK members are encouraged to begin exploration and to share their information with other LONMARK members in the LONMARK Member Forum.

So where do we go from here? What does the future of oBIX hold? Discussions are already in progress about how version 2.0 might look. One thing is certain, however: there will be even greater convergence with the enterprise systems; operations data and energy logging will be tied into the Enterprise Resource Planning (ERP) system; real-time, sensor-level issue data will be piped through facility-maintenance systems; and disparate control networks will be tied into the digital modelling of a building through the oBIX interface.

From a LONMARK standpoint, we intend to help a decade of profile and data-type development traverse the oBIX exchange platform as another link to that enterprise system.

LONMARK IP-852 Channel – Tunnelling of 709.1 over IP (EN 14908 4)

The LONMARK member companies working within the Consumer Electronics Association (CEA) to create the ANSI/CEA 852 Channel (adopted as EN 14908 4) have yet to rest. They have taken the tunnelling protocol even further and have made it more robust; now to become the CEA 852.1 protocol.

However, the great improvements to the protocol prevent it from being backward compatible to the original

852 version. But fear not, the 852.1 will have proper bootstrapping to allow it to coexist with the 852 specifications such that the new 852.1 will auto-negotiate to use the 852 when a device or router is unable to use the new 852.1 protocol. In particular, CEA-852-A (the IP-852 most-widely deployed) needed to be changed to incorporate a Protocol Escape Bit – essentially a flag that denotes whether the device/router can handle the new 852.1 protocol. This revision to the 852-A is known as 852 B. Think of the ‘B’ as the ‘bilingual’ flag. Just to note, the other major change in the new 852 B protocol is a clarification to packet authentication.

So, the original 852 had previously been modified as 852-A and is now newly modified as 852-B but continues to be known to us as the “LONMARK IP-852 Channel.”

Moving on...

So what are these changes in 852.1 that make it such an improvement over 852? The most important, as networks constantly change their configurations around us is that 852.1 does not assume that the devices/routers’ IPs will remain static. That is, 852.1 supports dynamic IP addresses, including support for NAT, DNS, and IP probing. That sounds easy except that the channel must continue to operate without an online configuration server (normally there to help track the IP address changes). To handle this, 852.1 uses a unique identifier for each device/router on the channel, which is in contrast to 852’s IP unicast Host:Port address.

Another major difference is in the operation modes of the new 852.1 channel: While 852 could operate in either a normal mode or a manual mode (where the configuration server did the work in the normal mode and the user did the work in the manual mode), 852.1 can use manual, server, and even a peer-to-peer mode of configuration services. While 852.1 supports multi- and unicast addressing as 852 did, the real strength is in its dynamic IP addressing support.

Multicast versus Unicast – the great bandwidth/timing debate. Is it better to broadcast (one to many) or to direct-cast (one-to-one in a fan-out configuration)? That depends on timing and bandwidth concerns. 852.1 offers a hybrid of the two that goes beyond the Send List of 852, because 852 did not support channels where single devices/routers could be addressed with both multi- and unicast. The 852.1 protocol introduces a second Session ID that allows for maintaining the ordering of packets whilst allowing for more dynamic switching between multi- and unicast.

Expanding on the idea of extended packet headers that allowed for additional information to be sent in the header of an 852 packet, 852.1 adds some structure to how the header is extended. This ensures readability by the receiver where multiple or stacked headers (extended or otherwise) are used – without customisation.

What can be expected of devices/routers? When 852.1 becomes a standard, it will likely take the place of 852 in many product lines. However, it has a bigger footprint and may not fit into the same memory space as existing 852 devices/routers. Likewise, it is not backward compatible in the truest sense. That means that while devices may support 852.1, it is not guaranteed that they will also work on an 852 channel unless the manufacturer decides to support both 852 and 852.1 in the same device.

At the very least, talk to your 852 manufacturer to see if/when they will support 852-B (which may be a simple firmware update) and whether they intend to support 852 and 852.1 in the same device/router, when the 852.1 standard is released – and of course, whether this means a firmware update or a new device/router.

For the latest information about oBIX and IP 852.1, look for the new Standards area in the Technical Resources section of the new LONMARK web site.

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Integrator's Perspective

An Appeal for Innovation

“In general we know what functionality of the technical installations the customer wants, but we really don't know what his exact demands for the future are. In fact, he doesn't know it himself.”

This phrase is heard too often in The Netherlands, when technical advisors need to specify functions of the technical installations of new buildings or in revitalising projects. Every technical advisor or building designer knows that nowadays there are many possibilities for intelligent building systems, however mostly they play it safe and opt for traditional designs. Far better explainable to the customer, no difficult questions of pay-back periods and especially no focus on integrated functionality or benefits, because there simply aren't any.

On November 2nd 2006, during the third annual Dutch Smart Buildings congress, the message to the 32 exhibitors and 400 attendees was to wake up the management in the building industry.

A Call for Innovation in the Building Industry

Because of the complete lack of initiative of building constructors and installation companies, Mr. Jan Kamminga, the chairman of the industrial employers organisation (FME) and formerly queen's commissioner, appealed to 400 representatives during the Smart Building congress. Addressing an audience of end users, architects, consultants, manufacturers, facility managers and building owners, Mr. Kamminga called to the current management in the building industry to take their

responsibility and to stick their necks out for more innovation in The Netherlands when it comes to designing, constructing and installing buildings, offices and health care housing. “What we do now is decisive for the way Holland will look 15 years from now. If we do the same as yesterday, in 15 years there will be no progress or innovative power. Do you want to be responsible for that? How can we explain to our children that when we had the choice, we chose to do nothing”.

Is the Dutch building industry so conservative and is there no innovation left in this area?

The Traditional Dutch Market Obstructs Innovation

“Onbemind maakt ongeliefd” is the motto in The Netherlands (unknown is unbeloved). Due to the traditional



building industry in The Netherlands, innovative design and investments in intelligent building systems are very seldom even though the percentage of investments in building installations has grown to a substantial level of the total costs of the building. The building market is dominated by project development companies and large building constructors who don't gain →