

Preparing for SharePoint 2010 Upgrade Today

*Written by
Joel Oleson
Sr. Architect
Quest Software*



White Paper

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World Headquarters
5 Polaris Way
Aliso Viejo, CA 92656
www.quest.com
e-mail: info@quest.com
U.S. and Canada: 949.754.8000

Please refer to our Web site for regional and international office information.

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INTRODUCTION

All of the buzz about the technical previews of Office and SharePoint has many IT professionals looking to the first half of 2010 with excitement. Many are asking, "What can I do to prepare for SharePoint 2010?" Even though many details about the upgrade are yet to be revealed, there is much that can be done today. The SharePoint product team has provided guidance on a number of items that can help organizations prepare, and Service Pack 2 includes a key tool that can provide additional insight and configuration information.

PREPARING FOR SYSTEM REQUIREMENTS

System Requirements

The following are the system requirements for SharePoint Server 2010.

SharePoint Server

- 64-bit Windows Server 2008 or 64-bit Windows Server 2008 R2

SQL Server

- 64-bit SQL Server 2005 or SQL Server 2008

Client

- Internet Explorer (IE) 7 or higher, or Firefox 3.x for Editing and Design
- Safari - better browsing experience
- No support for IE 6

More details are available on the SharePoint Team blog:

<http://blogs.msdn.com/sharepoint/archive/2009/05/07/announcing-sharepoint-server-2010-preliminary-system-requirements.aspx>

SharePoint Servers

Over a year ago, it was announced that SharePoint Server 2007 and WSS 3.0 would be the last versions to support 32-bit. While most rack-mounted servers produced in the past few years are 64-bit capable, most installations today are running on Windows Server 2003 in 32-bit mode. This is insufficient for SharePoint 2010; you must run 64-bit Windows Server 2008 in your production environment. Small businesses running single-server installations on 32-bit hardware will require upgrades.

What about virtualization? Unfortunately Virtual Server and Virtual Desktop both support only 32-bit images. Windows Server 2008 Hyper V or alternate software will be required to host an image that supports the virtual images commonly used in SharePoint development, testing and production environments.

SharePoint Service Pack 2 Update or Later

One of the first things you can do to prepare for SharePoint 2010 is upgrade your current installation to the latest service pack. Upgrading to Service Pack 2 or one of the newer cumulative updates will provide you with significant features to help you prepare for SharePoint 2010.

- **PreUpgradeCheck** – This STSADM command provides guidance on upgrade requirements and determines if an upgrade will fail, without

making any changes to the current environment. This command is explained in more detail below.

- **Read-only databases** – Read-only databases provide uptime flexibility for both build-to-build (b2b) and version-to-version upgrades. By offering read-only databases to users as the other databases are being upgraded, you can provide access to data during the upgrade. For more information about using read-only databases during an upgrade, see the Migrate Databases Technet article at <http://technet.microsoft.com/en-us/library/cc263299.aspx>.
- **Parallel upgrades** – In the past, databases had to be upgraded in serial fashion; only one database could be upgraded per server at once. Some companies were able to use more hardware to overcome this limitation. Now you can upgrade many databases simultaneously, which dramatically increases the speed of b2b or version-to-version upgrades. Upgrade strategies will not be discussed in this paper.
- **EnumAllWebs** – This command provides the entire site collection and information hierarchy of your environment. This XML output can be used as a site map or for inventory.
- **DeleteSite and Deleteweb** – These two STSADM commands have been enhanced in SP2 to include the force command to remove problematic site collections and webs (sites or sub sites). Orphaned sites and webs can be removed using the stsadm -o deletesite -force command.
- **VariationFixTool** – Using EnumAllWebs, you can get the GUID for the sites with variation issues. This new tool command in STSADM will allow you to fix up your sites with variations that have become out of sync.

More detail on SharePoint SP2 can be found at this link:

<http://go.microsoft.com/fwlink/?LinkId=148374>

SQL Servers

You can also begin to prepare your backend systems. For performance reasons, SharePoint 2010 requires 64-bit for your web infrastructure, as well as for SQL Server. It also requires SQL Server 2005 or SQL Server 2008. SQL Express 2005 or 2008 continues to be an alternative, but I caution my clients that the lack of management tools with SQL Express makes it difficult to identify issues. SQL Server Standard or Enterprise is the recommendation for the most scale, performance and manageability. You might choose your version based on your need for clustering features.

Client Desktop Requirements

Browsers

In a very exciting move, the SharePoint team clarified their browser strategy: a standards-based browser like IE 7, IE 8, Firefox 3.x will be required to author content in SharePoint 2010; IE 6 will not be supported. In addition, SharePoint 2010 will offer an increased level of compatibility with Firefox 3.x and Safari 3.x on non-Windows operating systems.

This move is not only a big win for corporations with mixed environments; it also means a richer editing and design experience. Although you will still be able to design pages that can be viewed using IE 6, it is not supported, and now is the time to plan to upgrade your client browsers to standards-based browsers. You might be interested in Google Chrome, but at this time nothing has been stated about that browser.

Better Together: Windows 7 and Office 2010 Enterprise Desktop Considerations

In fact, this is a good time to evaluate desktop requirements for your environment as a whole. Many organizations are still running Windows XP and Office 2003 (or even older versions of Office), and should be planning for an upgrade to Office 2010 and Windows 7. Office 2010 provides the greatest innovations for editing Office clients since Office 97, as well as the richest SharePoint integration yet. I find that the 90% approval given by attendees at Microsoft's World Partner Conference is spot on: Windows 7 is the best operating system ever, offering security, compatibility, and stability. Moreover, Windows 7 has fewer hardware requirements than Windows Vista; many organizations will be able to squeeze a year or two more out of their existing hardware while enjoying increased productivity and less expense.

For improved user experience and its attractive licensing options, you should also seriously consider SharePoint Workspace. While not all users may need SharePoint Designer 2010, its designer standards-based desktop might be a way to increase adoption and provide tools to those that need them.

Office Web Applications

Microsoft will also be offering Office Web Applications -"light" versions of Office applications available directly from the cloud as a subscription service. This will provide an opportunity to reduce the cost of upgrading Office applications, while still providing most users the features that they need to be productive.

Update Your Macintosh Desktops to Office 2008 SP2

Office 2008 SP 2 for Mac now offers Mac integration with Office and SharePoint. Specifically, Office 2008 SP2 for Mac offers the new Document Connection for Mac tool, which allows users to save and open documents on

SharePoint 2007 and Microsoft Office Live Workspace. This enhancement improves the editing experience and integrates the Mac desktop experience with SharePoint and Live Workspace. In addition, Office Live is now compatible with Apple's Safari 4 Web browser.

More details are available at Microsoft Presspass on the release of Office 2008 SP2 for Macintosh:

<http://www.microsoft.com/presspass/press/2009/jul09/07-20macofficesp2pr.mspx>

Developer Desktop Considerations

The ultimate SharePoint developer desktop is 64-bit with 8 GB of RAM running Visual Studio 2010 with SSD disks. Sound like a dream? While it may take some serious planning to get your developers running with the latest and greatest technologies, SharePoint 2010's 64-bit requirements can help you justify this expenditure when planning your development budget. In addition, if corporate remote development includes virtual environments, then be sure to look at Windows Server 2008 and Hyper V. Make sure that the host will support 64 bit.

Even if you cannot have the ultimate SharePoint development environment on day one, you can specify that future developer desktop purchases have 64-bit hardware and added RAM to support virtual images, provide overhead to run a server, or serve other purposes. Moreover, the additional RAM ultimately means speed, which means faster development and better productivity. The solid state drives are a bonus. Running images off of them is an incredible experience and the speed and performance means increased productivity for developers.

RUNNING THE STSADM COMMAND PREUPGRADECHECK

As explained above, the PreUpgradeCheck command for STSADM is provided in SP2 of SharePoint Server 2007. It is actually built on the best practices analyzer and is the best free tool available to help you understand the current state of your environment.

In the past, there was some fear around the prescan.exe tool because it made a change in the content database to show that a site was checked and ready to be upgraded; the upgrade itself would fail if the command had not been run. Microsoft heard the feedback and now the PreUpgradeCheck does NOT write; it is completely a read-only operation. Operations teams should not be afraid to run the command.

STSADM -o preupgradecheck

Running with the default settings, the command **stsadm -o preupgradecheck** will use the rules and definitions in either the WssPreUpgradeCheck.xml (for WSS 3.0) or both WSSPreUpgradeCheck and OssPreUpgradeCheck.xml (for SharePoint Server 2007 environments). These XML config files provide the configuration for the out-of-the-box site definitions for their product. Settings include options for pointing to the default config files or to custom XML config files for custom site definitions.

Understanding the Output

Figure 1 shows an example of a PreUpgradeCheck command being run. Notice the word "passed" in green text for things like the OSPerequisite; these items receive a pass or fail based on the version of Windows Server that's installed. In this case, PreUpgradeCheck is looking for Windows Server 2008. Also note the yellow "information only" sections for things such as LargeList, where configuration and complexity information about the farm is detailed, or things to be aware of during an upgrade.

```
Administrator: Command Prompt
C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\12\BIN>stsadm -o preupgradecheck

Processing configuration file: OssPreUpgradeCheck.xml
  SearchContentSourcesInfo... Information Only
  SearchInfo... Information Only
Processing configuration file: WssPreUpgradeCheck.xml
  ServerInfo... Information Only
  FarmInfo... Information Only
  UpgradeTypes... Information Only
  SiteDefinitionInfo... Information Only
  LanguagePackInfo... Information Only
  FeatureInfo... Information Only
  AanUrls... Information Only
  LargeList... Information Only
  CustomListViewInfo... Information Only
  CustomFieldTypeInfo... Information Only
  CustomWorkflowActionsFileInfo... Passed
  ModifiedWorkflowAuthorizedTypesInfo... Information Only
  ModifiedWorkflowActionsFileInfo... Passed
  DisabledWorkflowsInfo... Passed
  OSPrerequisite... Passed
  WindowsInternalDatabaseMigration... Passed
  WindowsInternalDatabaseSite... Passed
  MissingWebConfig... Passed
  ReadOnlyDatabase... Passed
  InvalidDatabaseSchema... Passed
  ContentOrphan... Passed
  SiteOrphan... Passed
  PendingUpgrade... Passed
  InvalidServiceAccount... Passed
  InvalidHostName... Passed
  SPSearchInfo... Information Only

Operation completed successfully.
```

Figure 1. Running PreUpgradeCheck

Figure 2 shows a run of PreUpgradeCheck that includes bright red "Failed" text next to items that need to be corrected prior to upgrade. In this case, the farm contains a custom site definition but SiteDefinition is missing from the XML configuration file. The administrator should address the issues identified by the check, upgrade to 64-bit Windows Server 2008 and rerun the check with the new configuration file.

```
C:\Program Files\Common Files\Microsoft Shared\web server extensions\12\BIN>stsadm -o preupgradecheck

Processing configuration file: OssPreUpgradeCheck.xml
  SearchContentSourcesInfo... Information Only
  SearchInfo... Information Only
Processing configuration file: WssPreUpgradeCheck.xml
  ServerInfo... Information Only
  FarmInfo... Information Only
  UpgradeTypes... Information Only
  SiteDefinitionInfo... Failed
  LanguagePackInfo... Information Only
  FeatureInfo... Failed
  AanUrls... Information Only
  LargeList... Passed
  CustomListViewInfo... Information Only
  CustomFieldTypeInfo... Passed
  CustomWorkflowActionsFileInfo... Passed
  ModifiedWebConfigWorkflowAuthorizedTypesInfo... Information Only
  ModifiedWorkflowActionsFileInfo... Passed
  DisabledWorkflowsInfo... Passed
  OSPrerequisite... Failed
  WindowsInternalDatabaseMigration... Passed
  WindowsInternalDatabaseSite... Passed
  MissingWebConfig... Passed
  ReadOnlyDatabase... Passed
  InvalidDatabaseSchema... Passed
  ContentOrphan... Passed
  SiteOrphan... Passed
  PendingUpgrade... Passed
  InvalidServiceAccount... Passed
  InvalidHostName... Passed
  SPSearchInfo... Information Only

Operation completed successfully.

Please review the results at C:\Program Files\Common Files\Microsoft Shared\Web
Server Extensions\12\Logs\PreUpgradeCheck-20090623-115211-250.htm.

C:\Program Files\Common Files\Microsoft Shared\web server extensions\12\BIN>_
```

Figure 2. PreUpgradeCheck with failures

The output of the PreUpgradeCheck is not only what you see in the simple command output. There is a rich web-based HTML report with a full log with detailed information about each check that is performed. This HTML report can be opened in either IE or Firefox and is driven off an XML file that can be used with an alternative XSL, if desired.

The rich HTML file includes the real meat of the PreUpgradeCheck. Two main categories of content are provided: 1) information and configuration, and 2) customizations and dependencies.

A few examples are detailed below.

PreUpgradeCheck Information and Configuration

- Content sources and start addresses
- Topology +(SSPs), WSS search topology
- Servers (not including SQL)
- Upgrade types
- List of alternate access mappings

- Large lists
- Language packs

PreUpgradeCheck Customizations and Dependencies

- Sites based on custom site definitions
- Sites based on site template
- Features in use (including missing)
- Installed language packs
- Features
- Custom list views and custom field types, Web.Config entries
- Content and site orphans
- Custom web parts
- Custom XML-based CAML views
- Custom XML CAML content types

Running in Local Server Mode

In addition to running PreUpgradeCheck in default mode to determine customizations of the farm, you can also run the check in local server mode, which will provide information that is specific to a server. In larger server farms, you can run the command run in local mode for each server as well as for the whole farm. Then you can compare the reports using a tool such as WinDiff and identify any differences in configuration and customizations.

In fact, I encourage people to run this important command now and often—the insight it provides is useful not only for an upgrade, but as a best practice, as well as for configuration analysis. Since PreUpgradeCheck does not stop when it finds an issue, you can run it even if you know you have custom site definitions that will generate a failure notice. Remember, the command is read-only, so it provides information without making any changes. For example, you can get a snapshot of the alternate access mappings or any differences in the server configuration over time. It may be a good idea to create a scheduled task to run the PreUpgradeCheck once a week or maybe even more often.

More information on PreUpgradeCheck from TechNet:

<http://technet.microsoft.com/en-us/library/dd793605.aspx>

Identifying Customizations

The PreUpgradeCheck tool can give you a lot of insight into your environment, but you shouldn't stop there in your efforts to identify development assets, customizations, and configurations in your SharePoint farm. Places to look include the following:

- Binaries and Dev Assets, which are often found in _layouts, features, and 12 hive
- Installation directories
- GAC or Bin
- IIS Home directory or virtual directories
- Features
- Solutions
- Add/Remove Programs
- Search customizations, such as word breakers, noise words, thesaurus, and filters
- Custom icons
- Timer jobs
- Event receivers
- HTTP handlers and IIS customizations
- Third-party installations (work with the third party for upgrade guidance)

Tools to Help Identify Customizations

A variety of tools can make your search for customizations much easier, including the following:

- **Windiff** – For comparing files and folder structures
- **Beyond Compare** – Discovering differences in files and structures and syncing changes
- **SPDiag** (SP Admin Kit) – For locating and diagnosing SharePoint deployment issues
- **Preupgradcheck** – Information, configuration, and configurations (already detailed in this paper)

INFORMATION ARCHITECTURE AND DATA CLEANUP

The more optimized the environment, the smoother and faster the upgrade will be. Creating an initiative to encourage users to delete unused sites and identify ones that are no longer in use can trim a lot of content that is simply taking up space; this clutter can slow down the upgrade process. You can do all of the following today:

- Remove unused sites and site collections
- Remove orphaned sites, lists, and objects identified in the PreUpgradeCheck
- Remove locks and increase the quotas of sites that are at or near max capacity
- Remove or add missing features and web part assemblies (check dependencies) identified in PreUpgradeCheck

Cleanup can also involve working through and resetting pages and sites back to site definition or finalizing previous upgrades:

- Finalize any 2003 or WSS 2.0 gradual upgrades that have not been finalized
- Return pages to the layout in site definition, reset all pages using the reset to site definition found in site settings on the site collection

Be sure to also consider the supportability of your customizations and address any improper development or testing environments or resources. Now is the time to package up the various assemblies and features, and build them into solutions that can be deployed more easily and consistently. This cleanup can take the form of simply packaging up the code and some of the configuration, or writing scripts for some of it and documenting the rest. Eventually you will be grateful you took the time to perform this cleanup.

Found some orphans? If you're not familiar with orphaned objects, I recommend you check out KnowledgeBase (KB) articles 918743 and 918744. Also look at the commands **stsadm -o databaserepair -deletecorruption** and **repairorphans**. The Config db orphans listed in KB 918742 can be removed by removing and reattaching a content database, but please don't forget to use the **stsadm -o preparetomove** command, which will prepare the SSP database for the alerts, services, and my site or profile dependencies. Note the STSADM command **preparetomove** does not apply to WSS environments.

Revisit Information Architecture

Upgrade is a good time to look at your data, portals, sites, and overall structure. Scalability and structure go hand-in-hand. There are plenty of bad ways to implement SharePoint, most of them involving poor information architecture decisions. You can't expect SharePoint 2010 to "fix" your poorly performing lists or blocking databases; look to best practices to optimize your data structures so you can scale into SharePoint 2010.

The structure of SharePoint can ultimately be divided into four major levels: the web application level, the site collection, the site, and the list, although levels above and below that can also have impact. Be sure to do the following:

- Optimize large lists, especially those over 5000 items
 - Limit view item maximum – recommended views of 100-1000 items max
 - Index columns
 - Create folders to limit views and support legacy views
 - Optimize query and view
- Optimize your database and site structure
 - Reduce databases to less than 100GB
 - Split large content databases
 - Split large site collections

Tools to Assist in Cleanup and Information Architecture Reorganization

Tools such as Quest Site Administrator can be used to temporarily increase quotas and remove locks. Site Administrator also provides reports that identify sites that are missing owners and ones that haven't been used. Additional tools, such as the Site Archive tool on <http://www.codeplex.com/governance>, can be used to archive, back up, and delete sites based on your criteria.

Recovering content once all of the farms have been upgraded can be complex. One tool to consider is Quest Recovery Manager for SharePoint, which can quickly restore files, lists, and sites from versions as far back as 2003.

A major part of preparing for an upgrade is optimizing database size to increase speed and provide more flexibility. Quest Migration Manager can address many of the more complex needs for promoting sites to site collections and vice versa.

SERVICE OFFERING CONSIDERATIONS

While I can't tell you how to change your service offering, the following questions may trigger some useful thoughts:

- As you look at the new version and its feature sets, what do you want to change?
- An upgrade is the best time to make changes to your service offering and update your **roadmap**.
- If you want to use a particular new feature, how do you plan to support it?
- Do you want to plan IT, developer, and end-user **training** before you upgrade?
- Are you planning a **sandbox** for IT to learn the technology?
- Are you planning a **pilot** environment to help flesh out business requirements?
- Have you **communicated** with the **stakeholders** about your plans to upgrade?
- Are you going to run both environments concurrently for some period of time? What about URLs?
- Are you planning on revisiting your master page and updating for the new Office Ribbon?
- Is the **support** team ready for an upgrade?
- Do you have a service offering site where you provide information on the upgrade, the schedule, the online training materials, a **FAQ**, and so on?
- Are there some parts of the business that are going to push back? Can they be accommodated in some other way? Do you have a risk mitigation and change management plan?
- What is the uptime mitigation and SLA for the upgrade process? Can the upgrade be performed over a weekend or will it take months?

CONCLUSION - YOUR CALL TO ACTION

To summarize, here is your call to action:

- Ensure that you have 64-bit hardware where you can replicate your production sites on Hyper Windows Server 2008 with SharePoint Server 2007 SP2 update or later.
- Sit down with the desktop team and discuss Office 2010. Don't forget to discuss the possibility of using Office Web Applications; they can be cost effective, save time and improve your organization's productivity.
- Copy your environment, including all customizations, with SP2. How many naked assemblies did you have? How many random web.config file changes did you have to make? What are you going to do to streamline and package those into .WSP files?
- Once you've got a copy of your environment in an image, run PreUpgradeChecker. Read through the details of the HTM report as well as the log. Address as much as you can in the virtual environment.
- Re-evaluate and clean up your information architecture.
- Begin communicating about the upgrade, plan training, and determine your uptime requirements.

Once you complete these steps, you should be ready to upgrade to SharePoint 2010. By that time, a public beta will be ready, and all of your hard work will pay off.

ADDITIONAL RESOURCES

TechNet Articles

Advantages of 64-bit hardware and software (Office SharePoint Server 2007)

<http://technet.microsoft.com/en-us/library/dd630764.aspx>

Migrate an existing server farm to a 64-bit environment (Office SharePoint Server 2007)

<http://technet.microsoft.com/en-us/library/dd622865.aspx>

Resource Center & Whitepapers

Best Practices Resource Center on TechNet

<http://technet.microsoft.com/en-us/office/sharepointserver/bb736746.aspx>

Planning and Monitoring SQL Server Storage for SharePoint: Performance Recommendations & Best Practices white paper

<http://technet.microsoft.com/en-us/library/cc263261.aspx>

Capacity Planning Resources

Working with Large Lists with Thousands or Millions of Items

<http://www.sharepointjoel.com/Lists/Posts/ViewPost.aspx?ID=241>

Working with Large Lists in SharePoint Server 2007

<http://technet.microsoft.com/en-us/library/cc262813.aspx>

Supportability

Best practices to ensure upgradeability

<http://msdn2.microsoft.com/en-us/library/ms916859.aspx>

KB article on site definition supportability

<http://support.microsoft.com/Default.aspx?id=898631>

Supported and unsupported scenarios for working with custom site definitions and custom area definitions in Windows SharePoint Services and in SharePoint Portal Server 2003

<http://support.microsoft.com/kb/898631/en-us>

Community Tools

Windiff – Tool for comparing files and directories

<http://support.microsoft.com/kb/159214>

SharePoint Admin Kit 4.0 tool, SPDiag

<http://blogs.msdn.com/sharepoint/archive/2009/02/05/sharepoint-diagnostics-spdiag-tool-v1-0-for-sharepoint-products-and-technologies.aspx>

ABOUT THE AUTHOR

Joel Oleson is a senior architect and SharePoint evangelist at Quest where he is responsible for product direction and strategy. He is well known in the SharePoint community as an enthusiastic trainer and architect, and maintains a popular blog. Joel is a frequent speaker at popular technical conferences, such as Microsoft TechEd, and often presents to local SharePoint user groups. Prior to Quest, Joel worked at Microsoft and was a part of the first Microsoft global deployment of SharePoint. While there, he helped customers achieve the critical governance they needed to upgrade and achieve scale with SharePoint 2007. He would later design the extranet and hosted SharePoint deployments.

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Contacting Quest Software

Phone: 949.754.8000 (United States and Canada)
Email: info@quest.com
Mail: Quest Software, Inc.
World Headquarters
5 Polaris Way
Aliso Viejo, CA 92656
USA
Web site www.quest.com

Please refer to our Web site for regional and international office information.

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- Download patches and upgrades.
- Seek help from a Support engineer.
- Log and update your case, and check its status.

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