



BENJAMIN ATHAWES
TALES FROM A SHAREPOINT FARM

How I passed SharePoint 2010 exam 70-667

Suggested reading and learning activities to
help you pass

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This document details my advice and recommendations for passing SharePoint 2010 exam 70-667. Some areas of the document are speculative in nature and simply reflect what I would revise were I to sit the exam now.

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Overview

Way back in December 2010, I took and passed the SharePoint 2010 70-667 exam along with many other Sharepoint professionals. At the time, I decided to post my revision notes on my blog site – my thinking was that this wouldn't be in breach of the Microsoft NDA as the content was written prior to sitting the exam.

Since then, the series has had over 30,000 hits making it by far the most popular content I have posted on my blog. This has lead me to believe that people find this stuff useful – presumably having a list of content that I actually studied is somewhat easier to digest than sifting through thousands of Technet links (particular for someone that is relatively new to SharePoint).

I wrote the first three parts of the series between December 2010 and April 2011. The final part of the series wasn't posted until June 2012 (for reasons specified on my blog).

Feel free to use and distribute this PDF as you wish – the content within this document is not original aside from the comments contained in the occasional red/orange boxes.

Introduction (Original December 2010 version)

This document was written to help me (and hopefully others) revise for the 70-667 exam. I took and passed the 70-667 SharePoint "MCTS" exam on Dec 1, scoring 966/1000 (see my [related post](#)).

Whilst I have published this retrospectively, I created the series prior to sitting the exam (and signing the Microsoft NDA). At the time of sitting the exam I had used SharePoint Server 2007 in a commercial context for just over 2 years - I probably spent about 40 hours studying for the exam, which includes the time spent putting together this guide.

My study material mainly consisted of:

- Technet.
- A MOSS 2007 and SharePoint Server 2010 VM for lab exercises.
- [Professional SharePoint 2010 Administration](#)
- [SharePoint 2010 Administrator's Pocket Consultant](#)
- A [mind map of SharePoint 2010 Central Administration](#) that I put together. Dave Coleman has also shared something similar - it's available on the [SharePointEduTech blog](#).
- [My blog](#). Please excuse the blatant plug but the site does contain some of the more interesting content that I revised for the exam.

All of the content contained within is available within the resources above - nothing here is new. The value for those wishing to take the 70-667 exam is that this is the majority of the material I actually studied prior to sitting (and passing) it. Reading this blog is not a substitute for purchasing the book(s) / visiting the sites I have listed above and I thoroughly recommend checking them out. If you are thinking that you may as well read the content contained in the references throughout this document, then you are correct - but feel free to compare notes.

It goes without saying that reading this blog series alone will not automatically mean that you pass the exam: it is merely intended as a guide for candidates wishing to take the exam. The blog is not comprehensive - I skip over some facts that I as a SharePoint addict have heard countless times and felt would be redundant here. Consequently, there are far more notes taken for certain subject areas (upgrades being an example) - that doesn't necessarily reflect the content of the exam, and just means I probably spent a disproportionate amount of time on certain topics that may have interested me more than others.

Technologies such as SharePoint and associated industry "best practises" are subject to change at any time so this series will become less relevant as time goes on - I would view it as a "point in time" snapshot. Having said that, I will try to update it whenever possible.

Before you begin I suggest you read the 70-667 exam info contained on the [Microsoft Learning Web site](#), and ensure you meet the minimally qualified candidate requirements. The site also contains a learning plan which I found very helpful.

For any queries - including error reports - please contact me via Twitter. My alias is [@benjaminathawes](#).

Obligatory note on plagiarism: I do not believe that I have plagiarised anywhere within this document. Any direct "copy and paste" statements are contained within quotes. Furthermore, I do not lay claim to any content within this document - exceptions being the suggested lab exercises which I put together and the content referenced on my personal blog(s). If you believe I am plagiarising your content please let me know - I like to think that I'm a friendly guy :-).

1. Installing and Configuring a SharePoint Environment (25 percent)

Deploy new installations and upgrades.

From the [Learning Plan](#):

"This objective may include but is not limited to: running **Visual Upgrade**, performing an **in-place upgrade**, performing a **database attach upgrade**, analysing a **PreUpgradeCheck** report, installing **language packs**, and **scripting installations**; analysing **ULS logs**, **installation error logs**, and **event logs** to identify installation problems; and **repairing installation errors**".

Suggested reading (deployments and upgrades)

1. [Prepare for deployment \(SharePoint Server 2010\)](#)
2. [Plan visual upgrade \(SharePoint Server 2010\)](#)
3. [Manage visual upgrade \(SharePoint Server 2010\)](#)
4. Chapter 5 of [Professional SharePoint 2010 Administration](#)
5. [Perform pre-upgrade steps \(SharePoint Server 2010\)](#)
6. [Backup and restore an entire farm \(Office SharePoint Server 2007\)](#)
7. [Perform an in-place upgrade \(SharePoint Server 2010\)](#)
8. [Perform a database attach upgrade to SharePoint Server 2010](#)
9. [Deploy language packs \(SharePoint Server 2010\)](#)
10. [Verify upgrade and review upgraded sites \(SharePoint Server 2010\)](#)
11. [SharePoint's Psconfig upgrade command - v2v versus b2b \(my blog\)](#)

Suggested lab exercises (deployments and upgrades)

I figured hands on practise would be very relevant to the exam given that it is all about configuring SharePoint. Hence, I highly recommend you set up a VM in order to follow the suggested exercises.

The lab exercises below allow you to try both an in-place and DB-attach upgrade with a single VM. Alternatively, you could use a second SP2010 VM to perform the DB-attach upgrade. Before starting, it is worth spending some time setting up a blank Windows Server 2008 R2 VM and copying it if you need a blank slate to work with.

- Grab a MOSS SP2 2007 VM and ensure it has at least 2 functioning Web applications.
- Remove the content database(s) from one Web application.
- Run the pre-upgrade checker on the MOSS VM and view the report.
- Perform an in-place upgrade on the MOSS VM and review the ULS, installation and event logs. Repair any errors that are present.

- Run the Test-SPContentDatabase PowerShell cmdlet on the database(s) removed in step 2 and review the output.
- Perform a DB-attach upgrade to SP2010 using the MOSS content databases.
- Install a SharePoint 2010 Language Pack on a SP2010 VM.
- Script a SharePoint 2010 installation using PowerShell.

My revision notes (deployments and upgrades)

Hardware and software requirements

Primary resource: Technet.

- 8GB is the minimum requirement for RAM in a production SharePoint 2010 Web or application server.
- 64-bit with 4 cores is the minimum processor requirement.
- 80GB is the minimum system drive requirement.
- For medium deployments, the SQL server requirements are more stringent: a 64-bit processor with 8 cores and 16GB of RAM is the minimum. These requirements are strict due to the required distribution of data in SP2010.
- Database servers require at least 64-bit SQL Server 2008, SP1 CU2 or later. SQL server 2008 R2, and 64-bit SQL Server 2005 SP3 and later are also supported.
- SharePoint Web and application servers require at least 64-bit Windows Server 2008 SP2 or Windows Server 2008 R2.
- "SharePoint Server 2010 does not support single label domain names".

Visual Upgrade

Primary resource: Professional SharePoint 2010 Administration (book).

Some sources I have read incorrectly state that setting a sites Visual Upgrade option to "SharePoint 2010" visuals cannot be undone without a restore. This is not true - whilst you no longer have an option in the UI you can still switch back to the V3 UI using PowerShell (see [Using PowerShell to control Visual Upgrade](#) by Todd Klindt). Try it yourself!

- Enables separation of the binary upgrade of SP2010 from the interface.
- Is important because v3 master pages and CSS files cannot be automatically upgraded to 2010.
- SP2010 offers three visual modes for upgraded sites: 2007, 2010 preview and 2010.
- By default, the SharePoint 2007 look and feel is retained ("2007" mode) during an upgrade to 2010, which improves the chances of customised content working following an upgrade to 2010. Deliberate action must be taken to upgrade to 2010 visuals which illustrates Microsoft's "do not harm" philosophy around upgrade.
- "2007" mode enables the rendering of content using v3 master pages and CSS files in 2010, but is typically unnecessary where sites have no customisations, or where customisations have been tested.
- Administrators have the option of delegating visual upgrade selection to site owners - or forcing them to use the new 2010 interface using PowerShell.

- If the original look and feel is retained during upgrade, all of the infrastructure benefits of SP2010 are still available.
- PowerShell can be used to revert a sites look and feel back to 2007, even in cases where SP2010 mode has been set.

In-place upgrade

Primary resource: *Technet*.

Command / operation	Explanation
PreUpgradeCheck (STSADM)	Perform a health check on a MOSS farm and identify any issues that might affect an upgrade to 2010.
EnumAllWebs (STSADM)	Displays the IDs and site map status for all site collections and subsites in the content database - allowing identification of duplicate and orphaned sites.

- The October 2009 CU for MOSS includes numerous enhancements to STSADM that can assist with upgrade planning - for example the EnumAllWebs operation now identifies Web parts and features that are in use.
- The 2007 SP2 pre-upgrade checker can and should be run multiple times, and in particular just before an upgrade to ensure any potential issues are mitigated. It will identify any roadblocks that will prevent an upgrade - such as failure to meet software and hardware requirements (32-bit servers being an obvious showstopper).
- The 2007 SP2 pre-upgrade checker should be used to assess farm health and the report can be used to clean up an environment prior to upgrade to 2010.
- Any custom elements identified by the pre-upgrade checker must be installed on all front-end Web servers prior to upgrading - this is a common cause of upgrade failure.
- Duplicate or orphaned site collections can be identified using both the STSADM pre-upgrade checker and EnumAllWebs operation - duplicate sites should be deleted.
- Unused sites, templates, features and Web parts should be removed prior to upgrade.
- SP2010 language packs should be installed after binary installation (setup), but before the 2010 configuration wizard is run.
- The SP2010 configuration wizard must be run on the server(s) hosting Central Administration before attempting to upgrade any other content in the farm.
- 2007 Web applications that use forms based authentication require additional configuration steps prior to attaching the appropriate configuration databases - they must be configured to support claims based authentication.
- Data contained within a 2007 SSO database must be manually migrated to a new Secure Store service application in SP2010. Some service applications such as the Excel Services application depend on the Secure Store SA.
- During in-place upgrade, sites are unavailable until the upgrade is finished.
- The UPS (user profile service) is not available in a standalone server installation - if this service is required the SharePoint farm should be installed.
- The detach databases hybrid approach involves upgrading the 2007 binaries to 2010 with content databases detached. The databases can be upgraded in parallel using PowerShell (hardware dependant).

- Before starting an upgrade, the prerequisite installer must be run on all servers in the farm.
- Ensure that a tested full farm backup is taken of the 2007 farm prior to upgrading.
- An in-place upgrade is a one-stop shop: you cannot pause or roll back the setup and upgrade process.

Database attach upgrade

If you are struggling to visualise scenarios in which you might opt to use an in-place or DB-attach upgrade, I recommend checking out [Joel Oleson's SP2010 upgrade decision tree](#).

Primary resources: *Professional SharePoint 2010 Administration (book)* and *Technet*.

Command / operation	Explanation
Test-SPContentDatabase (PS)	Check a specific content DB for problems (e.g. missing customisations) prior to attaching (and upgrading) to 2010. Should be performed per content database. Checks for missing files and issues with the target farm as opposed to the source (and should therefore be used alongside the pre-upgrade checker for MOSS).
Mount-SPContentDatabase (PS)	Attached a content database to a SP2010 farm and automatically upgrades it from 2007.
Upgrade-SPContentDatabase (PS)	Retries or resumes a failed upgrade - not necessary unless an upgrade does not complete successfully.

- Requires that you have separate hardware for a SP2010 farm.
- Upgrades only content, not configuration settings. Therefore requires that you manually move across any customisations such as third party software, features and solutions. Site definitions created in 2007 can be copied over to the 2010 environment "as-is".
- Provides far more control and is far less risky than an in-place upgrade - PowerShell can be used to attach multiple databases at the same time dependant on available hardware resource, improving utilisation. The order of upgrade can also be specified - unlike an in-place upgrade.
- Allows a best-practises SP2010 to be created without affecting the MOSS installation.
- Allows testing of individual content databases using the Test-SPContentDatabase PowerShell cmdlet - without having to attach the database in SharePoint 2010 (although it must be added to the SQL server).

- SharePoint 2010 can take a 2007 SSP database, upgrade it and use it as a Profile Services database - similarly, it can use a Project Server 2007 database as the 2007 version did not support customisations.
- Prior to upgrade, service applications must be created and configured in the SP2010 farm. The "Initial Farm Configuration Wizard" can be used to create some services that are related to an upgrade from 2007, including: Business Data Connectivity, Excel Services, Managed Metadata, Search and Secure Store.
- If upgrading a MOSS SSP database, the User Profile Services should NOT be enabled and configured using the "Initial Farm Configuration Wizard" due to there being numerous manual steps required to upgrade an SSP DB.
- Similarly, in order to upgrade a 2007 InfoPath Forms Service, manual steps are required to import any administrator-deployed form templates and data connection files.
- General farm settings such as incoming and outgoing email settings must be configured manually in the SP2010 farm.

Language packs

Primary resource: Technet.

- Allow site owners and administrators to create sites in multiple languages without requiring a separate installation of SharePoint.
- "SharePoint Foundation 2010 language packs are **not** required for SharePoint Server 2010." - Just the Server Language Packs are required.
- Are installed following binary setup - but prior to running the SP2010 configuration wizard.
- You cannot change an existing site, site collection, or Web page from one language to another by applying different language-specific site templates.
- Removing a language pack removes the language-specific site templates from the computer. All sites that were created that have those language-specific site templates will no longer work (the URL will produce a HTTP 500 - Internal server error page). Reinstalling the language pack will make the site functional.
- All language packs must be removed prior to uninstalling SharePoint 2010.

Upgrade validation

Primary resource: Technet.

Command / operation	Explanation
Localupgradestatus (STSADM)	Verify content database and site collection upgrade status.

- There are three types of log and error file that should be checked following an upgrade: 1. the setup.exe log file 2. The PSConfig.exe log file and 3. The upgrade and upgrade error log files.
- Most issues with styles and appearance can be resolved by fixing broken links to controls, images and style sheets.

- Numerous issues can occur with unghosted (customised) pages. Most of these issues can be resolved by resetting pages back to their site definition.

Miscellaneous

- To harden SQL server, named instances should listen on a nonstandard port (i.e. a port other than TCP 1433 and UDP 1434). To support this security change, SQL server client aliases must be configured.
- Psconfig is an alternative to using the SharePoint 2010 Products configuration wizard. It is command line driven. For example running "psconfig.exe -cmd upgrade -inplace v2v -wait -passphrase <pass>" will perform a build to build upgrade of SharePoint 2010, returning only when the upgrade (and the related timer jobs) is complete. The passphrase is that which was used to join the SP2010 server farm.
- In all cases, a full crawl is required in order for search to work in your upgraded SharePoint 2010 farm.
- SharePoint 2010 should be installed using least-privileged administration. For example, the farm account need not be a domain administrator.
- In all cases, the SharePoint setup user account should not be a service account that will be used by SharePoint - for example the farm account should not be used for setup.

Configure SharePoint farms.

From the [Learning Plan](#):

*"This objective may include but is not limited to: configuring **inter-server communications**, **server roles**, **high availability**, **InfoPath Forms Services (IPFS)**, **Alternate Access Mappings (AAM)**, **external sites**, **host headers**, and **applying and managing patches**".*

Suggested reading (configure SharePoint farms)

1. [Security in SharePoint 2010](#) (Technet Advanced IT Pro training video)
2. [Configure InfoPath Forms Services \(SharePoint Server 2010\)](#)
3. [How Do I: Configure an Alternate Access Mapping in SharePoint 2010?](#)
4. [Plan for host-named site collections \(SharePoint Foundation 2010\)](#) (specifically the section on host headers).
5. [Configure a Host Header for a Web Site \(IIS 7\)](#)
6. [How to configure Alternate Access Mappings \(AAM\) successfully](#)
7. [Publishing Microsoft Office SharePoint Server](#)

Suggested lab exercises (configure SharePoint farms)

1. Experiment in SharePoint 2010 Central Administration with the high availability features listed below - such as large list and HTTP request throttling.
2. Create and upload an administrator approved InfoPath form.
3. Create and configure a host header Web application.
4. Extend a SharePoint 2010 Web application to an alternate host header and review AAM.

5. Apply a patch to a SP2010 VM - for example a service pack or cumulative update (CU).

My revision notes (configure SharePoint farms)

Inter-server communications, server roles

- Very similar to 2007 - WFE servers get their information from farm DB server(s).
- Service Applications are called between servers using ports 32843 and 32844.
- For external port communications, ports 80 (HTTP), 443 (HTTPS) and 25 (SMTP) are used.
- For internal port communications, ports 32843 (HTTP), 32844 (HTTPS) and 445 (SMB) are used.

High availability

Primary resource: Professional SharePoint 2010 Administration (book)

- A means of ensuring a system remains operational, typically in order to adhere to customer Service Level Agreements (SLAs).
- Is improved in SP2010 through the new SAA, native support for SQL server mirroring and mechanisms to protect servers during heavy load such as HTTP and large list throttling.
- In terms of SharePoint topology is typically provided by load balancing servers. E.g. database mirroring can be used across SQL server instances to protect against data loss; WFE servers can be load balanced via software or hardware in order to ensure that services remain available.
- HTTP request monitoring and throttling protects a server during busy periods by monitoring performance metrics. If the server is too busy it will issue a 503 (busy) response for new connections but continue to serve existing requests. This is in contrast to a 2007 server that will drop requests in a comparatively random manner.
- List throttling enables proactive monitoring of the impact of large lists on server resources and is configured on a per Web application basis. The minimum value is 2000 list items.
- Gradual site deletion is a 2010 feature that is automatically enabled which reduces the impact of site collection removal and reduces risk of SQL server lockup due to row deletion.

InfoPath Forms Services (IPFS)

Primary resource: Technet.

- InfoPath is used for the creation and filling of forms, and allows users to create and modify forms themselves rather than relying on an administrator.
- IPFS was first introduced in MOSS and is a SharePoint technology for centralised forms management. As well as allowing for browser form filling, users can also fill in forms using the InfoPath filler client application.

- Administrator approved InfoPath form templates (uploaded via central admin) are required where a form requires full trust and are generally used for global form templates rather than those that are local to a single site collection.
- User form templates are those that are not deployed by an administrator and do not typically require full trust or contain custom code. User form solutions that contain custom code (but do not require full trust or use an administrator managed data connection) can be packaged as sandboxed solutions - and therefore deployed by a site collection administrator.
- Because user form templates can be deployed by many users they can place a strain on servers.
- Browser-enabled form templates (enabled by default) are InfoPath forms that can be filled out using a Web browser (the alternative is to use InfoPath Filler 2010).

Alternate Access Mappings (AAM) & external sites

It's easy to mistakenly assume that AAM does not need to be configured if you are using a reverse proxy server (such as ForeFront TMG) with some form of URL translation feature. This is not true, and link translation should **not** be used with AAM. [See this article](#) for more details.

- Commonly used in reverse proxy publishing scenarios using technologies such as ISA Server and ForeFront TMG.
- Required because the user requested URL may differ from the (internal) IIS site name.
- Once SharePoint receives a request it will use AAM to perform URL resolution.

Host headers

Pasted from [Technet](#):

"Host headers (also known as domain names or host names) let you assign more than one site to a single IP address on a Web server.

Host headers refer to the portion of the HTTP protocol that tells the Web server the DNS name of the site that the client is connecting to. You can apply host headers at two different levels in SharePoint Foundation 2010:

- *The Web application (IIS Web site) level*
- *The site collection level"*

My notes (host headers)

- Host headers at the Web application (IIS site) level are only for path-based site collections and will prevent host-named site collections from working (IIS will only accept requests for the specified host header).
- Host-named site collections are those that specify a host header at the site collection level, and are a means of providing a multi-tenant (hosting) environment.

- Once created, a host header at the IIS site level cannot be changed in the SharePoint configuration database meaning that it is important to get it right. It can be changed at the IIS site level but this adds administrative overhead.
- Host headers at the IIS site level can be used for creating multiple sites using the same IP address - this is even possible whilst using SSL assuming the same top level domain name and a wildcard certificate (e.g. *.benjaminathawes.com) is used. This can save annual SSL certificate renewal fees.
- In all scenarios mentioned above, access to sites relies on DNS resolution using either a DNS server or host file entries.

Patches

Primary resource: Professional SharePoint 2010 Administration (book)

- Patching is effectively an "in place" upgrade.
- There are two flavours: version-version (v2v) and build-build (b2b).
- v2v upgrades are used for upgrading to a new version of SharePoint - e.g. from MOSS to SP2010.
- b2b upgrades are used to upgrade to a newer build of the same version - e.g. from SP2010 RTM to SP1.

Configure service applications.

From the [Learning Plan](#):

*This objective may include but is not limited to: **configuring service applications** such as Business Connectivity Services (BCS), Access Services, Visio Services, Microsoft Office PerformancePoint Server 2007, user profiles, Microsoft Office Excel services, Managed Metadata Services (MMS), and IPFS*

Suggested reading (service applications)

1. Chapter 7 of [Professional SharePoint 2010 Administration](#) - check out the section that highlights which SAs are cross-farm capable.
2. Chapter 6 of [SharePoint 2010 Administrator's Pocket Consultant](#)
3. [Manage Excel Services trusted locations](#)
4. [Manage Excel Services user-defined functions](#)
5. [Visio Services overview \(SharePoint Server 2010\)](#)
6. [InfoPath Forms Services Overview](#)

My notes (service applications)

- Service applications in SP2010 replace the MOSS SSP model.
- Service applications are individual components that can be associated with Web applications in a flexible manner ("services a la carte") - unlike the MOSS SSP which was all or nothing.
- Unlike MOSS SAs are available in all versions of SP2010 - including Foundation.

Business Connectivity Services (BCS)

- Represents the next version of the MOSS Business Data Catalog (BDC).
- Is available in Foundation, unlike in MOSS.

Access Services

- Is suitable for creating data driven applications that will be used by a small number of people.
- Solves the problems associated with placing an access database on a file share such as locking by making an Access database available from within a Web browser.
- Is a service application in SP2010 and hence configurable within Central Administration - settings such as maximum number of users and maximum columns can be modified here.

Visio Services

- Lets users share and view Visio Web drawings via a Web browser.
- Supports dynamic Web drawings that are updated from various data sources such as Excel worksheets and SQL databases.

Microsoft Office PerformancePoint Server 2007

- Facilitates management and analysis of performance in an organisation using dashboards and KPIs.
- Was available for MOSS as a standalone component built on IIS but is integrated in SP2010 as a service application.
- By default trusts all content locations - in a similar way to Excel Services. This can be modified by specifying Trusted Content Locations via the PPS service application management UI in Central Administration.

User profile service (UPS)

- Is the basis for all social features within SP2010 including My Sites, notes, tagging etc.
- Facilitates user profile synchronisation from sources such as Active Directory and Business Data Connectivity.
- Relies on ForeFront Identity Windows Services.
- Unlike MOSS, can be managed by a UPS service application administrator and not just a farm administrator allowing for separation of duties (this is true of all service applications and can be done via Central Administration or PowerShell).
- Allows social features such as personal sites, tagging and notes to be enabled or disabled via Central Administration.

Microsoft Office Excel services

- Is not new - it was introduced in MOSS.
- Can be configured via Central Administration - settings such as maximum workbook size, caching and memory utilisation can be modified here.
- By default allows any file uploaded to SharePoint to be opened - this can be locked down (secured) by adding a "Trusted File Location" which can be a UNC path, SharePoint site or HTTP site.

- Can be extended via user-defined functions (UDFs) - in which case any UDF assemblies must be registered with the Excel Services application so SharePoint knows that they are safe.

Managed Metadata Services (MMS)

- AKA the "Taxonomy" service.
- **Managed** metadata and **cross-site collection** content types (facilitated by the MMS) are new for SharePoint 2010.
- Metadata enables classification of data about documents and list items within SharePoint.
- Content types allow grouping of metadata with a template.
- Although content types existed in MOSS, the functionality was limited in that it was only available on a per-site collection basis - content types can be shared across site collections (and Web applications) in SP2010 from one location known as a "hub".
- The content type hub allows consumption of content types for all site collections that are consuming the services provided by the MMS and is configured once per MMS.
- When a site collection is selected as a content type hub a feature is activated that allows the site to publish content types (the "Content Type Syndication Hub" feature).
- Site content types are contained within a gallery accessible via site settings.
- Content type log maintenance and retrieval are managed by two timer jobs.

IPFS

- Provides a means of filling out InfoPath forms via a Web browser without an InfoPath client application - although certain features do not work in a browser such as user roles and spell checking.
- Allow the use of custom code, in which case forms require full trust and must be deployed by an administrator and activated on a per site collection basis.
- Those forms without custom code can be published directly to a SharePoint site.

Configure indexing and search.

From the [Learning Plan](#):

*This objective may include but is not limited to: configuring **FAST** Search for SharePoint, **crawl schedules**, **iFilters**, **crawl rules**, **content sources**, **scopes**, **managed properties**, **content types**, **search components**, **index partitioning**, and **federated search** locations.*

Suggested reading (search)

1. [Search topology operations in SharePoint Server 2010 \(white paper\)](#)
2. Chapter 8 of [SharePoint 2010 Administrator's Pocket Consultant](#)
3. [Add or remove an index partition](#)

Suggested lab exercises (search)

Personally I find search concepts a lot easier to grasp through hands-on practise (although your experience may differ): ensure, however, that you are familiar with the terms.

1. Set up a search service application.
2. Configure a 64-bit PDF iFilter (you can follow an article such as [this one](#) to learn how). You will also want to install a PDF reader on your VM if you haven't already in order to ensure you can view files found in search.
3. Configure a content source schedule.
4. Add a couple of crawl rules - for example, exclude a path such as "/sites/legal".
5. Add an index partition to your search service application.
6. Configure a federated search location.
7. Ensure your content sources are up to date by performing a full or incremental crawl as required (note that a full crawl is required for crawl rules to take effect).
8. Validate that your changes make the necessary impact on search results - i.e. items show up according to your configured content sources and crawl rules; PDFs are displayed correctly following iFilter configuration.

My notes (search)

I suggest spending some time reviewing the differences between the crawl and index/query components. It took me a while (for example) to grasp the concept of index propagation from crawl servers to those servers hosting the query role.

- A content source is a collection of start addresses that are accessed via the same means and managed together - that could include (for example) an internal collection of SharePoint sites, external Web sites or a file share. You can also crawl Exchange public folders and LOB (Line of business) data.
- Crawl rules allow admin-specified paths to be included or excluded from search; they are not tied to any specific content source and can therefore span multiple sources.
- Federated search locations facilitate simultaneous searching of SharePoint content as well as content located elsewhere (e.g. you might want to include external search engine results).
- From [Technet](#): *"index partitions are groups of query components, each of which holds a subset of the full text index and which return search results to the query originator. Each index partition is associated with a specific property database containing metadata associated with a specific set of crawled content."*
- Index partitions are stored on servers hosting a query component - hence the alternating terminology within Central Administration.
- Index files are initially stored on servers hosting crawl components - they are quickly propagated to those servers hosting the query role. Hence, a small amount of space is required to host index files temporarily.
- FAST search offers greater capacity, scalability (over 500 million items vs. 100 million items) and features than the standard SharePoint server search but requires a SharePoint Server 2010 Enterprise license and has high hardware requirements (it

should be installed on a separate server and the recommended amount of RAM is 16GB with an 8-core CPU).

- FAST search has its own prerequisite installer, separate to that shipped with SP2010.

2. Managing a SharePoint Environment (26 per cent)

Manage operational settings.

From the [Learning Plan](#):

*This objective may include but is not limited to: configuring **logging, quotas, monitoring levels, health reports, security**, and SQL Server Reporting Services (**SSRS**) integration*

Suggested reading (operational settings)

- [Configure diagnostic logging \(SharePoint Server 2010\)](#)
- [Monitoring overview \(SharePoint Server 2010\)](#)
- [Overview of Reporting Services and SharePoint Technology Integration](#)

My notes (operational settings)

Although probably not relevant to the 70-667 exam I couldn't write anything about the ULS without mentioning the third party tool **ULSViewer**. It's a great tool for troubleshooting and ensures file system ULS logs are easily digestible using a clean UI and filtering. See [Spencer Harbars' article](#).

- Diagnostic logging is enabled by default and is used for troubleshooting.
- Generally speaking more detailed diagnostic logs require more resources - this includes disk space and IO operations. In particular, use the verbose setting sparingly (e.g. only when troubleshooting or making significant changes).
- Event log flood protection is configured within diagnostic logging and suppresses events if they are logged repeatedly.
- Modifying diagnostic settings requires membership in the farm administrators group.
- Health and data usage collection is also enabled by default performed via timer jobs and is written to the logging directory and database. Frequency of logged data is configurable by modifying timer job schedules and can affect performance in a similar manner to diagnostic logging.
- Logging data is collected from servers via a timer job and written to a logging database.
- SP2010 also includes an integrated health analyser which checks farm health against a (customisable) list of predefined rules. Email alerts can be configured to allow administrators to receive notification if a rule fails, and the schedule can be adjusted on a per-rule basis.
- The add-on for SSRS is installed along with the other SP2010 prerequisites.

Manage accounts and user roles.

From the [Learning Plan](#):

- *This objective may include but is not limited to: **managing user accounts, group accounts, managed accounts, computer accounts, and service accounts; and delegating site collection administration***

Suggested reading (accounts and user roles)

- [Account permissions and security settings \(SharePoint Server 2010\)](#)

My notes (accounts and user roles)

Manage authentication providers.

From the [Learning Plan](#):

*This objective may include but is not limited to: managing **NTLM, Kerberos, claims-based, and forms-based authentication**; and configuring **Secure Store Service (SSS)** and **Active Directory Federation Services (AD FS)***

Suggested reading (authentication providers)

- Chapter 9 of [Professional SharePoint 2010 Administration](#)
- [Plan authentication methods \(SharePoint Server 2010\)](#)
- [Understanding Kerberos Double Hop](#)
- [NTLM's dependency on HTTP keep-alives](#) (my blog - this one is quite technical but I thought I would include it given that I skimmed over the post prior to the exam; the main point is that NTLM is a connection based protocol).

Suggested Lab Exercises (authentication providers)

1. Create and test a Web application using Kerberos in Classic authentication mode (use setpsn.exe to configure Service Principle Names).
2. Create and test a Web application using FBA in Claims authentication mode (requires modifications to the Web app web.config file).

My notes (authentication providers)

Primary resource: Technet

Although claims based authentication is generally the recommended approach for SP2010 given that it supports all three authentication methods, there are some factors to consider - especially if upgrading from an earlier version of SharePoint. Specifically, Windows users need to be migrated to claims identities, custom code will likely need to be modified and Search alerts are not supported. See [Plan authentication methods \(SharePoint Server 2010\)](#) for up to date information.

Overview

- SP2010 supports the same authentication methods as in MOSS (Windows and Forms) but also adds token based (SAML) authentication.
- Unlike MOSS, there are two authentication modes: "classic" and "claims".
- Classic mode authentication supports Windows authentication only, whereas claims supports Windows, Forms and SAML (i.e. all three authentication methods). Hence, for new implementations of SP2010 claims mode is always recommended given that it supports all authentication methods.
- "A SharePoint Server 2010 farm can include a mix of Web applications that use both modes." - *Technet*.
- "Windows Authentication" in this context covers NTLM, Kerberos, Anonymous, Basic or Digest.
- In Classic mode, user accounts are treated by SP2010 as Windows Active Directory domain accounts.
- In Claims mode, SP2010 changes all user accounts to claims identities.
- The secure store service is the (claims aware) SP2010 equivalent of the MOSS Single Sign on (SSO) service. It stores credentials in a secure database and maps them to an application ID. This is then used to connect to external data - PerformancePoint requires a SS service application. All changes can be logged by enabling the auditing option in the SS service application properties dialog.
- ADFS is a claims based identity technology for Windows that provides identity federation and single sign on (SSO). As the name implies it utilises Active Directory as its directory store.
- "Claims authentication is built on WIF. WIF is a set of .NET Framework classes that are used to implement claims-based identity. Claims authentication relies on standards such as WS-Federation, WS-Trust, and protocols such as SAML." - *Technet*

Windows Based Authentication

If you are deploying SharePoint 2010 in a "green field" scenario (i.e. not upgrading), claims aware Web applications might be your best bet even if you are using Windows authentication for additional flexibility. In the real world I suggest testing it works for you prior to implementing.

- Both NTLM and Kerberos are "Integrated" Windows authentication methods meaning that valid users are able to log on without having to enter their credentials.
- NTLM (NT LAN Manager) is the simplest authentication method to implement. It is a proprietary connection-based authentication protocol and requires very little in terms of configuration.
- Kerberos is an industry standard security protocol that support ticketing authentication. It requires Service Principle Names to be created (SPNs) - you can use a tool called setspn.exe to do this. "To create SPNs in an Active Directory domain, you must have domain administrative-level permissions." - *Technet*.
- Kerberos is typically used to resolve the "double hop" issue whereby a back end system requires retention of user credentials over two or more server hops.

Forms Based Authentication

- Is only available whilst using claims based authentication in SP2010 (it was available in MOSS).
- Can use credentials stored in AD DS, SQL or an alternative LDAP provider such as Novell Directory.
- Requires changes to the Web app configuration (web.config) file if using an identity store other than one based on Windows. Unlike MOSS, both the membership provider **and** role manager must be registered in the configuration file.

SAML (token) Based Authentication

"SAML sign-in is typically used in enterprise federation scenarios, for example, to provide access to a business partner. SAML sign-in is also deployed to provide access to internal users whose accounts reside in a domain that is not part of the forest that contains SharePoint Server 2010." - *Technet*

- SAML = Security Assertion Markup Language.
- Includes Windows Live ID and ADFS 2.0 (along with other 3rd party providers).

3. Deploying and Managing Applications (24 percent)

Manage Web Applications.

From the Learning Plan:

*This objective may include but is not limited to: managing **databases, Web Application settings, security, and policies***

Suggested reading (Web applications)

1. [Anonymous Users, Forms Pages, and the Lockdown Feature](#)
2. Chapter 6 & 8 of [Professional SharePoint 2010 Administration](#)
3. [SharePoint 2010 SQL DB autogrowth - leave it on! \(my blog\)](#)
4. [Web \[Application\] limits in SP2010 - keep it low! \(my blog\)](#)

My revision notes (Web applications)

- The "User Policy" option within Web Application management is equivalent to the "Policy for Web application" option in MOSS Central Administration. The "Permission Policy" option contains the definitions of the permission levels that can be selected within user policy (e.g. Full Read).
- Web application policies are the only place in SharePoint where an object can be denied access - this policy cannot be overridden by site level changes to permission (such as those made by a site collection administrator). Policies are typically used for audit purposes - for example auditors could be granted full read with little administrative effort.
- Inherited permissions are generally easier to manage than broken site permissions.
- Permissions should generally be configured on a per-group basis, as opposed to granting individual permissions which can quickly become unmanageable.
- Anonymous user access in SharePoint is determined by the "Limited access" permission level. This permission level is automatically assigned at the root Web if a user or group is given access to a sub site with broken (i.e. not inherited) permissions.
- Anonymous access to application pages can be controlled by the ViewFormPagesLockDown feature.
- The Databases category within Central Administration is very similar to that used for MOSS - one obvious exception is that a failover can be specified for high availability purposes. The database schema level can also be checked - this is important in SP2010 as databases can be upgraded separately from the farm binaries (another high availability feature as downtime is minimised).

Manage site collections.

From the Learning Plan:

*This objective may include but is not limited to: managing **site collection policies, features, caching, and auditing**; configuring site collection **security**; configuring **multi-tenancy**; and configuring **site collection quotas and locks***

Suggested reading (site collections)

1. [Cache settings operations \(SharePoint Server 2010\)](#)
2. [Plan site permissions \(SharePoint Server 2010\)](#)
3. [Manage site quotas and locks \(Office SharePoint Server\)](#)
4. [Multi-Tenancy in SharePoint 2010](#)
5. [Plan for host-named site collections \(SharePoint Foundation 2010\)](#)
6. [Content Deployment in SharePoint 2010](#) (my blog)
7. [Multi-Tenancy in SharePoint 2010 using host-named site collections](#) (my old blog site)

My revision notes (site collections)

- Options for creating new site collections are identical to those in MOSS with the exception of not being forced to select a template upon creation - you can opt to select one later and delegate this job to the site collection administrator.
- The BLOB cache is a disk-based caching mechanism that is enabled on a per Web application basis in the site web.config file. It is especially useful where content is largely static - e.g. a public facing Web site.
- The output cache (OFF by default) can result in substantial gains in throughput, but uses additional Web server memory due to files being retained for longer. It is configured on a per site collection basis and is only available where the publishing feature is being used. It can also be configured using the Web application configuration (web.config) file, but will then apply to all cache profiles in all site collections.
- Similarly, the object cache (ON by default) reduces the amount of traffic passed between WFE and SQL servers. Again, it can be configured at the Web application and site collection level, and requires the publishing feature to be enabled.
- Site collection locks can be used to place a site collection in a read only or inaccessible state.
- Site collection quotas can be configured to limit site storage, send warning emails upon reaching a certain threshold and limit sandboxed solution resource usage.
- Multi-tenancy in SharePoint 2010 enables hosted service providers to partition client data using shared resources. Hosting is a "first class citizen" (according to [Spencer Harbars](#)).
- Multi-tenancy provides a real alternative to hosting a Web application per client (which does not scale).
- Grouping (and partitioning) tenants is enabled through the use of Site Subscriptions and an associated ID (GUID) which must be created via PowerShell or the OM.
- Feature packs (sets) allow grouping of site and Web scope features - hosters could use this to group by license type, ISVs can use to package features.
- Host-named site collections allow "vanity URLs" to be used by tenants, even for SSL enabled sites.
- "Content deployment" is the authoring of content in one site collection that will be deployed to another site collection according to a schedule or on an as-need basis.

Deploy and manage SharePoint solutions.

From the Learning Plan:

*This objective may include but is not limited to: **deploying** and **managing SharePoint solution packages**, managing **sandbox solutions**, and managing **user solutions***

Suggested reading (solutions)

1. [Sandboxed Solutions](#)

My notes (solutions)

Solution resource quota information is available within the "Solutions" gallery underneath top level site settings

4. Maintaining a SharePoint Environment (25 per cent)

Back-up and restore a SharePoint environment.

From the [learning plan](#):

“This objective applies to on-premise and/or SharePoint Online and may include but is not limited to: configuring backup settings; backing up and restoring content, search, and service application databases; detaching and attaching databases; and exporting lists and sites”

Suggested reading (Back-up and restore a SharePoint environment):

- Chapters 9 and 10 of [“SharePoint 2010 Disaster Recovery Guide”](#), by John Ferringger and Sean McDonough
- [How to back-up a Office 365 SharePoint Online site and data](#)
- [Back up a farm in SharePoint Server 2010](#)
- [Back up a service application in SharePoint Server 2010](#)
- [Back up search in SharePoint Server 2010](#)

Recommended learning activities (Back-up and restore a SharePoint environment.):

- Practice backing up a farm using PowerShell, Central Administration and the SQL Server tools.
- Practice using the end user “backup” tools – i.e. exporting list and document library content, saving sites as templates.
- Backup the Search service application using PowerShell, Central Administration and the SQL Server tools. Ensure that you also backup the index files.

Monitor and analyse a SharePoint environment.

From the [learning plan](#):

“This objective may include but is not limited to: generating health, administrative, and Web analytics reports; interpreting usage and trace logs; identifying and resolving health and performance issues”

Suggested reading (Monitor and analyse a SharePoint environment):

- [Monitoring overview \(SharePoint Server 2010\)](#)
- [View administrative reports \(SharePoint Server 2010\)](#)
- [View health reports \(SharePoint Server 2010\)](#)
- [View Web Analytics reports \(SharePoint Server 2010\)](#)
- [View diagnostic logs \(SharePoint Server 2010\)](#)
- [View timer job status \(SharePoint Server 2010\)](#)

Recommended learning activities (Monitor and analyse a SharePoint environment):

- Practicing resolving issues using the SharePoint 2010 health analyser
- Review the SharePoint 2010 diagnostic logs – try using [ULSViewer](#) for this.

- Practice reviewing each of the report types mentioned in the recommended reading list above.

Optimize the performance of a SharePoint environment.

From the [learning plan](#):

“This objective applies to on-premise and/or SharePoint Online and may include but is not limited to: configuring resource throttling (large list management, object model override); configuring remote Binary Large Objects (BLOB) storage and BLOB and object caching; and optimizing services”

Suggested reading (Optimize the performance of a SharePoint environment.):

- [Understand and Configure Resource Throttling on SharePoint Server 2010](#)
- [Install and configure RBS \(SharePoint Server 2010\)](#)

Recommended learning activities (Optimize the performance of a SharePoint environment.):

- Play with the resource throttling settings – e.g. set the list throttling settings to a low value and view the related error when attempting to add list items.
- Configure Remote Blog Storage using the Microsoft FILESTREAM provider – ensure you test the install by viewing files stored in the RBS data store directory.

Note that at the time of writing the Microsoft FILESTREAM provider is to the best of my knowledge **not** geared up for large scale implementations. I would personally recommend that in a real world scenario you evaluate third party RBS providers.

Content specific to SharePoint 2010 Service Pack 1 (SP1)

This is a list based on Microsoft's [Description of SharePoint Server 2010 SP1](#):

Suggested reading (Content specific to SharePoint 2010 Service Pack 1 (SP1)):

- [Service Pack 1 for SharePoint 2010 Coming Soon...](#)
- [Service Pack 1 \(SP1\) for Microsoft SharePoint Foundation 2010 and Microsoft SharePoint Server 2010 \(white paper\)](#)
- [SharePoint 2010 SP1 - Site Recycle Bin](#)
- [Restore a deleted site \(SharePoint Foundation 2010\)](#)
- [Restore a deleted site collection \(SharePoint Foundation 2010\)](#)
- [Remote BLOB Store Architecture](#)
- [Service Pack 1 Move-SPSite w/ 'shallow copy'](#)
- [Service Pack 1 - Storage Metrics \(StorMan.aspx\)](#)
- [SharePoint ContentDB Guidance: Too many shades of grey along with a little brown](#)
– not a Microsoft publication but I think reading this is important for a balanced view on RBS.

Recommended learning activities (Content specific to SharePoint 2010 Service Pack 1 (SP1)):

- Delete and restore a site (SPWeb) using the UI
- Delete and restore a site collection (SPSite) using PowerShell ([Restore-SPDeletedSite cmdlet](#))

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- Perform a shallow copy migration using the Move-SPSite Windows PowerShell CmdLet with the -RbsProviderMapping parameter. This requires RBS to be configured on the content databases.
- Check out the Storage Management feature (StorMan.aspx).