Microsoft SharePoint 2010 Products - Test Your Upgrade Process

Goals for testing your upgrade process

You should test upgrade to find out:

- Which customizations you have in your environment, so that you can plan for how to deal with them during upgrade.
- Whether you should upgrade your hardware to make upgrade more efficient and/or faster.
- Timing, or how long upgrade will take for your environment.
- Operationally, what do you need to plan for?

In addition, by testing upgrade you can become familiar with the upgrade tools and the process itself, so that you know what to expect when you go through the actual process.

- Which special cases apply to your environment and which upgrade approach will be most efficient for you?
- What does the upgrade UI look like? How do you know when you have finished one phase and are moving through another?
- Where are the log files and how do you read them? What information do they provide?
- Which techniques can you use to mitigate downtime?
- How do you deal with problems that occur?

Steps for testing your upgrade process

1. Set up a test farm, either physical or virtual.
2. Identify customizations and install them on the test farm.
3. Copy your real data to the test farm and try the upgrade.
4. Review results.

Adjust your plan and test again

Repeat the testing process until you are sure that you have found all the issues that you may face and that you know how to deal with them. Your goal is to know what your plan is if it is 4:00 P.M. on Sunday, you have to be back online Monday morning, and it is not going well. Is there a point of no return? Test your rollback plan and make sure that it works before you begin your real upgrade.

Review other upgrade models

For further information about how to upgrade to SharePoint 2010 Products, see the following models:

- **Upgrade planning** – Information about upgrade requirements and steps to take before beginning the upgrade process.
- **Upgrade approaches** – Details and examples of three types of upgrade approaches: in-place, database attach, and a hybrid of the two.
- **Services upgrade** – Special considerations for upgrading the services infrastructure and content in your environment.

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1 Set up your test farm

You can use either virtual or physical hardware to test the upgrade process. Every environment is unique, so there are no general guidelines for how long upgrade will take or how difficult a particular customization will be to upgrade. The best way to gauge how your upgrade will go is to perform a series of trial upgrades.

Your test farm

- Make your test farm as similar as possible to your real farm — for example, hardware, software, and space available.
- Use the same URLs in your test farm as in your real farm. (Otherwise, you will waste time diagnosing issues relating to the URLs that will not come up in the real upgrade.)
- Transfer all your settings and customizations to the test farm.

Virtual test farms

When you test by using a virtualized environment, you do not need a lot of hardware. You can replicate your environment by using just two servers that are running Hyper-V™. One server has images for the front-end Web servers and application servers, and the other server has images for the database servers.

Original physical farm → Virtual test farm
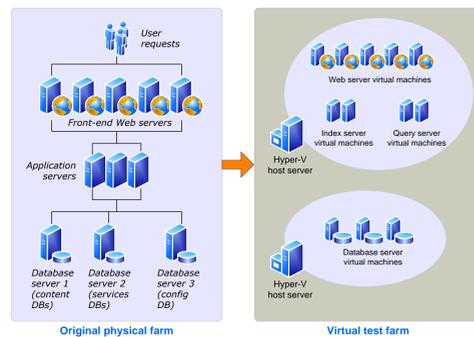
Physical test farms

When you test by using the physical environment, you need to replicate your entire server farm environment as closely as possible. If you simplify the number of front-end Web servers, application servers, or database servers too much, you will not have an accurate estimate of how long the upgrade process will take and you may not account for complications that arise from interactions between servers in the same role. If you have multiple servers in a role in your original farm, use at least two servers for that role in the test farm to test for such issues.

Original physical farm → Physical test farm
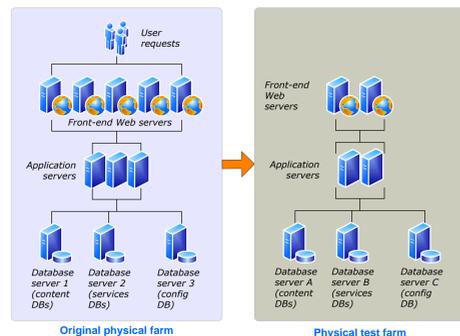
Test farms for database attach upgrade

If you are using a database attach upgrade approach, you need to create one additional test environment: a single server that is running Microsoft® Office SharePoint® Server 2007 or Windows® SharePoint Services 3.0 that you can use to run the pre-upgrade checker before you attempt to upgrade the data.

You can avoid this step, but that means that you will be running the pre-upgrade checker on your existing production farm.

Note: The diagrams on this page use the same topology for simplicity. This standard topology is based on Office SharePoint Server 2007. Windows SharePoint Services 3.0 topologies are similar, but do not contain the Application server layer or SSP databases.

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2 Identify and install customizations

To have an accurate test process, you must find all the customizations in your current environment and copy them to the test farm.

Identify customizations

- Use the pre-upgrade checker to identify site definitions, site templates, and features in your environment. For more information, see the Upgrade Planning model.
- Use the **Stsadm –o enumallwebs** command to identify specific customizations in subsites.
- Use a tool such as WinDiff to compare your production environment servers with your test farm servers. You can use this tool to see which files exist on your servers and the differences between them.
- Create a list of all customizations that you find. Identify the source of the customizations, if possible. For example, are there third-party add-ins? Templates that were customized in-house? Identifying the source means that you can check for updated or upgraded versions of the customizations.

After you identify all the customizations, copy them to the appropriate servers in your test farm.

- You can use the Windows PowerShell™ cmdlet **test-spcontentdatabase** before you attach a database to SharePoint 2010 Products to determine whether any customizations are missing from the environment.

Whom do I contact about customizations that I did not create?

Contact Microsoft if you are having trouble with a template that you downloaded from the Microsoft Web site (such as the Windows SharePoint Services 3.0 Application Templates).

Contact your third-party solution vendor if you are having trouble with a template or component that they supplied you for the previous version. They may have an upgraded version available.

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3 Copy data to the test farm and try to upgrade

You cannot achieve your testing goals unless you use your actual data. Therefore, you need to use the Microsoft SQL Server® backup and restore tools to create a copy of your content databases and any other databases that you want to upgrade.

After copying the data, take a first pass through the upgrade process to see what happens. This is just the preliminary round.

Try in-place upgrade

If you are using an in-place upgrade approach, perform the following steps:

1. Take a SQL Server backup of your content databases (and any other databases you want to upgrade, such as the Shared Services Provider (SSP) database).
2. Use SQL Server to restore the backups to your test farm.
3. Attach the content databases to your test environment.
4. Run the pre-upgrade checker. Make note of any issues it finds. You will want to address these issues in your original environment before you run the actual upgrade on your product farm.
5. Run Setup and select **Yes, perform an automated in-place upgrade**.
6. Follow the steps to complete Setup.
7. Run the SharePoint Products Configuration Wizard to upgrade your farm settings and your content.

For complete steps for in-place upgrade, see the Upgrade Guide.

Try a database attach upgrade

If you are using a database attach upgrade approach, perform the following steps:

1. Take a SQL Server backup of your content databases (and any other databases that you want to upgrade, such as the SSP database).
2. Use SQL Server to restore the backups to your single-server test farm and attach the content databases to that environment.
3. Run the pre-upgrade checker. Make note of any issues it finds and any changes it makes. You will want to address these issues and make these changes in your original environment before you run the actual upgrade on your product farm.
4. Back up and restore the databases again, this time to your test farm.
5. Attach the databases to your test environment.

The upgrade process begins on your databases. For complete steps for performing an upgrade via the database attach approach, see the Upgrade Guide.

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4 Review results

Look at the log files, look at the upgraded sites, and check out your customizations. How did it work? What did you find out? What do you need to rethink about your upgrade plan?

Review log files

Locate the log files

- **Pre-upgrade checker log file**

The log files for the pre-upgrade checker (**stsadm -o preupgradecheck**) are located at %COMMONPROGRAMFILES%\Microsoft Shared\Web server extensions\12\LOGS. The logs are named in the following format: PreUpgradeCheck_YYYYMMDD-HHMMSS-SSS-random-number.log, where YYYYMMDD is the date and HHMMSS-SSS is the time (hours in 24-hour clock format, minutes, seconds, and milliseconds) and the random number is used to differentiate between possible simultaneous attempts to run the pre-upgrade command.

- **Setup log file**

The Setup log file is stored in the temp directory for the user account that is running Setup (%USERTEMP% or %WINDIR%\Users\user account\AppData\Local\Temp). It is named SharePoint Server Setup(YYYYMMDDHHMMSSSSS).log or SharePoint Foundation Setup(YYYYMMDDHHMMSSSSS).log, where YYYYMMDD is the date and HHMMSSSSS is the time (hours in 24-hour clock format, minutes, seconds, and milliseconds).

- **SharePoint Products Configuration Wizard (Psconfig) log files**

The PSCDiagnostics log files are located at %COMMONPROGRAMFILES%\Microsoft Shared\Web server extensions\14\LOGS. The logs are named in the following format: PSCDiagnostics_MM_DD_YYYY_HH_MM_SS_SSS_randomnumber.log, where MM_DD_YY is the date and HH_MM_SS_SSS is the time (hours in 24-hour clock format, minutes, seconds, and milliseconds), and the random number is used to differentiate between possible simultaneous attempts to run the Psconfig.exe program.

- **Upgrade log file and upgrade error log file**

The upgrade log file (.log) and the upgrade error log file (.err) are located at %COMMONPROGRAMFILES%\Microsoft Shared\Web server extensions\14\LOGS. The logs are named in the following format: Upgrade-YYYYMMDD-HHMMSS-SSS.log, where YYYYMMDD is the date and HHMMSS-SSS is the time (hours in 24-hour clock format, minutes, seconds, and milliseconds). The upgrade error log file consolidates all errors and warnings into a shorter file.

Review the log files

Review the log files to find and troubleshoot issues.

Start at the top of the file. Errors or warnings may be repeated if they occur for several site collections in the environment, or if they block the upgrade process altogether. For example, if you cannot connect to the configuration database, the upgrade process will try (and fail) several times and these attempts will be listed in the log file.

Search, or visually scan, for the following entry:

- Upgrade session finished successfully!

If you find this entry, the installation was successful.

If you do not find the entries from the previous step, you can identify specific issues that may have contributed to the failure by searching, or visually scanning, through the Upgrade.log file for the following terms:

- Search for "ERROR" in the log files to find any failures (such as failing components and faulty database connections).
- Search for "WARNING" to find issues such as missing features or components.

To find issues, you may find it useful to use a log parser to run queries against the log files.

Common issues

Restarting an upgrade

During a database attach upgrade, any sites that are not in the correct state to be upgraded will be skipped. Also, during an in-place upgrade, if the server restarts or the upgrade fails, you will need to restart the upgrade process to upgrade the remaining sites.

- To see if any sites were missed or skipped during upgrade, you can use the following Stsadm operation: **stsadm -o localupgradestatus**. You must run this operation on every front-end Web server in a server farm.
- If the upgrade skipped any site collections, you can restart the upgrade process for the database that contains that site collection by using the following Windows PowerShell cmdlet: **upgrade-spcontentdatabase -id** <GUID>.

Review upgraded sites

You can use Visual Upgrade to preview sites in the new SharePoint 2010 Products user experience. If you like how the sites look and behave, you (or the site owner) can complete the visual upgrade to the new look. For more information about Visual Upgrade, see the Upgrade Planning model.

Use the following checklists to review your upgraded sites and look for issues.

Web Parts

To test your Web Parts quickly, you can build a new page that contains all of your custom Web Parts before you test your upgrade, and then review the page for any missing or broken Web Parts after the upgrade test.

- [ ] Do all the Web Parts from your original site show up in your upgraded site?
- [ ] Are there any broken Web Parts pages?
- [ ] Are the Web Parts displayed correctly (in the correct zone, location, and size)?
- [ ] Are there any extra or missing Web Parts?
- [ ] Do the Web Parts work correctly?
- [ ] Are any pages still checked out?

Styles and appearance

Most of the issues in this section can be solved by correcting a link to the item.

- [ ] Are all of the images on your pages displayed correctly?
- [ ] Are the appropriate cascading style sheet colors and styles used in the appropriate places?
- [ ] Does the theme you applied to your site still look the same?
- [ ] Do you have any JavaScript controls that are not working?
- [ ] Are your pages displayed correctly in Windows Internet Explorer 8?
- [ ] Are there any script errors displayed on any pages?

Permissions

- [ ] Do the appropriate people and groups still have the correct level of permissions to sites, pages, lists, and items?

Customized (unghosted) pages

- [ ] Are your customizations still in place?
- [ ] Can you still get to the editing controls on the pages?
- [ ] Are your customizations still appropriate in the new environment, or do you want to update to the new functionality and look?
- [ ] Are any pages still checked out?

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