Implications for the Honeywell Enterprise Buildings Integrator User Community
Executive Summary

Thousands of building systems managers all over the world are using the Honeywell Enterprise Buildings Integrator (EBI) solution to control their working environment. By providing centralised monitoring and control of key services such as BMS, Access Control, CCTV, Fire and Life Safety, significant productivity and energy reduction advantages are being made available to users.

While these Honeywell solutions will continue to help Operations, Facilities and Security Managers to control and optimise their plant and property efficiently, the Windows® operating system which hosts the EBI solution platform may have a software obsolescence issue that requires all users to check and, if necessary, update their software. Honeywell will assist with this process, which in many cases will involve a quick and simple upgrade, but may also require a new platform, effectively a new PC, and an upgraded release of the EBI software. This will, in most instances, result in greatly enhanced functionality and improved efficiency, as well as addressing the Windows® issue.

The driver for change is the impending obsolescence of Windows® XP, the operating system on which some older versions of EBI applications run. Honeywell has identified a need to increase corporate awareness of this expected Microsoft® event and to highlight the potential risks of system failure that it may present. While certain risks are well documented in Microsoft® and third-party discussion documents, we have found that the implications of support withdrawal in the building controls environment are potentially overlooked in many cases. This is despite the fact that a fix can often be executed with practically no change to physical wiring and with practically zero loss of critical control system data.

The transition to new operating system software will provide access to up-to-date technology without the need for material change to most of the legacy building systems. However, updates to the installed base will often require justification in terms of the risk and value of such a change. This paper has therefore been written to explain the rationale, business benefits and upgrade process so that the investment in installed Honeywell technology is enabled to help deliver continued performance and support to our customers.

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Background

In the same way that business applications such as Word®, Excel® and email require an operating system (OS) loaded onto a computer, building management software resides on a similar platform. The majority of the Honeywell EBI installed base runs on Dell® computers with Windows® as the resident OS. As one of the most popular business OS in the world, Windows® is continually updated to address operational and security issues and to add new features and functionality. Periodically Microsoft® launches a redesigned OS, while taking care not to obsolete the applications that run on it. Between such major launches, service patches are sometimes made available to existing users, often to address performance enhancements and to incorporate new security measures (e.g., to reduce the risk of unauthorised remote access to the system, which may compromise its operational capabilities). It is our understanding that Windows® XP Service Pack 3 is the final version of XP and, from the table below; you can see that Microsoft’s extended support of this OS is expected to end in April 2014.

The table below illustrates the history of the Windows® OS over the last 14 years of Microsoft® releases together with their support dates.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Year of Release</th>
<th>Mainstream Support end</th>
<th>Extended Support end</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows® XP</td>
<td>2001</td>
<td>Apr 2009</td>
<td>Apr 2014</td>
</tr>
<tr>
<td>Windows® Vista</td>
<td>2007</td>
<td>Apr 2012</td>
<td>Apr 2017</td>
</tr>
<tr>
<td>Windows® 7</td>
<td>2009</td>
<td>Jan 2015</td>
<td>Jan 2020</td>
</tr>
<tr>
<td>Windows® 2008 R2</td>
<td>2009</td>
<td>Jan 2015</td>
<td>Jan 2020</td>
</tr>
<tr>
<td>Windows® 8</td>
<td>2012</td>
<td>Jan 2018</td>
<td>Jan 2023</td>
</tr>
</tbody>
</table>

Table 1: Windows® Release History

Just like personal computers, building systems run more efficiently and often provide a better return on investment when existing infrastructure and software is kept up to date with the latest technology. Leveraging the functionality of installed Honeywell EBI systems through simple, cost effective migration to new technology, while optimising current investments in infrastructure, can be a key element to promoting business efficiency. However it can be challenging to justify the business return on a control platform upgrade for equipment that still appears to be functioning appropriately. The cost of taking such action must, among other things, be weighed against the cost of doing nothing (which may have very undesirable potential consequences).

EBI users, of course, desire to make informed value judgements concerning such system upgrades. In addition to Windows® XP becoming non-supported, the opportunity to upgrade other components that manage the building systems may result in significant productivity improvement for relatively little cost. Honeywell would be pleased to assist with an audit of our customers’ installed systems to identify where other changes may prove beneficial, or even essential, to the safe and reliable operation of the system.

Honeywell’s naming convention for EBI software releases is in the form of Rxxx.x. Version R300.1, released in 2003, was the first version capable of running on Windows® XP as the OS. Since many end users upgrade their hardware on a four-to-six year cycle, the business case for a complete review of the existing installed base of R310 released in 2006 and its hardware platforms and OS, are now due, even without the given Windows® XP support expiry.
Reasons to Upgrade

Businesses and home computer users have become accustomed to upgrading their OS. Longer-term Windows® users often follow an upgrade pattern implied in Table 1 above, occasionally missing every second or third release. Upgrades typically enable enhanced functionality, fix software bugs, and support newer applications to benefit from the newer technology available with the later OS versions. Most critically, they also may deliver heightened vigilance against continually developing security threats.

Since Windows® XP was first launched, internet usage has grown from 361 million to more than 2.4 billion users. As web usage has become more woven into the fabric of society, it has become an increasingly popular destination for malicious activity. Older software is particularly at risk due to the amount of time available to virus authors to understand how to penetrate the fundamentally less-secure code and the larger installed base, making the potential impact of any software viruses and worms broader and more troublesome.

While the security mitigations that Microsoft® developed for XP were “state of the art” when they were published years ago, they may no longer be sufficient to block the kinds of attacks Microsoft now regularly sees. As security updates are not expected to become available for XP after April 2014, Windows® XP may present increasing vulnerabilities after that date. Many internet bloggers are conjecturing over this possible threat and whilst Honeywell cannot comment on conjecture, we will help lower your risk profiles from these concerns.
Honeywell’s current software support policy is to continue to support up to two previous releases of EBI. The table below summarises the EBI release history and the associated typical server operating system.

<table>
<thead>
<tr>
<th>EBI Release</th>
<th>Year of Release</th>
<th>Mainstream Support end</th>
<th>Typical Microsoft® Server Operating System</th>
</tr>
</thead>
<tbody>
<tr>
<td>R100</td>
<td>2000</td>
<td>2003</td>
<td>Windows® NT</td>
</tr>
<tr>
<td>R110</td>
<td>2001</td>
<td>2006</td>
<td>Windows® NT</td>
</tr>
<tr>
<td>R300</td>
<td>2003</td>
<td>2009</td>
<td>Windows® XP</td>
</tr>
<tr>
<td>R400</td>
<td>2008</td>
<td>Supported</td>
<td>Windows® XP, Windows® 2003, Windows® Vista</td>
</tr>
<tr>
<td>R410</td>
<td>2009</td>
<td>Current</td>
<td>Windows® 7, W2008® R2</td>
</tr>
<tr>
<td>R430</td>
<td>Q1 2014</td>
<td>TBD</td>
<td>Windows® 7, W2008® R2</td>
</tr>
</tbody>
</table>

Table 2: EBI Release History

Our system analysis indicates that many EBI users will likely have upgraded their EBI version without upgrading either the platform or its OS. Others are likely running old versions of EBI software on upgraded computer platforms. Those who run their EBI server on the corporate IT network may be running the risk of compromising security via the inherent weakness of an unsupported operating system. Internet hackers will be on the lookout for such security holes in vulnerable areas of the network.

For those still using EBI R310, released in 2006, the PC hardware assets may have been written off the balance sheet and, as such, present an opportunity to upgrade the hardware and EBI solution. While this has provided a fully functional solution while saving additional costs, the opportunity to replace the platform with newer technology that can implement the numerous EBI enhancements should form part of the decision-making equation. This will enable the myriad of new features in EBI to be realised on a more productive, and likely secure, platform.

A well-planned and executed migration to the latest EBI solution will not only promote improved building systems availability and reliability, but will also enhance flexibility and the inherent security of the solution. Flexibility is a key differentiator on which companies seeking to provide an optimum working environment for their stakeholders will thrive, while potential sub-optimal security is a business risk that is now simply too critical to leave unaddressed.

An up-to-date EBI implementation will help users get more from their building and enhance contributions to the bottom line through the promotion of reduced energy and operational costs.

For those who have been running a stable EBI platform for many years, there is a potentially increasing risk of component failure that can occur, without prior warning, in any computer. The fact that the hardware may need to be replaced as part of this OS upgrade will often bring benefits in parallel with the essential software changes that are expected to result in a superior operator experience and also provide productivity benefits.
Justification

For the typical Facilities Manager, the key question in justifying new investment in a building system is to analyse what will happen if the option to do nothing is taken. By contrast, IT Managers are well-accustomed to the need for frequent upgrades of the deployed equipment under his or her control, particularly the software components. Most technology users are familiar with the often expensive consequences of manufacturers’ support expiry and the failure to keep pace with upgrades, and the impact on productivity that can result. However, Facility Managers are often used to supporting assets with much longer operational lifetimes and building infrastructures which continue to provide a suitable working environment for many years, requiring only routine maintenance of equipment with moving parts.

However, as with any insurance policy, the cost of protection is easy to justify when it prevents consequential expenditure that can be many times greater than the policy itself. In an uncertain world, we understand that Microsoft will not be offering any security patches for XP after April 8, 2014; for XP users this signals potential risk that should be mitigated now, before adverse consequences occur.

Although comprising a relatively small portion of the overall investment in building controls, the efficient integration of the various systems, which may include BMS, Access Control, CCTV, Fire and Life Safety, can have a large impact on return on investment. The specific drivers relating to individual sites will vary. In general they may include:

• Obsolescence – cost of supporting older generations of system components including the operating software and pc platforms hosting EBI
• End of Service Life – replacing equipment at risk of experiencing end-of-life issues due to electrical and mechanical failure, such as hard drives, keyboards, monitors and power supplies
• Increasing system component reliability – vendor guaranteed support for base hardware and software
• New units or upgrades – adding or modernizing a unit to promote its continued ability to deliver in the future
• Loading issues – current management platforms nearing their performance capacities or running slowly due to an increase in monitoring scope or proliferation of unused and old files
• New added-value features – may include improved alarm management, operator effectiveness and mobile smart phone / tablet solutions
• Co-existence with multiple vendors and applications – may not be possible or easily done with older system components
• System security – isolating the EBI system from viruses which may enter corporate LANs from external sources
• Status data at the desktop – promoting a secure path for data that enables improved decision making at the business level, creating real operational responsiveness to productivity or security benefits

Honeywell will review all the relevant options in each case and will help customers to choose the best way forward by assessing the particular characteristics of each EBI installation. This will include advice on how to protect the investment going forward through annual service agreements or one-time upgrade solutions. For those who prefer more predictable costs, we have introduced a new EBI Lifecycle Management (ELM) service offering which delivers continual upgrades as necessary. The objective is to promote the optimum return on customer investment and help to provide a safe, secure and reliable working environment for all concerned.
Migration

Today’s building infrastructure tends to often incorporate technology which overlaps significantly with that formerly residing firmly under the IT department’s responsibility. This certainly is the case with enterprise building integration. Some end users have merged this responsibility, while others maintain a separate structure between their Facilities and IT departments. This is a matter of strategic preference, among other things. Whatever the structural arrangements, the same time-proven migration planning that forms a routine part of IT services should be applied to modern building controls. Honeywell has the ability to provide assistance as required in determining the timing, migration path options, project definition/scoping, implementation support and service requirements.

If the only change required is the mitigation against the risk of running an unsupported XP operating system, a software upgrade to Windows® 7 may address this. However, since it is possible that such a change will highlight the need for hardware and other software changes which may be identified during a legacy system audit, then it is important to assess fully the scope of the migration. Since EBI versions older than R400 will not run on Windows® 7, the scope should include moving the EBI software revision level up to current EBI release: R410.

To increase the likelihood of a successful migration effort, facilities management should plan for the change, identify a critical timeline, conduct regular project meetings, engage those who will be affected by the change, identify all available resources and plan for contingency resources or vendor assistance if needed.

An EBI upgrade project is likely to include the following key steps:

• Project definition and scope
• Funding and approval
• An optimum start and completion date
• The precise migration path including clearly-defined goals and support resources
• Key stakeholder identification including engineering assistance from Facilities Management, Security and IT personnel
• A comprehensive implementation schedule with checklists for testing
• Detailed cutover plans
• Operability checks and tests with reversion path to legacy system if needed
• Documentation of the new system and any procedural changes or enhancements
• Acceptance and project completion

Honeywell can provide technical assistance in all aspects of the process during and after the migration is complete, and we will assist in the new installation's continued performance as part of an agreed service contract.
Benefits

One of the main benefits of migrating away from Windows® XP will be the availability of Microsoft support for subsequent security updates and version updates. An upgraded management system with the latest hardware and software at the heart of the EBI system typically delivers several benefits.

- The operator interface presents a more comprehensive solution running more efficiently and reliably without any change to the legacy building controls.
- Better diagnostic features help lead to speedier fault isolation and resolution.
- Reliability is inherently enhanced and the updated support of the operating system software capitalizes on the benefits of having the latest and most effective system operation and support helps provide peace of mind to the Facilities Manager.

The operational improvements resulting from an updated EBI version will depend on the revision level of the existing software. The revisions are listed in Table 3.1. The expected business outcomes can be summarised as follows:

- Windows® XP support is expected to end in April 2014. Facilities using a version of EBI before R410 may be left exposed to the risk of an unpatched Windows® operating system. EBI R430 offers a migration path to a fully supported, IT-compliant system, promoting the enhanced security of your network and facility.
- Enhanced productivity and greater efficiency via new system features and mobile solutions.
- Optimized facility performance and reduced energy spend with enhanced scheduling and cloud connectivity.
- Lifecycle cost reduction and enhanced system interoperability through Honeywell utilization of open systems and enterprise web services.
Conclusion

Microsoft has announced that support of the Windows® XP operating system will cease after April 8, 2014. Many customers are running Honeywell EBI software on XP platforms which have completed their asset write-off over several years of satisfactory operation. The Honeywell Enterprise Buildings Integrator comprises a suite of software applications licensed in various combinations to meet many stringent facility requirements. These features are typically further enhanced by changing the OS and by reviewing the platform status. Despite the impending support withdrawal, there remains a large installed base in the building controls environment running on Windows® XP.

The most recent versions of Honeywell EBI have been designed to run on Microsoft Windows® 7 and Windows® 2008 R2, the currently preferred OS. Versions older than R400 were designed to run on Windows® XP and we recommend they be upgraded in line with the XP migration.

Many older EBI implementations are running on hardware platforms that would benefit from upgrading to promote reliable operation and benefit from the latest software features. Action is therefore needed now to audit EBI systems by site to promote continued functionality, reliability and security and to help deliver the operational benefits in line with your business goals.

Honeywell can assist in this process, so EBI users are invited to contact their local Honeywell support organisations to discuss a migration plan to address impending obsolescence and to benefit from new functionality which will enhance existing systems and applications to help drive your business outcomes.
References

• Rains Tim – Microsoft® the Risk of Running Windows® XP after Support Ends April 2014. Retrieved October 7, 2013 from:  

• CDW Security Assessments: Top Security Threats for 2013. Retrieved October 5 2013 from:  

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To learn more about how Honeywell's Enterprise Buildings Integrator solutions can protect investments, improve business results and reduce risks, visit our website www.honeywell.com or contact your Honeywell account manager.

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