

Hypermiling with SharePoint Data Protection



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Hypermiling?

Wikipedia article page for "Hypermiling". The page includes a navigation menu, a search bar, and a main content area. A red circle highlights the first sentence of the article: "Hypermiling is the act of driving using techniques that maximize fuel economy. Those who practice these techniques are referred to as "hypermilers." [1]




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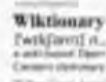
Search

Hypermiling

From Wikipedia, the free encyclopedia

 To comply with Wikipedia's [lead section guidelines](#), the **introduction of this article may need to be rewritten**. Please discuss this issue on the [talk page](#) and read the [layout guide](#) to make sure the section will be inclusive of all essential details. (July 2011)


Hypermiling is the act of driving using techniques that [maximize fuel economy](#). Those who practice these techniques are referred to as "hypermilers."^[1]

 Look up *hypermiling* in Wiktionary, the free dictionary.

Hypermiling can be practiced in any vehicle regardless of its [fuel economy](#). It gained popularity as a result of the [rise in gasoline prices during the 2000s](#).^[2] Some hypermiling techniques are illegal in some jurisdictions because they are dangerous.^[3]

In 2008, the word *hypermiling* was selected as the best new word of the year by [New Oxford American Dictionary](#).^[4]

Contents [hide]



Please discuss this in
layout guide to make
all essential details.

Hypermiling is the act of driving using techniques that maximize fuel economy. Those who practice these techniques are referred to as "hypermilers."^[1]

Hypermiling can be practiced in any vehicle
popularity as a result of the rise in gasoline

How do we extend this
concept to SharePoint?



Hypermiling?

The owner's manual
for my Prius



 **TOYOTA**

**2005 Owner's
Manual**

*For your safety and comfort,
read carefully and keep in the vehicle.*

PRIUS

The Agenda for this Session

ニU-7

Core Concepts

- Backup and Restore
- Export and Import
- High Availability

Task-Oriented Discussion + Demos

- Farm Backup/Restore
- Using SQL Server's Tools
- Content Export/Import
- Site Collection Backup/Restore

Add-Ons for "Greater Mileage"

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プリウス (北米U)



Core Concepts

- Backup and Restore
- Export and Import
- High Availability

• High Availability

Protection through redundancy

- SQL Clustering
- SQL Database Mirroring
- SQL Transaction Log Shipping
- SQL Always-On (SQL 2012)

Not on-tap for today's discussion



Where we will focus:



- Backup and Restore
- Export and Import



What's the difference?

Let's start with a backup

Source Data:



Source Data:



Backup

Backup Set:



The call comes ...



Backup Set:



Restore

Result:



▼
Result:



1-to-1 equivalence
with source data

Now let's look at an export

Source Data:



Source Data:



Export

Export Package:



The call comes ...



Export Package:



Import

Result:

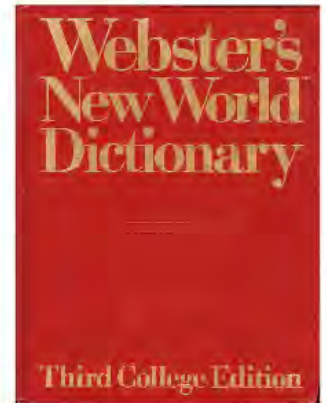


Result:



Not an identical copy of original. Still \$2.00, but a transformation has occurred.

How I define things




Backup/Restore

- Captures source data in full-fidelity, 1:1 fashion
- What you put in is exactly what you get back out

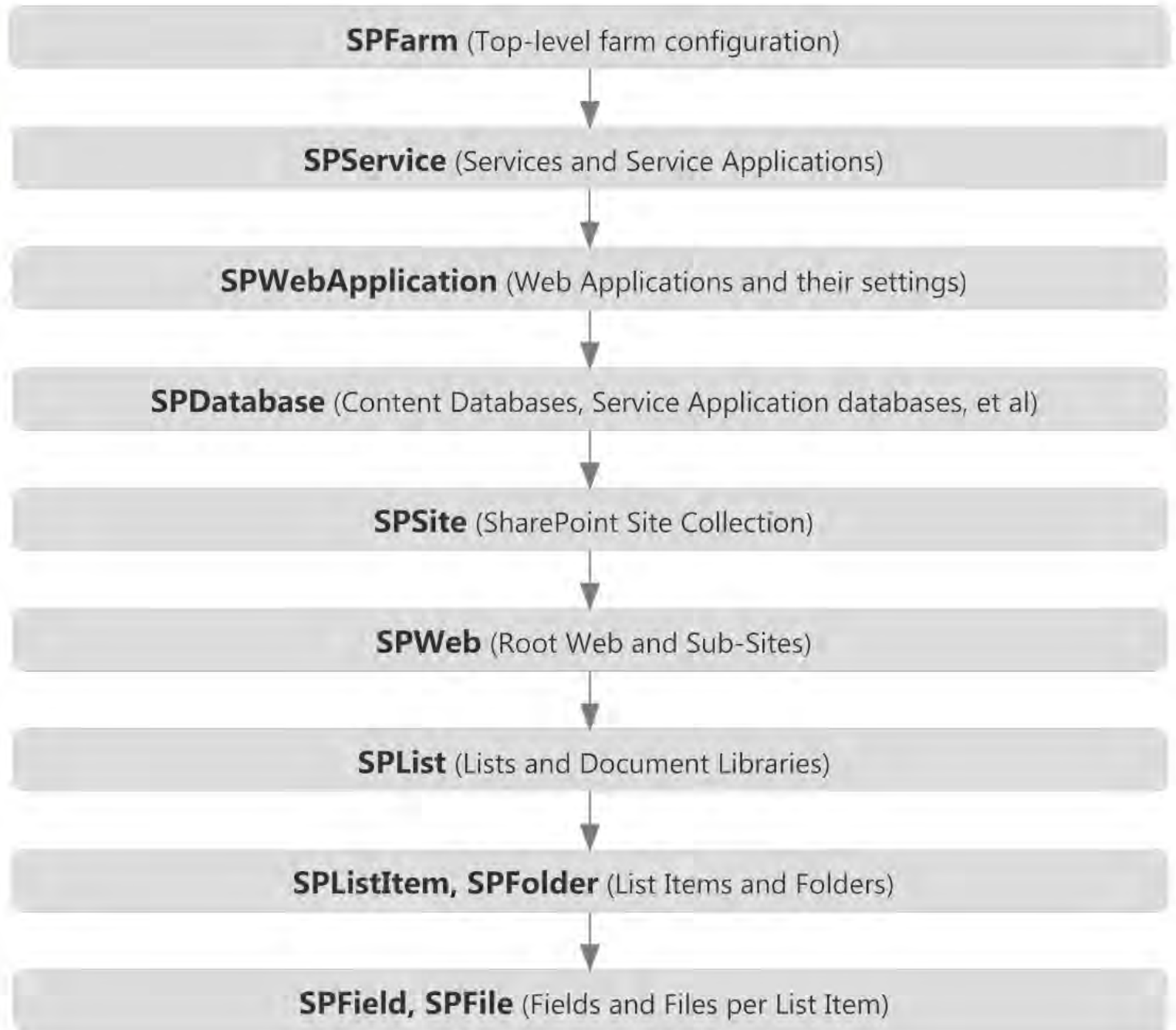
Export/Import

- Captures source data at less than full-fidelity
- Some transformation of data may occur
- You get out a "relevant" subset of what goes in
- More portable and manipulable than backups

Two hands are positioned to form a square frame around the text. The top hand's index finger points down, and the bottom hand's index finger points up. The other fingers are curled inward. The text is centered within the square formed by the two index fingers.

So, to take a
step back ...

SharePoint
Object
Model
Hierarchy



Parent




Children






Farm Backup & Restore




Granular Backup


Site Actions  Browse Page SPDEMO\Administrator

Microsoft SharePoint 2010 Central Administration > Backup and Restore  

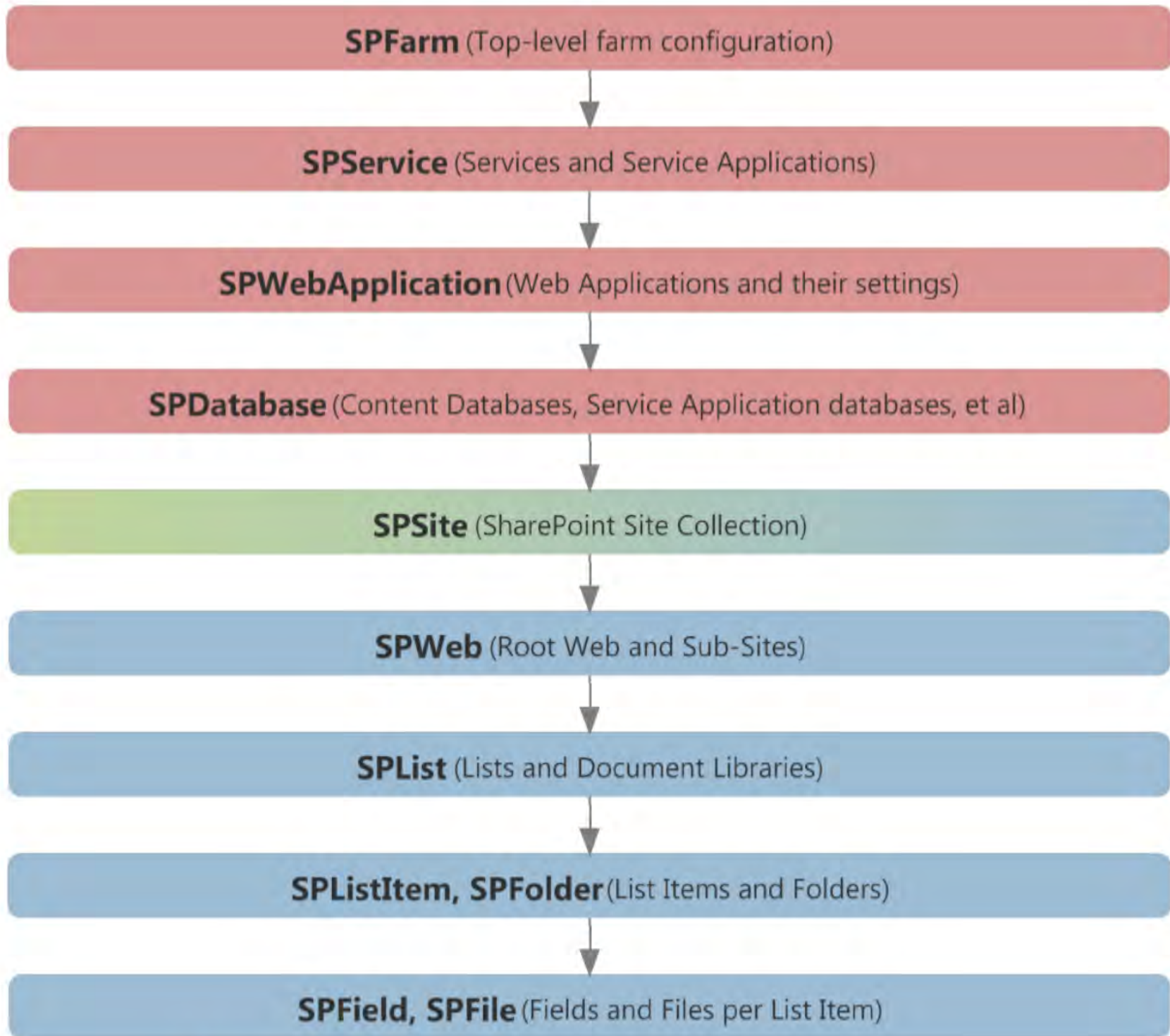


- Central Administration
- Application Management
- System Settings
- Monitoring
- Backup and Restore**
- Security
- Upgrade and Migration
- General Application Settings
- Configuration Wizards

 **Farm Backup and Restore**
[Perform a backup](#) | [Restore from a backup](#) | [Configure backup settings](#) | [View backup and restore history](#) | [Check backup and restore job status](#)

 **Granular Backup**
[Perform a site collection backup](#) | [Export a site or list](#) | [Recover data from an unattached content database](#) | [Check granular backup job status](#)

Backup and Restore in Central Administration



"Catastrophic" farm protection

- Backup-SPFarm
- Backup-SPConfigurationDatabase
- Restore-SPFarm
- STSADM -o backup with -filename specified



SPFarm (Top-level farm configuration)



SPService (Services and Service Applications)



SPWebApplication (Web Applications and their settings)



SPDatabase (Content Databases, Service Application databases, et al)



SQL Server Database
backups can also be
used to great effect
here



"Catastrophic"

- Backup-SPFarm
- Backup-SPConfigurat
- Restore-SPFarm
- STSADM -o backup w

SPFarm (Top-level)

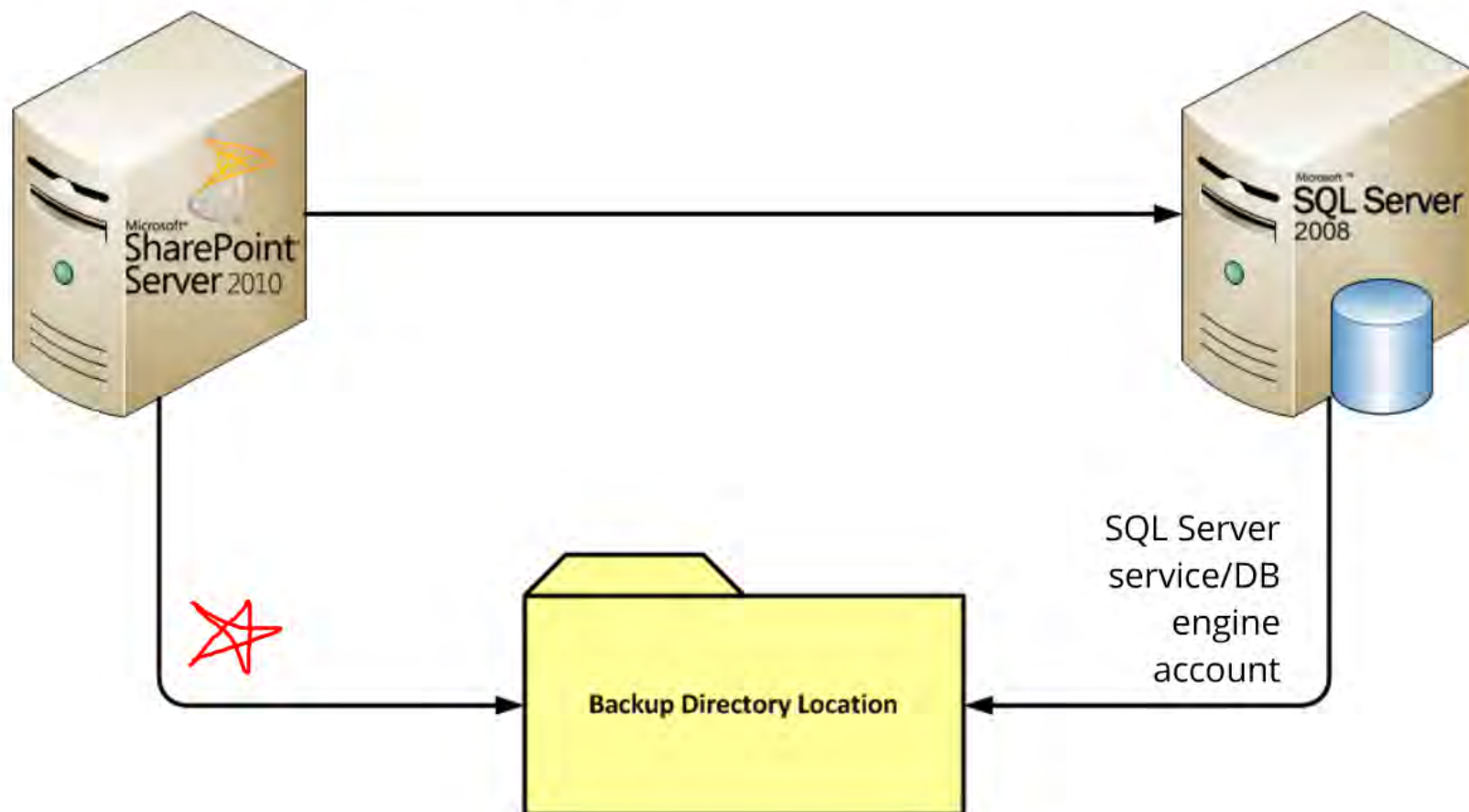
SPService (Services a

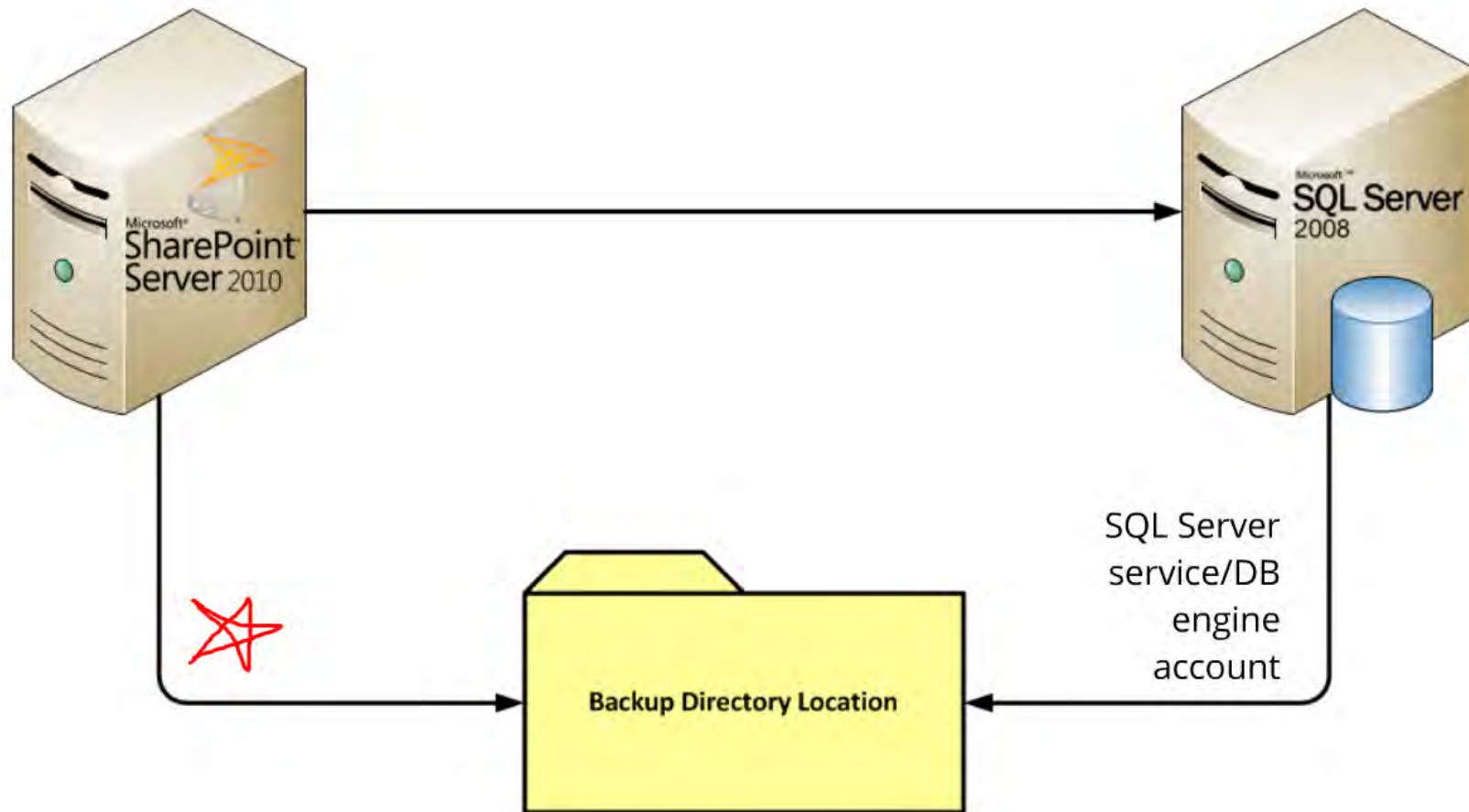
SPWebApplication (Web

SPDatabase (Content Databases,

Tips

- Understand the permissions you need before you begin





Central Admin

★ SharePoint
Timer Service
account context

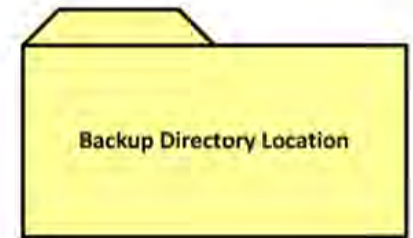
Command Line/PowerShell

★ Your account context! Make sure
you've got rights. (e.g., through
Add-SPShellAdmin)

Read/write access required for accounts

Tips

- Your backup directory location needs to be a UNC path unless you're on a single server (SQL Server + SharePoint)



- Plan your storage! Backups will grow to consume all available disk space unless you somehow groom them ...
- For automated protection, you'll need Windows Task Scheduler

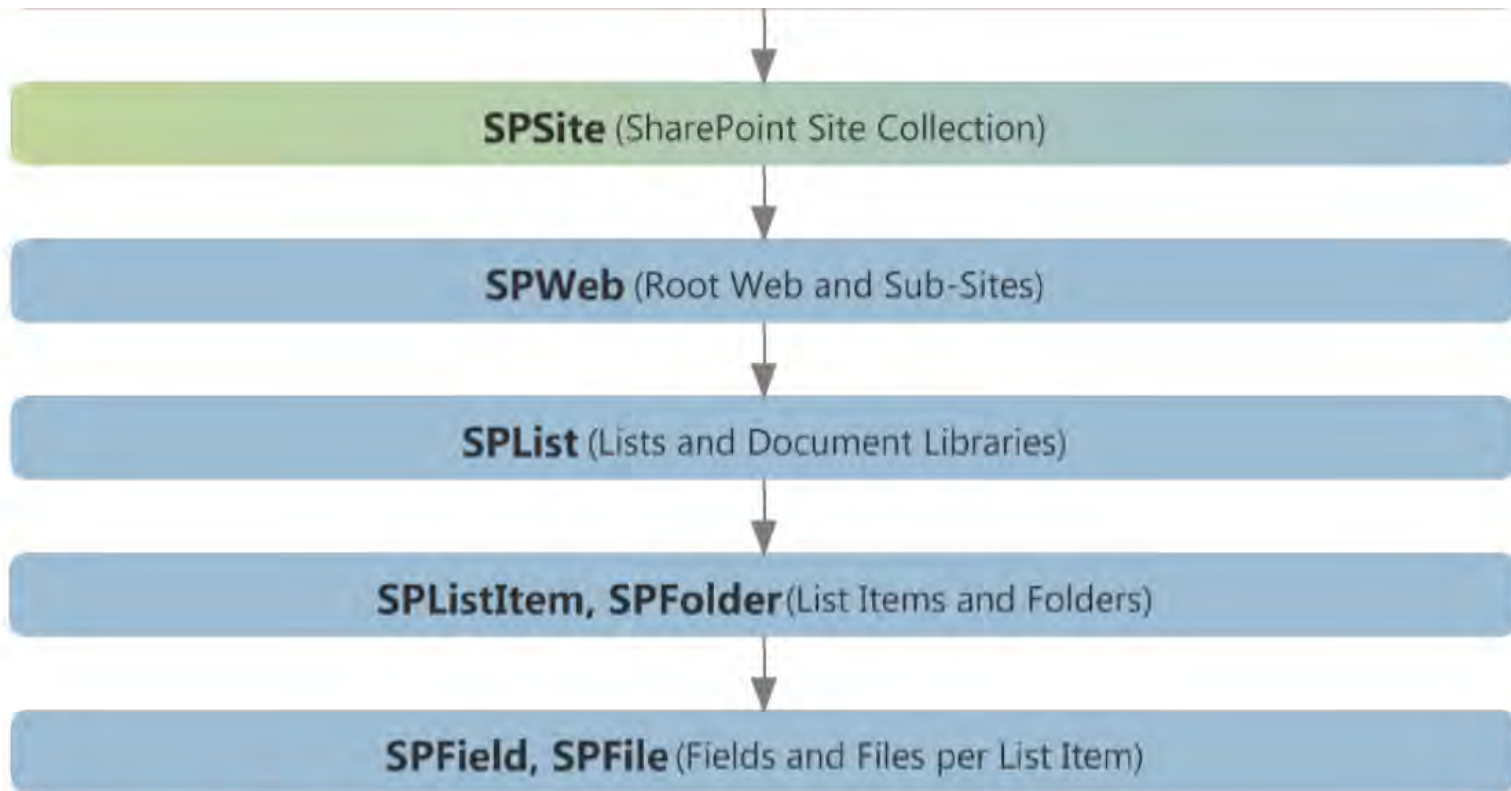
Component	Type	Description
[-] Farm	Farm	Content and configuration data for the entire server farm.
SP2010_FarmConfig	Configuration Database	Configuration data for the entire server farm.
[-] InfoPath Forms Services	Server Settings and Content	Administrator-approved content and settings for the server farm.
Settings	Settings	Settings
Data Connections	Data Connections	Administrator-approved data connection files.
Form Templates	Form Templates	Administrator-approved form templates.
[-] Exempt User Agents	Exempt User Agents	The collection of user agents that receive InfoPath forms instead of Web pages.
[-] SharePoint Server State Service	State Service	Service for storage of temporary state information used by various SharePoint Server features.
[-] State Service	State Service Application	
[-] Microsoft SharePoint Foundation Web Application	Microsoft SharePoint Foundation Web Application	Collection of Web Applications
[-] MySiteHostWebApp	Web Application	Content and configuration data for this Web application.
[-] PortalWebApp	Web Application	Content and configuration data for this Web application.
[-] WSS_Administration	Central Administration	Collection of Web Applications
[-] SharePoint Central Administration v4	Web Application	Content and configuration data for this Web application.
[-] SharePoint Server State Service Proxy	State Service Proxy	
State Service	State Service Application Proxy	
[-] SPUserCodeV4	Microsoft SharePoint Foundation Sandboxed Code Service	Settings for the Sandboxed Code Service.
[Solution Validators Group.]	Backup Group	Collection of components grouped together for backup and restore.
Sandboxed Code Load Balancer Provider using Popularity	Sandboxed Code Load Balancer Provider using Popularity	
[Resource Measures Group.]	Backup Group	Collection of components grouped together for backup and restore.
[Execution Tiers Group.]	Backup Group	Collection of components grouped together for backup and restore.
Microsoft SharePoint Server Diagnostics Service	Microsoft SharePoint Server Diagnostics Service	Settings for the diagnostics service.
Global Search Settings	Search object in configuration database	Crawler impact rules for the farm
Application Registry Service	Application Registry Service	Backwards compatible Business Data Connectivity API.
Microsoft Office Web Apps Diagnostics Service	Microsoft Office Web Apps Diagnostics Service	Settings for the diagnostics service.
Microsoft SQL Server Reporting Services Diagnostics Service	Microsoft SQL Server Reporting Services Diagnostics Service	Settings for the diagnostics service.
Microsoft SharePoint Foundation Diagnostics Service	Microsoft SharePoint Foundation Diagnostics Service	Settings for the diagnostics service.
[-] Shared Services	Shared Services	Shared Services of the server farm.
[-] Shared Services Applications	Shared Services Applications	Shared Services Applications of the server farm.
[-] Shared Services Proxies	Shared Services Proxies	Shared Services Applications of the server farm.

Demo

“The Treasure Trove
of Lost Goodness”



- Restore a Web Application (+ DBs)
- Watch the moving parts



 **Content export (via the Content Deployment API aka PRIME API)**

- Export-SPWeb
- Import-SPWeb
- STSADM -o export
- STSADM -o import

Tips

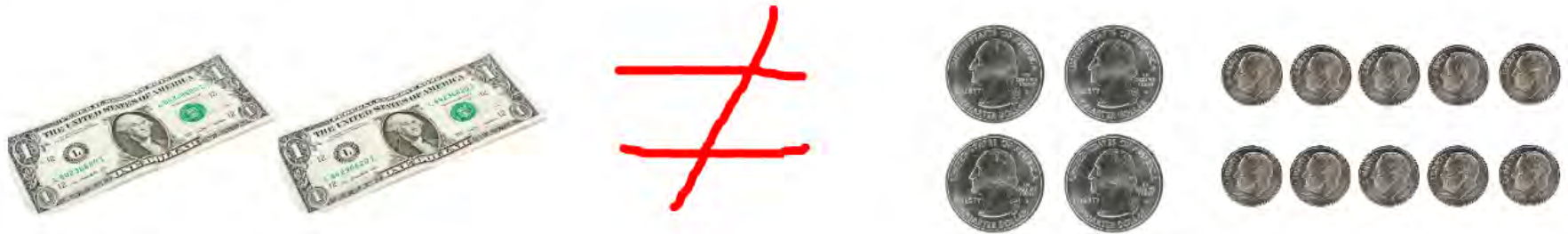
- You (or Timer Service account) require access to export/import location
- Do you have SQL Server Enterprise? Consider the `-UseSqlSnapshot` switch
- Imports must be done from the command line, but Exports can be done in Central Admin (much easier)

Tips

- Unattached database recovery is your friend: use it (via Central Administration)
- Publishing sites cause problems for some export/import operations.
- Be careful if you are importing into a (sub-) site that is based on a template that is different from the source (export) site or sub-site

Remember

- Content deployment is an export process



What you lose:

- alerts
- audit trails
- change log history
- recycle-bin items
- workflow tasks/state
- ...

Demo

"The Treasure Trove
of Lost Goodness"



- Perform a content export
- Restore a SQL database (SQL Server)
- Use unattached database recovery
- Import a content migration package

Site Collection backup

- Backup-SPSite
- Restore-SPSite
- STSADM -o backup with -url specified

SPService (Serv

SPWebApplication (

SPDatabase (Content Data

SPSite (Sh

SPWeb (R

SPList (Lists

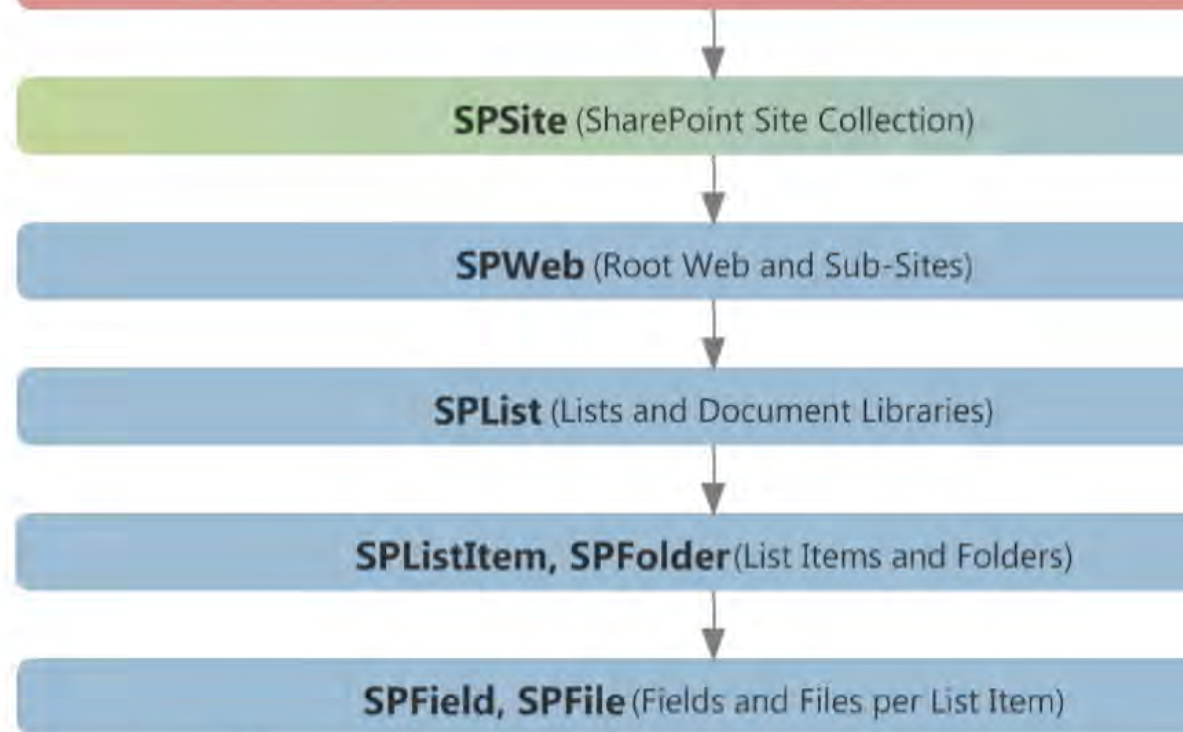
SPListItem, SP

SPField, SPFile

Site Collection backup

- Backup-SPSite
- Restore-SPSite
- STSADM -o backup with -url specified

Yes, site collections can be both backed-up and exported.



Content export (via the Content Deployment API aka PRIME API)

Tips

- Stay away from the -NoSiteLock switch
- Do you have SQL Server Enterprise?
Consider the -UseSqlSnapshot switch
- The recycle bin and gradual site deletion jobs can impact your restore operations
- GUID collisions happen. It's okay; create another database to restore to the same (source) Web Application

Demo

"The Treasure Trove
of Lost Goodness"



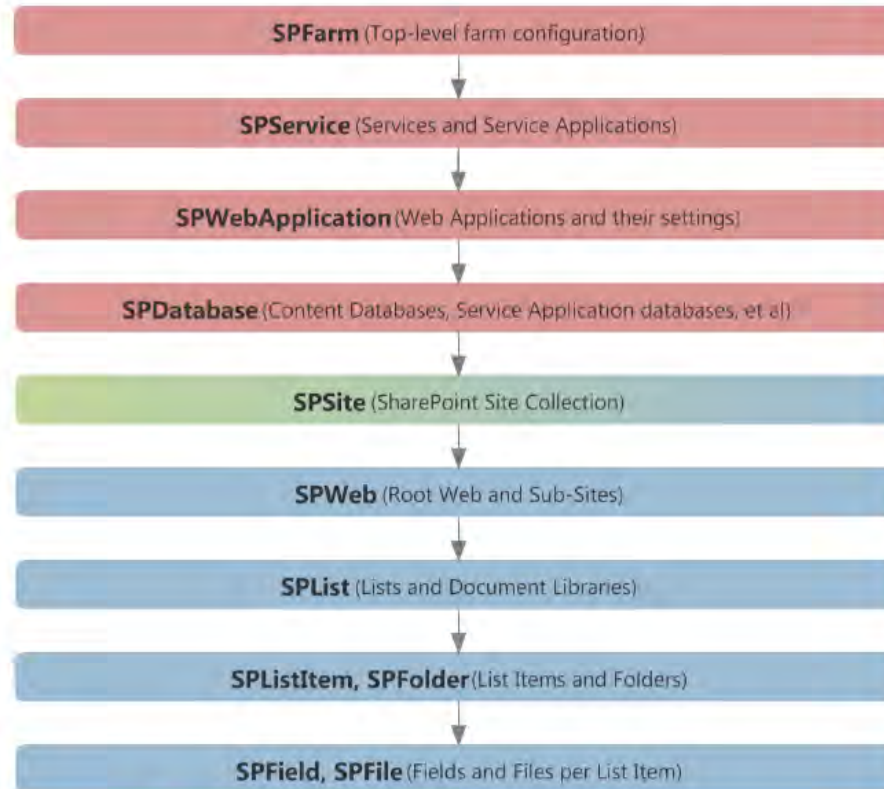
- Perform a site collection backup
- Execute a site collection restore

SQL Server Database backups can also be used to great effect here

"Catastrophic" farm protection

- Backup-SPFarm
- Backup-SPConfigurationDatabase
- Restore-SPFarm
- STSADM -o backup with -filename specified

Backup and export
"cheat sheet"



Site Collection backup

- Backup-SPSite
- Restore-SPSite
- STSADM -o backup with -url specified

Yes, site collections can be both backed-up and exported.

Content export (via the Content Deployment API aka PRIME API)

- Export-SPWeb
- Import-SPWeb
- STSADM -o export
- STSADM -o import



A Few Free Tools

(to give you some additional options)

- * John Ferringer's farm backup script
- * My SharePoint backup augmentation cmdlets
- * Chris O'Brien's content deployment wizard

(links in "Resources" at end of presentation)

John Ferringer's Farm Backup (PowerShell) Script

```
<#
.SYNOPSIS
Backs up a SharePoint farm on a scheduled basis.

.DESCRIPTION
At its core, the BackupSharePoint script backs up a SharePoint farm. As a
scheduled task, it generates a full farm backup once a week. On other
backups all other days. It also deletes the oldest backup to manage
storage management.

.PARAMETER
-drive <string[]>
    Indicates the drive letter of the server where the backup is stored.
    Also assumes this drive also hosts the shared directory.
-backupDir <string[]>
    The shared UNC path for your backups to be stored in.
    Example: \\<YOUR SHAREPOINT SERVER>\<YOUR BACKUP FOLDER>
-fullBackupDay <string[]>
    The day that a full backup should be run on.
    Example: "Sunday"
-configDBInstance <string[]>
    The SQL Server Database Server and Instance name host the
    configuration database. Example: "<YOUR SQL SERVER>\<YOUR SQL
    INSTANCE>"
-configDBName <string[]>
    The name of the farm's SharePoint configuration database.
    Example: "<YOUR CONFIG DB>"
-nbrDaysRetained <string[]>
    The number of days that backups should be retained.
-Computer <string[]>
    The name of the computer the script is being run on.
    Will default to the local computer name environment.

.EXAMPLE
----- EXAMPLE 1 -----
.\BackupSharePoint.ps1 -drive "C:" -backupDir "\\server\backups"
    -fullBackupDay "Sunday" -configDBInstance sql\sql01 -
    -nbrDaysRetained 14

This command generates a backup of a SharePoint 2010 environment.
To be run as a Scheduled Task, To run the backup to run...
```

- Great as-is or as a starting point for your own farm protection script
- Works for SharePoint 2007 and SharePoint 2010
- Includes backup directory rotation to avoid complete consumption of all available storage space

SharePoint Backup Augmentation Cmdlets for PowerShell (SharePointBAC)

```
Administrator: SharePoint 2010 Management Shell
PS C:\Users\s01render> Get-SPBackupCatalog

CatalogPath           : \\sculptedsystem.com\Network Files\Backup\2010 Farm
CatalogSize           : 102628388035
DifferentialBackupCount : 33
FullBackupCount       : 6
IsValidCatalog       : True
LastBackupErrorCount  : 0
LastBackupDuration    : 00:18:18
LastBackupFinish      : 6/28/2012 3:48:33 AM
LastBackupMethod      : Differential
LastBackupPath        : \\sculptedsystem.com\Network Files\Backup\2010 Farm\
                        spbr00ED\
LastBackupRequestor   :
LastBackupSize        : 1431181434
LastBackupStart       : 6/28/2012 3:30:15 AM
LastBackupTopComponent : Farm
LastBackupWarningCount : 0
SizePercentageOfLastFull : 15.93

PS C:\Users\s01render> _
```

Extends OOTB backup with new cmdlets to support backup set grooming, status emails, and more

SharePoint Status Report: Last Backup

The following summary was generated at 11:50 PM on Tuesday, June 26, 2012

General Backup Information

Backup Set Location	\\sculptedsystem.com\Network Files\Backup\2010 Farm\spbr00EC\
Top Component	Farm
Backup Method	Differential
Requested By	

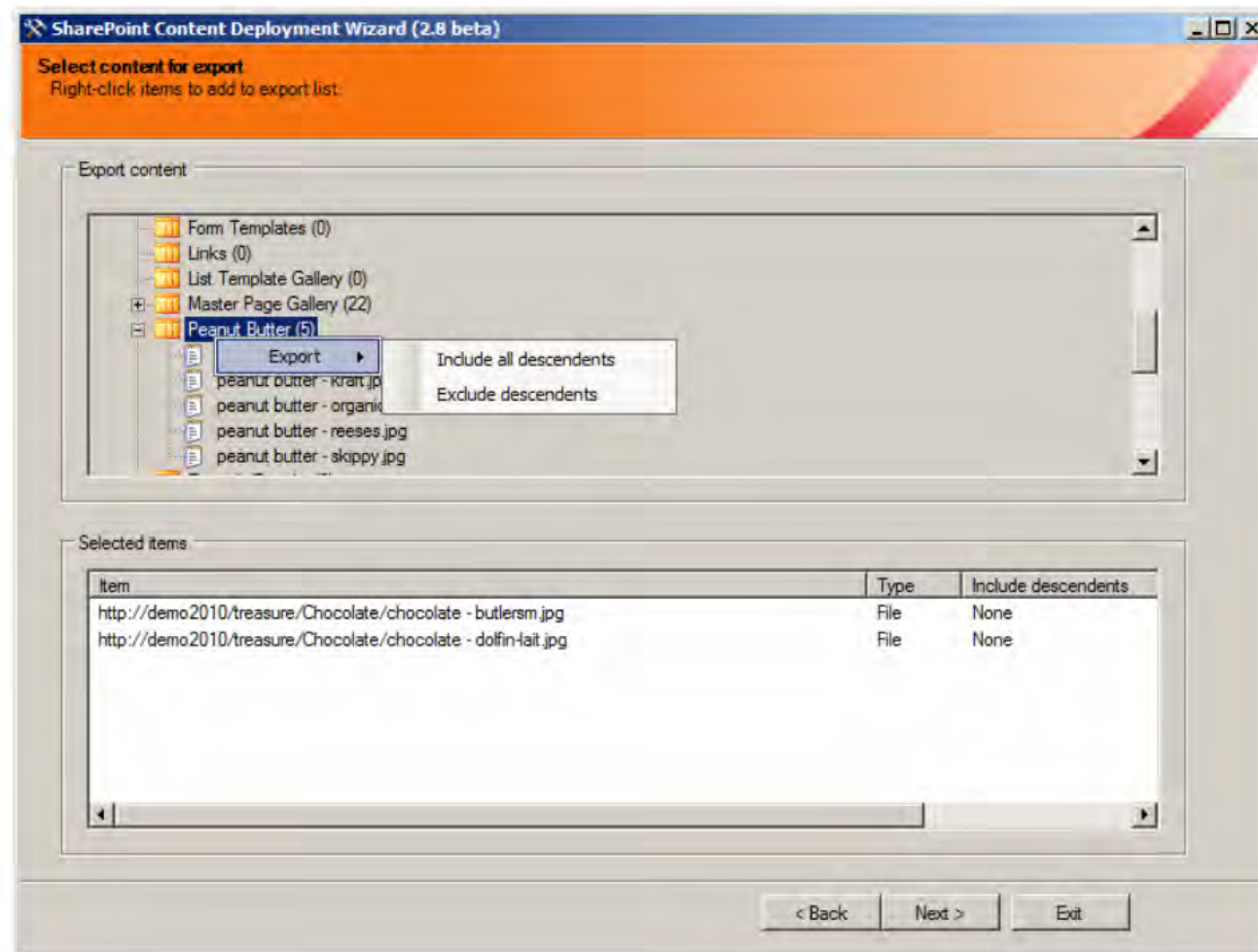
Backup Execution Details

Backup Initiated	11:30 PM on Tuesday, June 26, 2012 (Eastern Daylight Time)
Backup Completed	11:50 PM on Tuesday, June 26, 2012 (Eastern Daylight Time)
Duration	19 minutes and 55 seconds
Backup Set Size	1.32 GB
Errors	0
Warnings	0

- Get-SPBackupCatalog
- Export-SPBackupCatalog
- Remove-SPBackupCatalog
- Send-SPBackupStatus
- Set-SPBackupCatalog

Chris O'Brien's Content Deployment Wizard

Provides significantly enhanced content export and import functionality in an easy-to-use UI



Resources

Backup and recovery overview (SharePoint Server 2010)

- <http://technet.microsoft.com/en-us/library/ee663490>

Configuration-Only Backup and Restore in SharePoint 2010

- <http://sharepointinterface.com/2010/09/10/configuration-only-backup-and-restore-in-sharepoint-2010/>

A Tale of Two Cmdlets

- <http://sharepointinterface.com/2010/10/03/a-tale-of-two-cmdlets/>

Scheduling SQL backups for SharePoint

- <http://www.toddklindt.com/blog/Lists/Posts/Post.aspx?ID=248>

Limitations of STSADM -o export/import related to publishing sites

- http://blogs.technet.com/b/stefan_gossner/archive/2009/05/27/limitations-of-stsadm-o-export-import-related-to-publishing-sites.aspx

Resources

Gradual Site Collection Deletion

- <http://reality-tech.com/2012/04/04/gradual-site-collection-deletion/>

The Importance of Consistency when Creating SharePoint Backups

- <http://www.idera.com/Downloads/ProdCollateral/Consistency-Creating-SharePoint-Backups.pdf>

Use PowerShell to Back Up Your SharePoint Farm

- <http://blogs.technet.com/b/heyscriptingguy/archive/2011/06/22/use-powershell-to-back-up-your-sharepoint-farm.aspx>

SharePoint Backup Augmentation Cmdlets (SharePointBAC)

- <http://sharepointbac.codeplex.com/>

SharePoint Content Deployment Wizard

- <http://spdeploymentwizard.codeplex.com/>



Sean P. McDonough

Blog: <http://SharePointInterface.com>

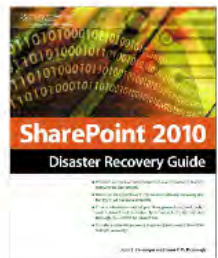
Email: sean@SharePointInterface.com

LinkedIn: <http://www.linkedin.com/in/smcdonough>

Twitter: @spmcdonough



SharePoint 2007 Disaster Recovery Guide
<http://tinyurl.com/SPDRGuide2007>



SharePoint 2010 Disaster Recovery Guide
<http://tinyurl.com/SPDRGuide2010>