



WorkshopPLUS: SharePoint Server Administration

How to Patch SharePoint Server



Agenda - Chapter 1

1	Patching Methodologies
2	Installing Binaries
3	Checking Patch Version
4	Troubleshooting Patching

In-Place Update Strategy with Backward Compatibility



Update done in stages



Postpone upgrade phase



Reduced Downtime due to servers running in Backward Compatibility



Use HA components to achieve zero downtime



Update Content DBs separately

SharePoint PowerShell command: **Upgrade-SPContentDatabase**

In-Place Update Strategy without Backward Compatibility



Update done on all farm servers



Upgrade content at same time



Downtime depends upon size and complexity of the Farm

No downtime in case HA components available

Database: Attach Strategy



This strategy is obsolete if Zero Downtime achievable



Requires a new Farm to do the update



Users can continue using content on original Farm



Upgrade new farm without content DBs attached



Recommended put Site Collections on Read-Only mode while patching new farm



Attach content DBs to new farm in order of priority based on business need for limited downtime



Similar to Version-to-version upgrade

SharePoint Server (2016+) Patching with Side-by-side Functionality



Running in side-by-side ensures that all the web front ends in the farm serve the same static content during the upgrade



Even if static files on a given WFE are being upgraded or replaced

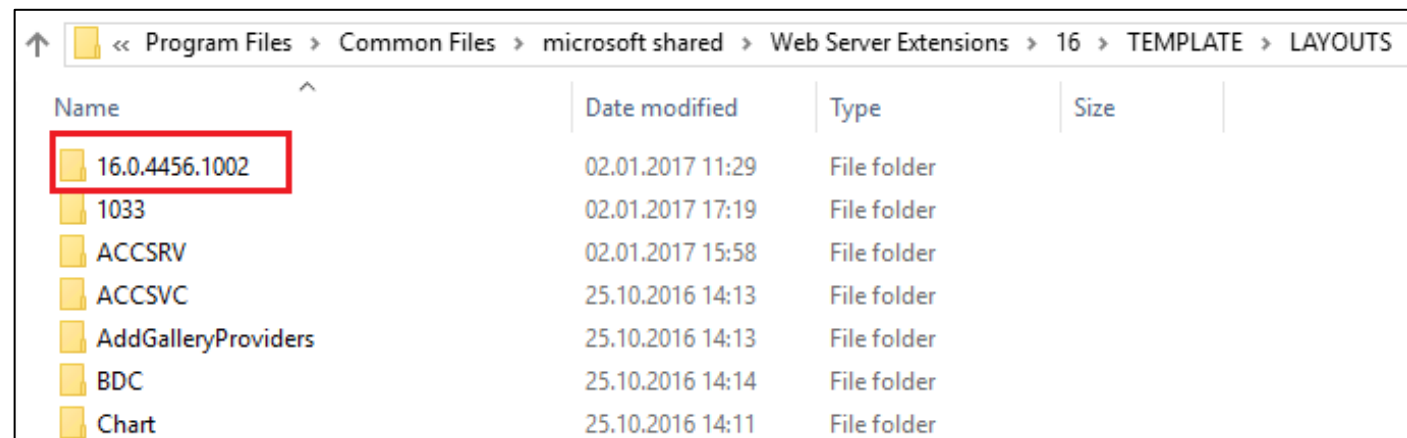


This feature makes sure users have the same experience of the sites when browsing SharePoint and working on their files, even while file-system files are being changed and updated.

How does Side-by-Side Functionality Work - Layouts folder

When side-by-side functionality is enabled:

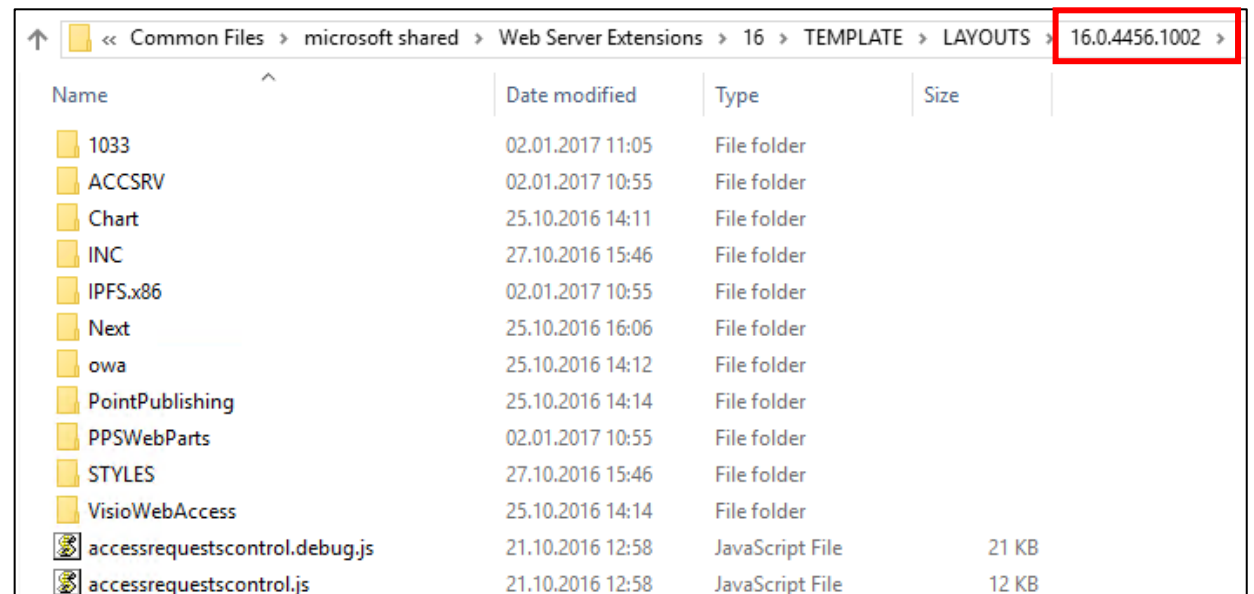
The final step of the SharePoint Configuration Wizard copies all JavaScript and CSS files which reside inside the \16\TEMPLATE\LAYOUTS directory into a directory which has the version number of the SharePoint component with the highest patch level on the system.



Name				Date modified	Type	Size
16.0.4456.1002				02.01.2017 11:29	File folder	
1033				02.01.2017 17:19	File folder	
ACCSRV				02.01.2017 15:58	File folder	
ACCSVC				25.10.2016 14:13	File folder	
AddGalleryProviders				25.10.2016 14:13	File folder	
BDC				25.10.2016 14:14	File folder	
Chart				25.10.2016 14:11	File folder	

How does Side-by-Side Functionality Work - Version content

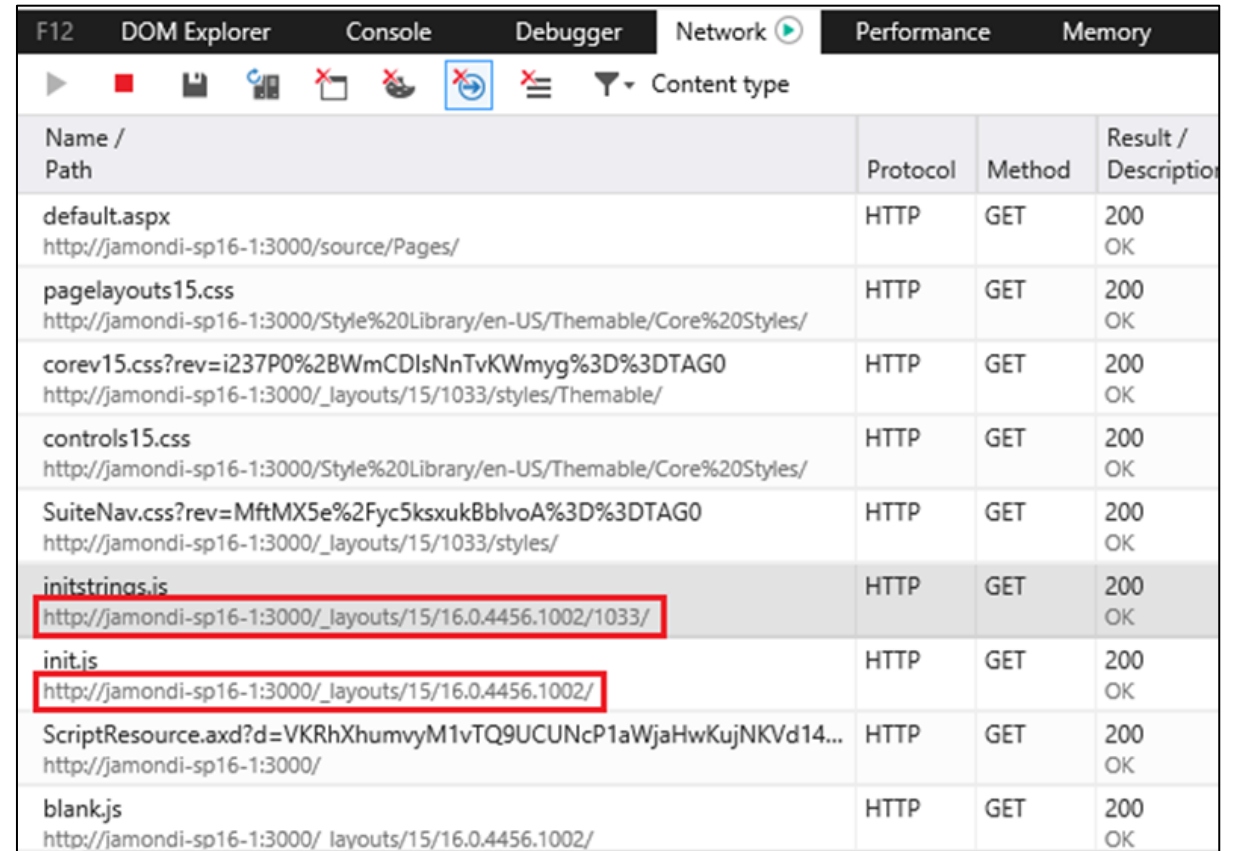
Inside this directory you will find a copy of all the JavaScript and CSS files which are also in the layouts directory.



↑ << Common Files > microsoft shared > Web Server Extensions > 16 > TEMPLATE > LAYOUTS > 16.0.4456.1002 >				
Name	Date modified	Type	Size	
1033	02.01.2017 11:05	File folder		
ACCSRV	02.01.2017 10:55	File folder		
Chart	25.10.2016 14:11	File folder		
INC	27.10.2016 15:46	File folder		
IPFS.x86	02.01.2017 10:55	File folder		
Next	25.10.2016 16:06	File folder		
owa	25.10.2016 14:12	File folder		
PointPublishing	25.10.2016 14:14	File folder		
PPSWebParts	02.01.2017 10:55	File folder		
STYLES	27.10.2016 15:46	File folder		
VisioWebAccess	25.10.2016 14:14	File folder		
accessrequestscontrol.debug.js	21.10.2016 12:58	JavaScript File	21 KB	
accessrequestscontrol.js	21.10.2016 12:58	JavaScript File	12 KB	

How does Side-by-Side Functionality Work - Browser calls

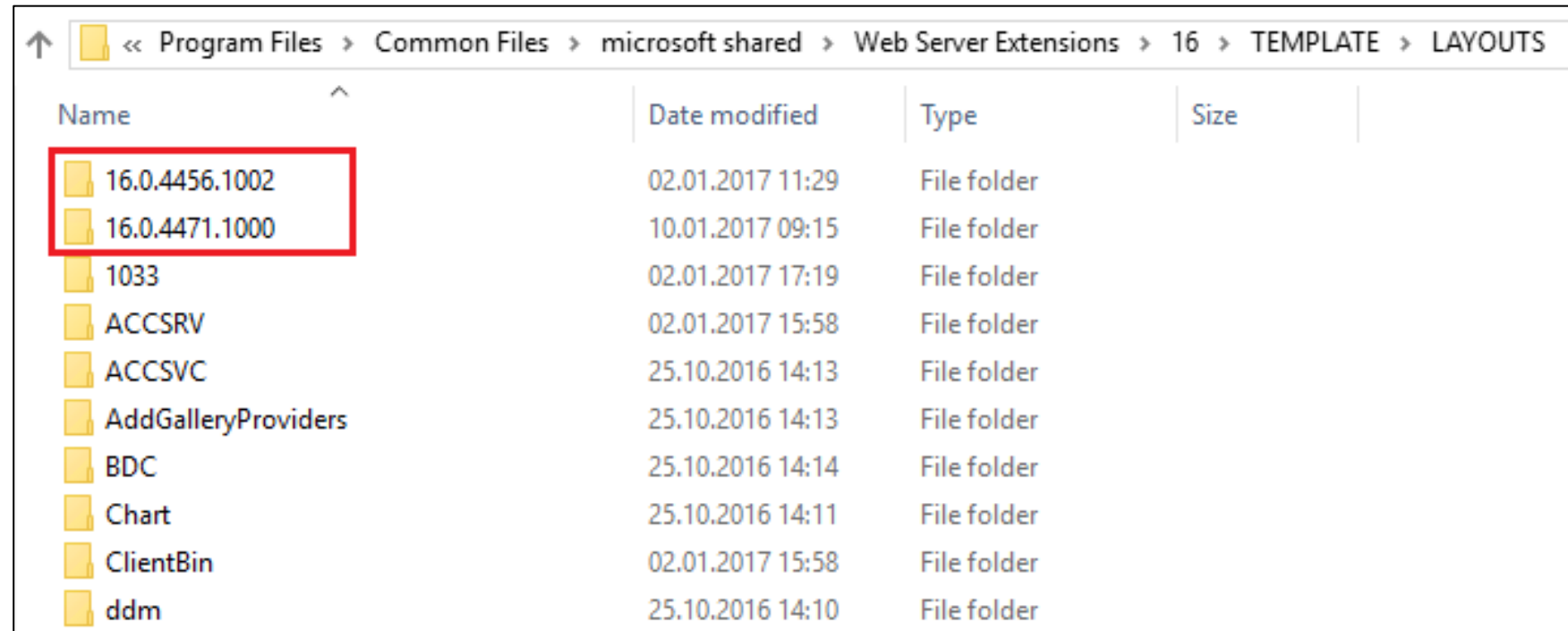
If side-by-side functionality is enabled, SharePoint will generate URLs to the JavaScript inside this specific directory.



Name / Path	Protocol	Method	Result / Description
default.aspx http://jamondi-sp16-1:3000/source/Pages/	HTTP	GET	200 OK
pagelayouts15.css http://jamondi-sp16-1:3000/Style%20Library/en-US/Themable/Core%20Styles/	HTTP	GET	200 OK
corev15.css?rev=i237P0%2BWmCDIsNnTvKWmyg%3D%3DTAG0 http://jamondi-sp16-1:3000/_layouts/15/1033/styles/Themable/	HTTP	GET	200 OK
controls15.css http://jamondi-sp16-1:3000/Style%20Library/en-US/Themable/Core%20Styles/	HTTP	GET	200 OK
SuiteNav.css?rev=MftMX5e%2Fyc5ksxukBblvoA%3D%3DTAG0 http://jamondi-sp16-1:3000/_layouts/15/1033/styles/	HTTP	GET	200 OK
initstrings.is http://jamondi-sp16-1:3000/_layouts/15/16.0.4456.1002/1033/	HTTP	GET	200 OK
init.js http://jamondi-sp16-1:3000/_layouts/15/16.0.4456.1002/	HTTP	GET	200 OK
ScriptResource.axd?d=VKRhXhumvyM1vTQ9UCUNcP1aWjaHwKujNKVd14... http://jamondi-sp16-1:3000/	HTTP	GET	200 OK
blank.js http://jamondi-sp16-1:3000/_layouts/15/16.0.4456.1002/	HTTP	GET	200 OK

How does Side-by-Side Functionality Work - After update

After installing a new CU and running PSConfig, you will notice a second version directory inside the LAYOUTS directory.




↑ << Program Files > Common Files > microsoft shared > Web Server Extensions > 16 > TEMPLATE > LAYOUTS				
Name	Date modified	Type	Size	
16.0.4456.1002	02.01.2017 11:29	File folder		
16.0.4471.1000	10.01.2017 09:15	File folder		
1033	02.01.2017 17:19	File folder		
ACCSRV	02.01.2017 15:58	File folder		
ACCSVC	25.10.2016 14:13	File folder		
AddGalleryProviders	25.10.2016 14:13	File folder		
BDC	25.10.2016 14:14	File folder		
Chart	25.10.2016 14:11	File folder		
ClientBin	02.01.2017 15:58	File folder		
ddm	25.10.2016 14:10	File folder		

How to Use Side-by-side Functionality - Step by step

Ensure that the side-by-side functionality has been enabled and that a version folder exists inside the LAYOUTS directory




Configure the Side-by-Side functionality to use the specific version directory inside the layouts folder by specifying the appropriate Side-by-Side token



Run Copy-SPSideBySideFiles cmdlet on all SharePoint servers



Follow the normal instructions to perform zero-downtime-patching as outlined on TechNet



After all servers are patched and the configuration wizard was executed on all machines: Configure the Side-by-Side functionality to use the new version directory inside the layouts folder by specifying the appropriate side-by-side token

Enable Side-by-Side Functionality



Enable the side-by-side functionality: Set the **EnableSideBySide** property of the WebService to true

```
Administrator: SharePoint 2016 Management Shell

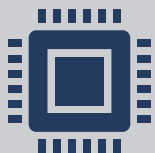
PS C:\> $webapp = get-spwebapplication http://myserver
PS C:\> $webapp.WebService.EnableSideBySide = $true;
PS C:\> $webapp.WebService.update()
```



Run the **Copy-SPSideBySideFiles** cmdlet which will create the Side-by-Side directory for your current patch level

```
Administrator: SharePoint 2016 Management Shell

PS C:\> Copy-SPSideBySideFiles
```



To ensure that the side-by-side files will be used: Configure the **SideBySideToken**. The value of this token has to match the name of the side-by-side directory.

```
Administrator: SharePoint 2016 Management Shell

PS C:\> $webapp = get-spwebapplication http://myserver
PS C:\> $webapp.WebService.SideBySideToken = "16.0.4456.1002"
PS C:\> $webapp.WebService.update()
```

Patch Slipstreaming

Slipstreaming is the process of adding cumulative updates, patches, and service packs into the installation of a product, such as SharePoint Server, language packs or Office Online Server.

Procedure

- Download the cumulative update and service pack
- Copy the cumulative update and service pack to a local folder
- Extract or copy the SharePoint Server installation executable files into a subfolder of a local folder
- Extract service pack into the **Updates** folder
- Extract cumulative update into the **Updates** folder
- Install SharePoint Server prerequisites
- Install SharePoint Server

Agenda - Chapter 2

1

Patching Methodologies

2

Installing Binaries

3

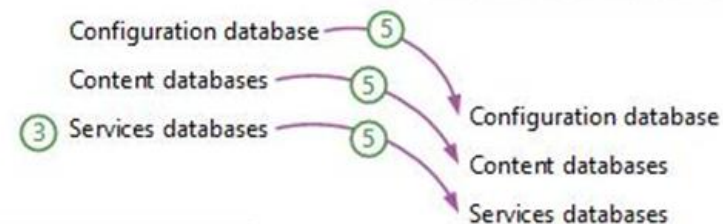
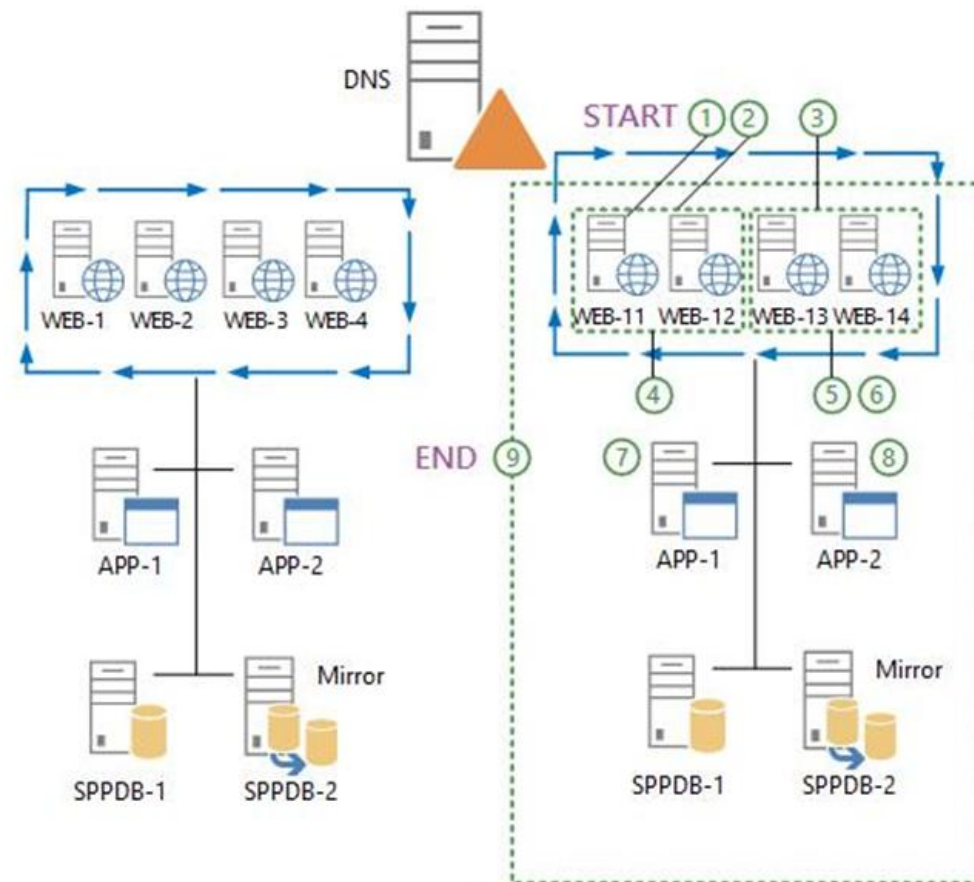
Checking Patch Version

4

Troubleshooting Patching

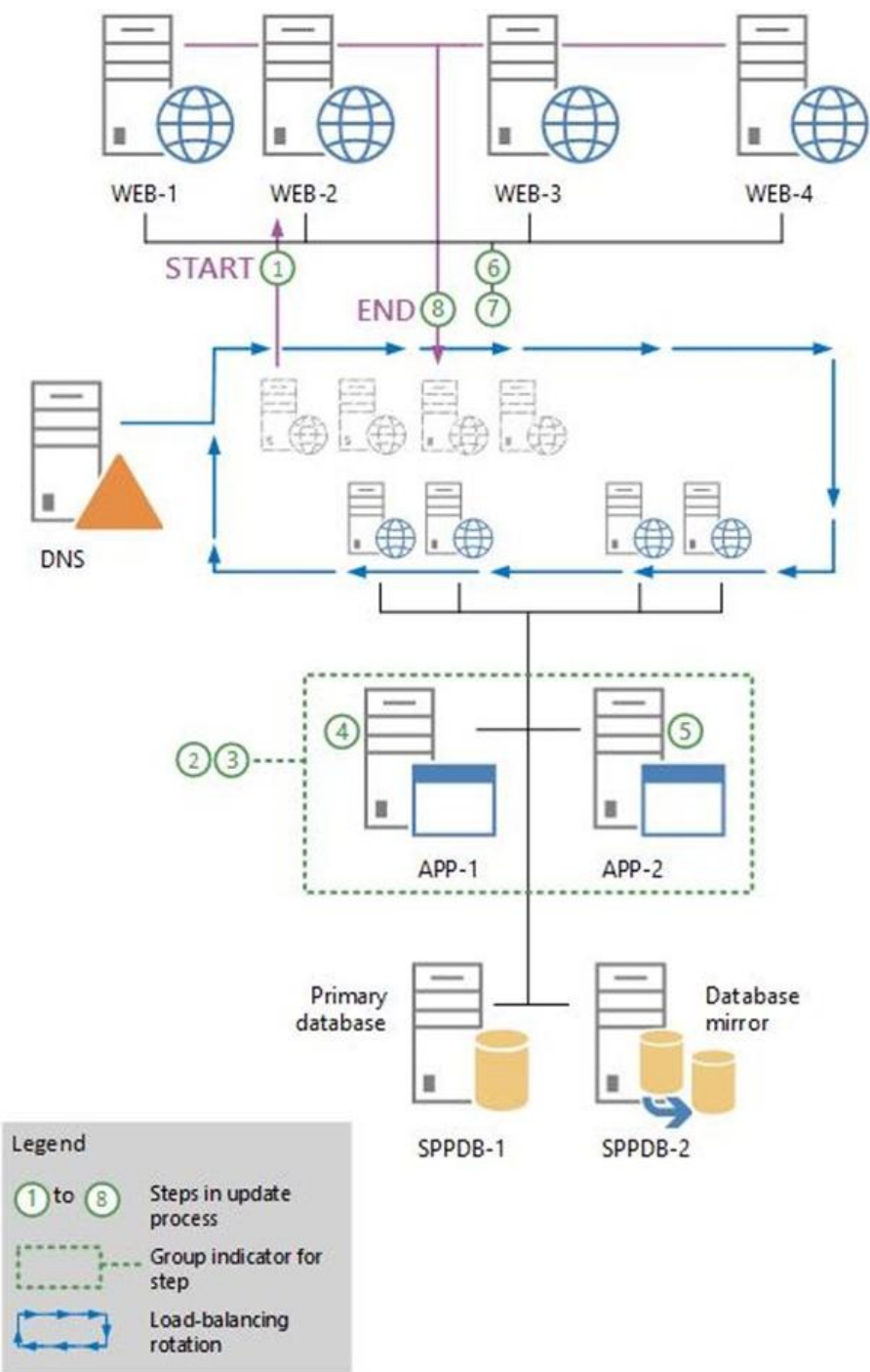
Update phase

Installing binaries on the SharePoint servers



Upgrade phase

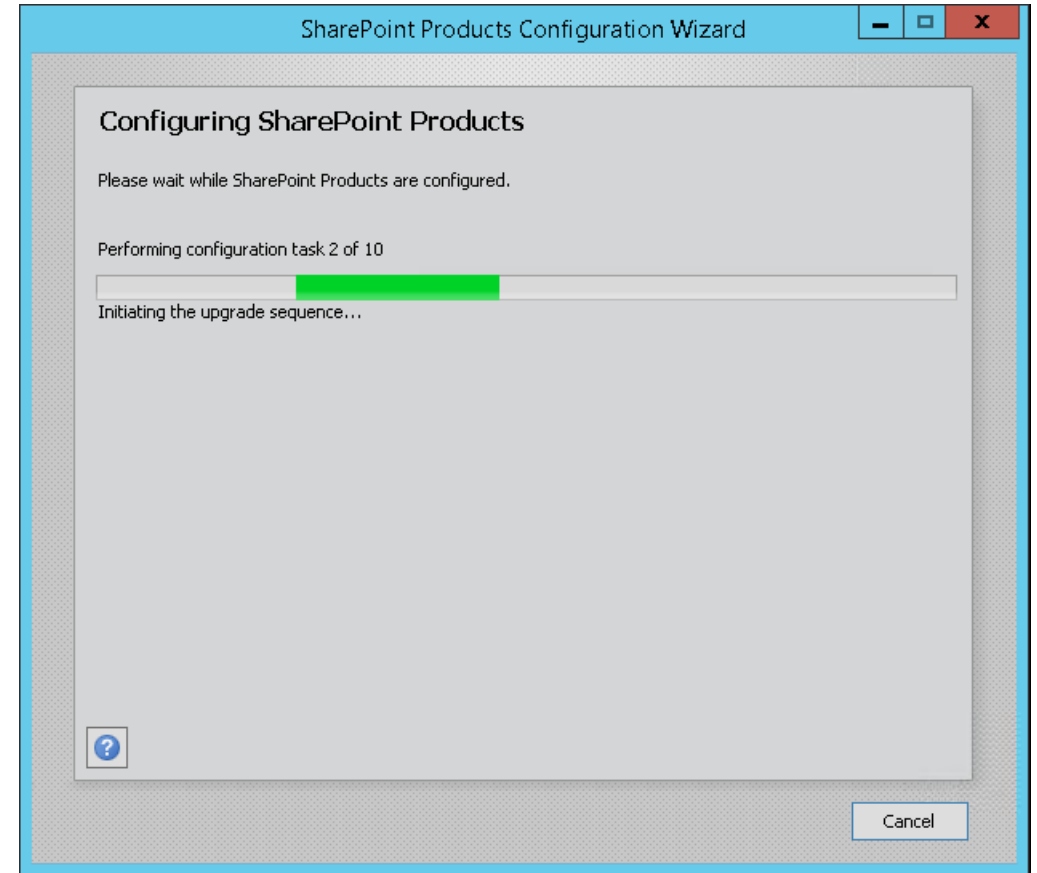
Upgrading SharePoint databases



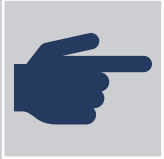
SharePoint Product Configuration Wizard

Product Configuration Wizard

- After installing binaries, you must run the Configuration Wizard in each server farm.
 - Command line: PsConfig
 - UI: PsConfigUI
- Located at
%COMMONPROGRAMFILES%\Microsoft Shared\Web server extensions\16\BIN
- Wizard stops SharePoint services
- UI recommended for small farms due to possible timeout and less talkative error messages



PSconfig



Open Command Prompt or PowerShell



Run the command:



Check the Upgrade Log files in the SharePoint log folder

```
cd %COMMONPROGRAMFILES%\Microsoft  
Shared\web server extensions\16\bin
```

```
.\PSConfig.exe -cmd upgrade -inplace b2b -  
wait -cmd applicationcontent -install -cmd  
installfeatures -cmd secureresources -cmd  
services -install
```

Knowledge Check 1

What are the patching strategies available in SharePoint?

- In-Place Update, Database Attach and Zero-Downtime Patching

What are the two phases on a SharePoint Patching process?

- Binaries installation and update phase

Which tools can you use to update the SharePoint databases?

- PSConfig and PSConfigUI

Agenda - Chapter 3

1

Patching Methodologies

2

Installing Binaries

3

Checking Patch Version

4

Troubleshooting Patching

Determining the Patch Version

- Configuration Database Version
 - In Central Administration, go to **"Manage Servers in this Farm"** link under **"System Settings"** section..
- Don't consider this version number as unique "Farm Version"
 - SharePoint has several isolated components where each one has its own build number.
 - Some components can be updated without a change to the configuration database schema.

Farm Information

Configuration database version: 16.0.4306.1001

Configuration database server: DCSQL

Configuration database name: SP_Config

Determining Patch Version

- Patch Status Page
 - In Central Administration, go to **"Check product and patch installation status"** link under **"Upgrade and Migration."**
- The version showed is related to each component isolated.
 - Superseded means a new version is installed of the component.



[Upgrade and Migration](#)
[Check product and patch installation status](#)
[Check upgrade status](#)

Server	Product	Version	Install Status
SP2016			
SP2016	Microsoft SharePoint Server 2016 Preview		Installed
SP2016	Microsoft Search Server 2016 Core	16.0.4306.1002	Installed
SP2016	Microsoft Search Server 2016 English Language Pack	16.0.4306.1002	Installed
SP2016	Microsoft Server Proof (Arabic) 2016	16.0.4306.1002	Installed
SP2016	Microsoft Server Proof (English) 2016	16.0.4306.1002	Installed
SP2016	Microsoft Server Proof (French) 2016	16.0.4306.1002	Installed
SP2016	Microsoft Server Proof (German) 2016	16.0.4306.1002	Installed
SP2016	Microsoft Server Proof (Russian) 2016	16.0.4306.1002	Installed
SP2016	Microsoft Server Proof (Spanish) 2016	16.0.4306.1002	Installed
SP2016	Microsoft SharePoint Foundation 2016 1033 Lang Pack	16.0.4306.1002	Installed
SP2016	Microsoft SharePoint Foundation 2016 Core	16.0.4306.1002	Installed
SP2016	Microsoft SharePoint Portal	16.0.4306.1002	Installed
SP2016	Microsoft SharePoint Portal English Language Pack	16.0.4306.1002	Installed
SP2016	Microsoft SharePoint Server 2016	16.0.4306.1002	Installed
SP2016	Microsoft User Profiles	16.0.4306.1002	Installed

Agenda - Chapter 4

1

Patching Methodologies

2

Installing Binaries

3

Checking Patch Version

4

Troubleshooting Patching

Upgrade Status

- In Central Administration, look for "**Check upgrade status**" link under the "**Upgrade and Migration**" section:
 - Show latest updates applied to your Farm
 - Status can be "**Succeeded**" or "**Failed**" depending of the result of process.
 - If you click in the status link, you will see detailed information about the specific process.
 - Until all servers show "Succeeded" functionality degradation is plausible.

All log categories on the upgrade job page		
Status	Current object	Process Name
Server	Current action	Thread Id
Start	Step within the action	Process Id
Last Updated	Total steps in this action	Command Line
Errors	Elapsed Time	Log File
Warnings	Percentage completed	Remedy
Starting object		

Upgrade Logs



Location

%COMMONPROGRAMFILES%\Microsoft Shared\Web server extensions\16\LOGS

Name format: Upgrade-YYYYMMDD-HHMMSS-SSS.log

- **If upgrade failed:** Upgrade-YYYYMMDD-HHMMSS-SSS-error.log



Upgrade page

“Upgrade Status” page in Central Administration shows the specific log file.

Header rows show the general information about upgrade process:

- **Command line**
- **User**
- **Current Machine**
- **Mode**
- **Current SharePoint Build**



Status

Upgrade successful: A message at the end of file will inform you of the status.

Upgrade failed: You can troubleshoot, using the file

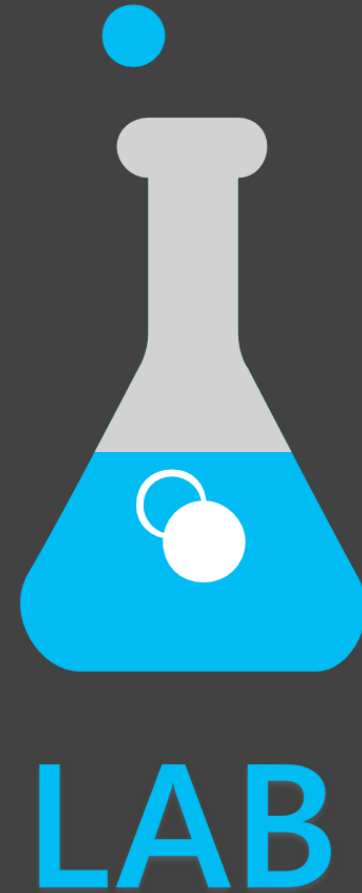
Lab 2:

Patch SharePoint Server

Objectives

After completing this lab, you will be able to:

- Update SharePoint build version
- Understand "In-Place Update Strategy with Backward Compatibility" process
- Check Upgrade Logs after patch update



Knowledge Check 2

Where can you check the version of SharePoint components?

- Check product and patch installation status" link under "Upgrade and Migration" in Central Administration

How can you check SharePoint upgrade log?

- Logs are found in the SharePoint Log folder, starting with Upgrade-<date> - <guid>.log or looking for this info at Central Administration

Questions?



