LiteSpeed® for SQL Server® 8.9.1

Integration with IBM Spectrum Project (TSM) Guide

Patents

Quest Software is proud of our advanced technology. Patents and pending patents may apply to this product. For the most current information about applicable patents for this product, please visit our website at https://www.quest.com/legal.

Trademarks

Quest, Toad, Toad World, LiteSpeed, the Quest logo, and Join the Innovation are trademarks and registered trademarks of Quest Software Inc. For a complete list of Quest marks, visit https://www.quest.com/legal/trademark-information.aspx. All other trademarks and registered trademarks are property of their respective owners.

Legend

> **!** | **CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

> **i** | **IMPORTANT**, **NOTE**, **TIP**, **MOBILE**, or **VIDEO**: An information icon indicates supporting information.

LiteSpeed Integration with IBM Spectrum Project (TSM) Guide
Updated - March 2020
Version - 8.9.1

Contents

Using IBM Spectrum Protect (TSM) with LiteSpeed

About Using IBM Spectrum Protect™ (TSM) with LiteSpeed

IBM Spectrum Protect™ (Tivoli Storage Manager - TSM) and LiteSpeed integrate to cover a very broad range of enterprise storage solutions, and therefore is a critical part of any major corporation's disaster recovery strategy.

TSM is a data backup and storage solution used in many large enterprises.

LiteSpeed® for SQL Server®, or LiteSpeed, is a fast and flexible backup and recovery solution that allows database administrators to easily maintain complete control over the backup and recovery process. LiteSpeed's low-impact, high-performance compression and encryption technology helps reduce storage costs and protect data, while maintaining a high level of recoverability.

LiteSpeed interfaces with the TSM through the TSM API, allowing users to conduct backups directly to TSM using LiteSpeed T-SQL commands or the LiteSpeed command-line utility. Any DBA can write a script and effectively start sending their SQL Server backups to TSM directly.

Using LiteSpeed with TSM combines the small, secure, and rapid backups of LiteSpeed with the state-of-the-art storage and retrieval system of TSM.

Overview of IBM Spectrum Protect™ (TSM) Integration

The following diagram shows a very simple, high-level overview of the LiteSpeed/TSM integration:
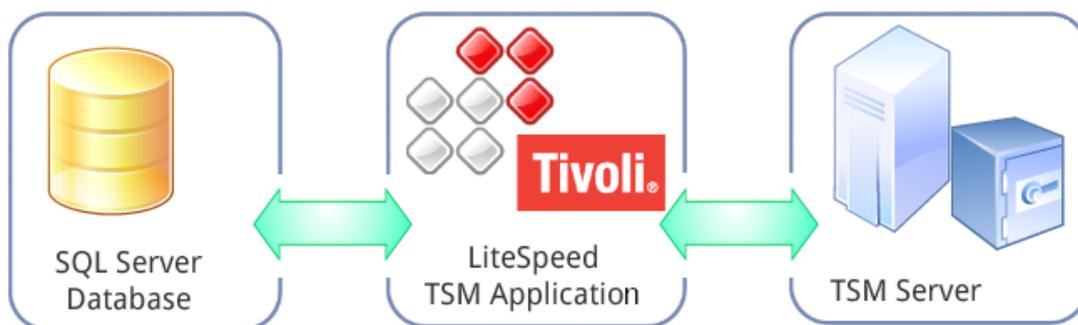
TSM backups conducted through LiteSpeed are transferred to and then stored in and/or managed by the Tivoli Storage Manager. The TSM handles the LiteSpeed backup file from then on, managing expiration date, storage location, etc. The functions of the TSM are not discussed here, please refer to the product documentation for further details.

Because the application is cluster-aware, most users running SQL Server in a clustered environment can take advantage of LiteSpeed to send SQL Server database backups to TSM storage.

In a typical environment:

- Users who want to send LiteSpeed backups to TSM will have the machine from which LiteSpeed is run set up as a TSM client node.

- Because TSM works in a Client-Server implementation, this client node will point to the TSM Server. The client uses a configuration file called client option file to locate the TSM server. Generally, the TCP/IP address of the TSM Server and the port number that it is listening on are stamped in the client option file.

- The user conducts the backup/restores from LiteSpeed, using TSM-specific parameters.

- The TSM client processes the backup and restore requests from SQL server and translates them into TSM backup and restore requests.
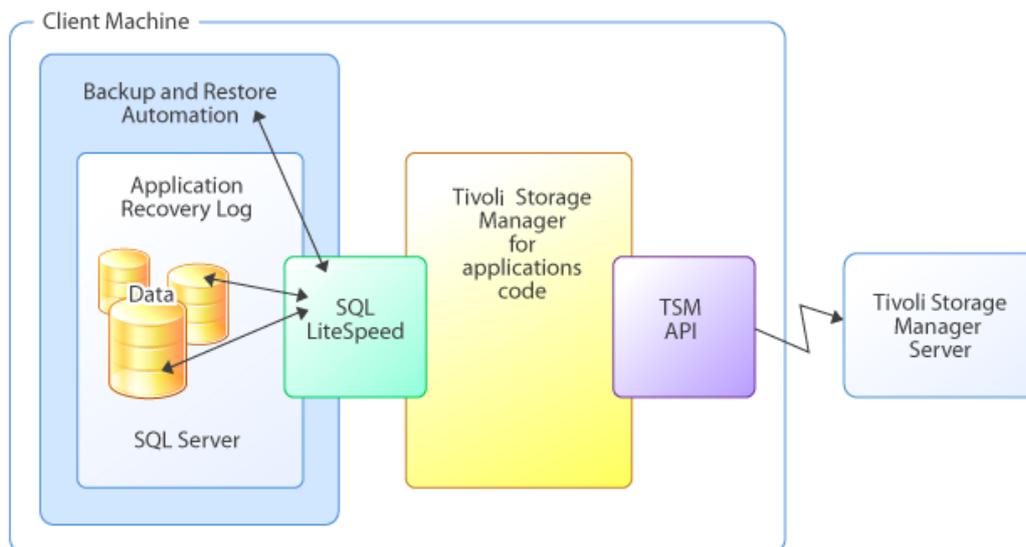
(The above graphic is adapted from a similar image at www.redbooks.ibm.com).

Using LiteSpeed Compression

If you use LiteSpeed compression, the database pages will get compressed, and then the compressed data stream is sent to the TSM server. Database backup sizes within a range of 15-30% of the original database size are fairly common. This ensures the footprint of the backup on the network is minimal.

For optimal performance, you can use the Adaptive Compression feature. With Adaptive Compression, LiteSpeed will dynamically change the compression level based on available server resources.

For more information about the LiteSpeed compression options, please refer to the LiteSpeed *User Guide*.

Using Fast Compression

Fast Compression reduces the backup footprint another 70-85% over what you can already get with LiteSpeed compression. When configured, Fast Compression will intelligently back up only database changes rather than the entire database. This form of backup deduplication does not have any performance impact. For more information about the Fast Compression feature, please refer to the LiteSpeed *User Guide*.

Using TSM Client-Side Data Deduplication

You can safely conduct backups through LiteSpeed, when TSM client-side data deduplication is enabled. Client based deduplication processing can reduce the amount of data being transferred over the network to the storage system, but there are often requirements for extra CPU and disk I/O processing on the client side. For more information, refer to the *Implementing IBM Storage Data Deduplication Solutions* guide available at www.redbooks.ibm.com.

Given that LiteSpeed can reduce backup size on average to 20% or less its original size, deduplication may be unnecessary as using LiteSpeed compression alone saves 5X or more disk space.

LiteSpeed IBM Spectrum Protect (TSM) Configuration

Configure LiteSpeed to Work with IBM Spectrum Protect™ (TSM)

The following instructions show how to set up a combined LiteSpeed/TSM backup solution:

- IBM Spectrum Protect™ (TSM) Requirements

- Configure LiteSpeed to Back Up Directly to IBM Spectrum Protect™ (TSM)

- Back Up and Restore to IBM Spectrum Protect™ (TSM) with LiteSpeed

- Install and Configure the IBM Spectrum Protect™ (TSM) Backup-Archive Client

- IBM Spectrum Project (TSM) Examples

NOTE: The following instructions do not describe how to install or use TSM, refer to the documentation provided with the product for further details. For additional information, refer to the IBM Tivoli Information Center and www.redbooks.ibm.com.

IBM Spectrum Protect™ (TSM) Requirements

Before you set up a combined LiteSpeed/TSM backup solution, please review this section to ensure you meet the software requirements.

Windows

- Windows Server 2008
- Windows 7
- Windows 8
- Windows 8.1
- Windows Server 2012
- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019

SQL Server

- SQL Server 2005
- SQL Server 2008
- SQL Server 2012
- SQL Server 2014
- SQL Server 2016
- SQL Server 2017
- SQL Server 2019

IBM Spectrum Protect™ (TSM)

Backup archive client software version 5.3 or later

Configure LiteSpeed to Back Up Directly to IBM Spectrum Protect™ (TSM)

To configure LiteSpeed to back up directly to TSM

1. Set up the machine from where you will run LiteSpeed so that it is a TSM backup-archive client node. This requires that you install the TSM backup-archive client and API files. For more information, see Install and Configure the IBM Spectrum Protect™ (TSM) Backup-Archive Client on page 10.

2. Register the TSM client node with the TSM server. For instructions, refer to *IBM Tivoli Storage Manager Implementation* guide available at www.redbooks.ibm.com.

You should now be able to conduct LiteSpeed backups and restores from the TSM client node.

Install and Configure the IBM Spectrum Protect™ (TSM) Backup-Archive Client

Install the IBM Spectrum Protect™ (TSM) backup-archive client on the server where LiteSpeed will be executing the backup/restore command. For instructions, refer to the *IBM Tivoli Storage Manager Implementation* guide available at www.redbooks.ibm.com.

Ensure that you do a complete install of the backup-archive client. This will install API-specific files on the SQL Server.

Confirm that the installer has installed the API

Check that the following files have been installed in the API directory:

- apienu.dll
- dscenu.txt

Set up the client option file

If the TSM client API is installed with the default options then the options file (dsm.opt) is typically located in the *C:\Program Files\Tivoli\TSM\baclient* directory. At a minimum, the client option file must contain the following:

- `COMMMETHOD`
- `TCPSERVERADDRESS`
- `Tcpport`

The client API needs the communication method and the IP address and TCP port of the TSM server to initiate a session. `TCPSERVERADDRESS` can use either the IP address or the computer name of the TSM server.

For general instructions on the client option file and information on additional options, refer to the *IBM Spectrum Protect™ (TSM) Implementation* guide and the IBM Spectrum Protect™ (TSM) API Documentation available at www.redbooks.ibm.com.

Tip: You can create a new options file for use with LiteSpeed and locate it anywhere you like. Following are the contents of a sample options file for LiteSpeed:

```
commmethod tcpip
tcpport 1500
tcpserveraddress 10.10.26.26
nodename enc2033
passwordaccess generate
deduplication yes
dedupcachepath c:\cases
errorlogname c:\dsierror.log
```

Back Up and Restore to IBM Spectrum Protect™ (TSM) with LiteSpeed

To use LiteSpeed to back up and/or restore to TSM

Conduct a backup from the LiteSpeed UI Console, using the LiteSpeed command line utility or using LiteSpeed T-SQL commands in the normal manner, providing the TSM-required information using TSM specific arguments.

LiteSpeed needs some specific information for every backup data stream sent to the TSM server, including:

- Location of the option file (Usually, *C:\Program Files\Tivoli\TSM\baclient\dsm.opt.*)

  NOTE: Tivoli Server uses the option file to start as a service with a set of default options. Some server options may affect backup/restore processes.

- TSM object name specification, a three-part name used to uniquely identify the object within the TSM server namespace, for example, *FS\HL\LL_xmlData.* The three parts can be generally explained as:

  - File space–The name of the file system or disk drive where related data is located. The file system can hold a group of similar objects. All data sent to the TSM server needs to have a file space associated with it. IBM recommends that an application client should select a unique file space; it is recommended that LiteSpeed users follow this practice with a specific filespace reserved for LiteSpeed backups.

  - High level name–The location of the object within the TSM Server namespace (roughly synonymous to a directory path).

  - Low level name–The actual name given to the object.

  This name identifies the backup in TSM. It is not possible to overwrite or append to an existing object. If backing up to the same tsm objects with init option, they are "versioned" by the TSM server. New backups become active, old ones become inactive and removed as specified by the TSM servers' retention policies.

Depending on your TSM configuration, you may need to provide the following:

- Client node that is accessing the TSM Server

- Node owner password

For more information, see on how to perform LiteSpeed functions with the TSM.

NOTE: For information about backing up or restoring using the LiteSpeed UI Console, please see the LiteSpeed User Guide.

Troubleshoot Backing Up and Restoring to IBM Spectrum Protect™ (TSM)

LiteSpeed displays the return codes from the IBM Spectrum Protect™ (Tivoli Storage Manager - TSM) API. If an error occurs, refer to the list of TSM API error codes for a description of the error, the system action occurring in

the event of the error, and the appropriate response. The TSM API error codes are listed in the IBM Spectrum Protect™ (Tivoli Storage Manager - TSM) Information Center.

4

IBM Spectrum Project (TSM) Examples

Following are several TSM examples. For more information about the LiteSpeed extended stored procedures and command-line utilities, please refer to the LiteSpeed *User Guide*.

Back up Database to TSM Using SQL

The following command backs up the database:

```
exec master.dbo.xp_backup_database
@database = 'pubs_50gb'
, @tsmclientnode = 'testsystemwas'
, @tsmclientownerpwd = 'password'
, @tsmobject = 'TWAS1_50GB\All_pubs50gb_Backups\pubs50gb_FirstBackup'
, @tsmconfigfile = 'C:\Program Files\Tivoli\tsm\api\SAMPSRC\dsm.opt'
, @init = 1
, @AdaptiveCompression = 'Speed'
```

In this example, LiteSpeed backs up the database pubs_50gb by:

- Connecting to the tsm server as noted by the tsmserveraddress option specified in the dsm.opt file.

- Using the client node name and client owner password to authenticate the user to the TSM server.

- Storing the backup in the TSM name space designated by @tsmobject.

- (If there is a TSM object with the same name) Versioning the backup using the @init = 1 option.

- Using Adaptive Compression to optimize backup for speed.

Back Up to TSM with the Passwordaccess Generate Option Using SQL

If the Passwordaccess Generate option is specified in the dsm.opt file, then the node name and password are not required:

```
exec master.dbo.xp_backup_database
@database = 'Northwind'
, @tsmobject = 'fsMH\nw\Northwind_%z'
, @tsmconfigfile = 'C:\program files\Tivoli\TSM\baclient\dsm.opt'
, @compressionlevel = 1
, @tsmmanagementclass = N'SPS_MGTD'
, @init = 1
```

Use Command-Line to Back Up to TSM

Use the following command to back up the "Northwind" database:

```
sqllitespeed -Bdatabase -DNorthwind -i"fsMH\nw\testcmd" -c"10.0.1.200" -k"password" -
j"c:\program files\Tivoli\TSM\baclient\dsm.opt" --AdaptiveCompression "Speed" -z"SPS_
MGTD" S"MyServer\Instance" -T
```

This will back up the "Northwind" database with the following options:

To the unique location	fsMH\nw\testcmd Where: • fsMH is TSM filespace • nw is TSM high level • testcmd is TSM low level (If backing up to a non-unique location, use -I parameter.)
From the client node	10.0.1.200 (As set up with the TSM server. In this example that node name is the IP address of the client.)
Connecting to the server instance	MyServer\Instance
Using a trusted connection	(Instead of passing the username `-U` and password `-P`.)
Connecting with the client password	"password"

Using the TSM option file	C:\Program Files\Tivoli\TSM\baclient\dsm.opt
Using the Adaptive Compression option	Optimize for speed
Using the specified management class	SPS_MGTD (If not specified, LiteSpeed uses the default management class.)

Use Command-Line to Back Up to TSM with the Passwordaccess Generate Option

If the Passwordaccess Generate option is specified in the dsm.opt file, you can use the following command:

```
sqllitespeed -Bdatabase -D"Northwind" -i"fsMH\nw\Northwind_%z" -j"C:\program
files\Tivoli\TSM\baclient\dsm.opt" -C1 -I -S"MyServer\Instance" -T
```

Restore Database from TSM Using SQL

```
Exec master.dbo.xp_restore_database
@database = 'pubs4'
, @with = 'move ''pubs'' to ''C:\test\pubs4.mdf'''
, @with = 'move ''pubs_log'' to ''C:\test\pubs4_log.ldf'''
, @tsmclientnode = 'nodet1'
, @tsmobject = 'm1\pubs_mb\test1'
, @tsmclientownerpwd = 'password'
, @tsmconfigfile = 'C:\Program Files\Tivoli\tsm\api\SAMPSRC\dsm.opt'
```

Verify TSM Backup Using SQL

```
exec master.dbo.xp_restore_verifyonly
@tsmclientnode = 'nodet1'
, @tsmclientownerpwd = 'nodet1'
, @tsmobject = 'm1\pubs_mb\test1'
, @tsmconfigfile = 'C:\Program Files\Tivoli\tsm\api\SAMPSRC\dsmmt.opt'
```

Restore File List Only from TSM Using SQL

```
Exec master.dbo.xp_restore_filelistonly
@tsmclientnode = 'nodet1'
, @tsmclientownerpwd = 'password'
, @tsmobject = 'm1\pubs_mb\test1'
, @tsmconfigfile = 'C:\Program Files\Tivoli\tsm\api\SAMPSRC\dsmmt.opt'
```

Striped Backup To TSM Using SQL

```
exec master.dbo.xp_backup_database
@database = 'Northwind'
, @tsmobject = 'fsMH\nw\stripetest01'
, @tsmobject = 'fsMH\nw\stripetest02'
, @tsmobject = 'fsMH\nw\stripetest03'
, @tsmobject = 'fsMH\nw\stripetest04'
, @tsmclientnode = '10.0.1.200'
, @tsmclientownerpwd = 'password'
, @tsmconfigfile = 'C:\Program Files\Tivoli\TSM\baclient\dsm.opt'
, @init = 1
```

Striped Restore from TSM Using SQL

Verify Striped Backup

```
exec master.dbo.xp_restore_verifyonly
@tsmobject = 'fsMH\nw\stripetest01'
,@tsmobject = 'fsMH\nw\stripetest02'
,@tsmobject = 'fsMH\nw\stripetest03'
,@tsmobject = 'fsMH\nw\stripetest04'
,@tsmclientnode = '10.0.1.200'
,@tsmclientownerpwd = 'password'
,@tsmconfigfile = 'C:\Program Files\Tivoli\TSM\baclient\dsm.opt'
```

Restore Header Only

```
exec master.dbo.xp_restore_headeronly
@tsmobject = 'fsMH\nw\stripetest01'
,@tsmobject = 'fsMH\nw\stripetest02'
,@tsmobject = 'fsMH\nw\stripetest03'
,@tsmobject = 'fsMH\nw\stripetest04'
,@tsmclientnode = '10.0.1.200'
,@tsmclientownerpwd = 'password'
,@tsmconfigfile = 'C:\Program Files\Tivoli\TSM\baclient\dsm.opt'
```

Restore File List Only

```
exec master.dbo.xp_restore_filelistonly
@tsmobject = 'fsMH\nw\stripetest01'
,@tsmobject = 'fsMH\nw\stripetest02'
,@tsmobject = 'fsMH\nw\stripetest03'
,@tsmobject = 'fsMH\nw\stripetest04'
,@tsmclientnode = '10.0.1.200'
,@tsmclientownerpwd = 'password'
,@tsmconfigfile = 'C:\Program Files\Tivoli\TSM\baclient\dsm.opt'
```

Restore from Striped Backup

```
exec master.dbo.xp_restore_database
@database = 'Northwind'
,@tsmobject = 'fsMH\nw\stripetest01'
,@tsmobject = 'fsMH\nw\stripetest02'
,@tsmobject = 'fsMH\nw\stripetest03'
,@tsmobject = 'fsMH\nw\stripetest04'
,@tsmclientnode = '10.0.1.200'
,@tsmclientownerpwd = 'password'
,@tsmconfigfile = 'C:\Program Files\Tivoli\TSM\baclient\dsm.opt'
```

Striped Backup to TSM Using the Command Prompt

```
sqllitespeed -Bdatabase -DNorthwind -i"fsMH\nw\testcmd1" -i"fsMH\nw\testcmd2" -
i"fsMH\nw\testcmd3" -c"10.0.1.200" -k"password" -j"c:\program
files\Tivoli\TSM\baclient\dsm.opt" -I -S"MyServer\Instance" -T
```

Striped Restore from TSM Using the Command Prompt

```
sqllitespeed -RDatabase -j"c:\program files\Tivoli\TSM\baclient\dsm.opt" -
i"fsMH\nw\testcmd1" --TSMPointInTime "2011-04-12 11:46:48" -i"fsMH\nw\testcmd3" --
TSMPointInTime "2011-04-12 11:46:48" -i"fsMH\nw\testcmd2" --TSMPointInTime "2011-04-12
11:46:48" -N1 -DNorthwind c"10.0.1.200" -k"password"-S"MyServer\Instance" -T
```

View Filespaces Associated with a Client Node

```
exec master.dbo.xp_view_tsmfilespaces
@tsmclientnode = '10.0.1.200'
,@tsmclientownerpwd = 'password'
,@tsmconfigfile = 'C:\Program Files\Tivoli\TSM\baclient\dsm.opt'
```

View Contents of TSM Filespace

```
exec master.dbo.xp_view_tsmcontents
@tsmclientnode = '10.0.1.200'
,@tsmclientownerpwd = 'password'
,@tsmconfigfile = 'C:\Program Files\Tivoli\TSM\baclient\dsm.opt'
,@tsmfilespace = 'fsMH'
```

View Information on TSM Management Classes

List all the management classes:

```
exec master.dbo. xp_view_tsmmc
@tsmclientnode = '10.0.1.208'
,@tsmclientownerpwd = 'password'
,@tsmconfigfile = 'C:\Program Files\Tivoli\TSM\baclient\dsm.opt'
```

List information about a specific management class:

```
exec master.dbo. xp_view_tsmmc
@tsmmanagementclass = 'SPS_MGTD'
,@tsmclientnode = '10.0.1.208'
,@tsmclientownerpwd = 'password'
,@tsmconfigfile = 'C:\Program Files\Tivoli\TSM\baclient\dsm.opt'
```

Bind an Object to a New Management Class

```
exec master.dbo.xp_rebind_tsmmc
@tsmclientnode = '10.0.1.113'
,@tsmclientownerpwd = 'password'
,@TSMMANAGEMENTCLASS = 'STD_MGT_CLASS_B'
,@tsmobject = 'w2k10\HL1\LL2'
,@tsmconfigfile = 'c:\Program Files\Tivoli\TSM\api\dsm.opt'
```

Delete an Object in TSM Using the Command-Line

SLSMedia.exe -r tsm:file space\high level\low level --TSMConfigFile C:\ProgramFiles\Tivoli\tsm\api\dsm.opt

The above command deletes the TSM object.

usage: SLSMedia {operation} {options}
operation:
-?|--ShowHelp [<help topic>]
-d|--Download <source url> <target filename>
-r|--Remove <object>
-l|--List <object>
-b|--TSMBind <tsm_name>
-q|--TSMQuery <tsm_type>

NOTE: You can only delete an object in this manner if the TSM management policy set for the node allows it. Your TSM administrator will be able to advise you on your TSM policy settings.

Caution: Be careful when deleting objects. LiteSpeed places no restrictions on the objects to be deleted, which means it is possible to delete one object from a striped backup set, rendering the backup set useless.

Delete Old Backups

Delete full, differential and transaction log TSM backups created before 06/15/2012, using the PASSWORDAccess generate option to connect to the TSM Server:

```
exec master.dbo.xp_slsSmartCleanup
@database = N'test_tsm'
, @tsmconfigfile = N'C:\Program Files\Tivoli\TSM\baclient\dsm_gp.opt'
, @BackupExpiration = '2012-06-15'
, @LogExpiration = '2012-06-15'
```

Delete transaction log TSM backups created more than 10 days ago, using the PASSWORDAccess generate option to connect to the TSM Server:

```
SLSSmartCleanup.exe --Database test_tsm --TSMConfigFile "C:\Program
Files\Tivoli\TSM\baclient\dsm_gp.opt" --LogRetainDays 10 --WindowsAuth
```

Convert a TSM Backup to a LiteSpeed Disk Backup

You can use the following command to convert a TSM backup to a LiteSpeed disk backup to be able to restore it on a machine that does not have TSM installed:

```
slsrecast.exe -j "c:\tsmconfig.opt" -E tsmbkp:fs\highlevel\lowlevel -F "c:\new.bkp"
```

5

Use IBM Spectrum Protect (TSM) Archive

About Using IBM Spectrum Protect™ (TSM) Archive

You can select to store a backup to IBM Spectrum Project (TSM) as an archive or as the usual backup.

TSM archiving is the method of transferring files off the computer into long-term storage, and it differs from regular TSM backups. Archiving uses different arguments, and allows additional parameters for narrowing the list of items returned in a query.

Store a Backup as a IBM Spectrum Protect™ (TSM) Archive

You can run a TSM archive using xp_backup_database and xp_backup_log. For more information about the LiteSpeed extended stored procedures and command-line utilities, please refer to the LiteSpeed *User Guide*.

To store a backup as a TSM archive

The parameter @tsmarchive = 1 is required.

Example:

```
EXEC master.dbo.xp_backup_database
@database = 'pubs'
, @tsmclientnode = 'ClusterGroup'
, @tsmclientownerpwd = 'test1111'
, @tsmobject = 'SLS_Russel-Mar\pubs\(16)Thursday_14:14'
, @tsmconfigfile = 'C:\Program Files\Tivoli\tsm\baclient\dsm.opt'
, @tsmarchive = 1
, @init = 1
```

Restore an Archived Backup

You can restore a TSM archive backup using xp_restore_database and xp_restore_log. Using xp_restore_ verifyonly you can see if the backup set is complete and valid.

 For more information about the LiteSpeed extended stored procedures and command-line utilities, please refer to the LiteSpeed *User Guide.*

To restore an archived backup

1. Run the xp_view_tsmcontents (or the GUI must run it for the TSM Object Selection dialog just as it currently does for backups).

2. From the list, select the desired archive to restore. That selected archive has a tsmpointintime column in the list as seen in xp_view_tsmcontents. That tsmpointintime must be passed in to the restore in the @tsmpointintime parameter. This is the same parameter that backups can currently pass in for selection of an old retained backup to restore.

To restore an archive both the @tsmarchive = 1 and the @tsmpointintime parameters are required. If the @tsmarchive is passed in but the @tsmpointintime is not passed in, an error message is thrown stating that the @tsmpointintime is needed and where to get it (the xp_view_tsmcontents).

The @tsmarchive = 1 must have a supporting check box/radio button in the EC restore wizard. The @tsmpointintime however needs no GUI real estate change since it should work the same way it currently does for backups. Once the user selects an archive to restore the code should pull the tsmpointintime from the xml for that selected archive.

Example:

```
EXEC master.dbo.xp_restore_database
@database = 'pubs'
, @tsmclientnode = 'ClusterGroup'
, @tsmclientownerpwd = 'test1111'
, @tsmobject = 'SLS_Russel-Mar\pubs\(16)Thursday_14:14'
, @tsmconfigfile = 'C:\Program Files\Tivoli\tsm\baclient\dsm.opt'
, @tsmpointintime = '2006-03-16 14:49:35'
, @tsmarchive = 1
```

We are more than just a name

We are on a quest to make your information technology work harder for you. That is why we build community-driven software solutions that help you spend less time on IT administration and more time on business innovation. We help you modernize your data center, get you to the cloud quicker and provide the expertise, security and accessibility you need to grow your data-driven business. Combined with Quest's invitation to the global community to be a part of its innovation, and our firm commitment to ensuring customer satisfaction, we continue to deliver solutions that have a real impact on our customers today and leave a legacy we are proud of. We are challenging the status quo by transforming into a new software company. And as your partner, we work tirelessly to make sure your information technology is designed for you and by you. This is our mission, and we are in this together. Welcome to a new Quest. You are invited to Join the Innovation™.

Our brand, our vision. Together.

Our logo reflects our story: innovation, community and support. An important part of this story begins with the letter Q. It is a perfect circle, representing our commitment to technological precision and strength. The space in the Q itself symbolizes our need to add the missing piece – you – to the community, to the new Quest.

Contacting Quest

For sales or other inquiries, visit www.quest.com/contact.

Technical support resources

Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at https://support.quest.com.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal enables you to:

- Submit and manage a Service Request
- View Knowledge Base articles
- Sign up for product notifications
- Download software and technical documentation
- View how-to-videos
- Engage in community discussions
- Chat with support engineers online
- View services to assist you with your product

Third-party contributions

This product contains the following third-party components. For third-party license information, go to https://www.quest.com/legal/license-agreements.aspx. Source code for components marked with an asterisk (*) is available at https://opensource.quest.com.

Table 1: List of Third-Party Contributions

Component	License or acknowledgement
ActiPro Syntax Editor (for Windows Forms) 4.0	ActiPro Syntax Editor (for Windows Forms) 4.0 Copyright (c) 2002-2019 Actipro Software LLC. All rights reserved.
AWS SDK for .NET 3.3	Copyright 2009-2017 Amazon.com, Inc. or its affiliates. All Rights Reserved. ********************** THIRD PARTY COMPONENTS ********************** This software includes third party software subject to the following copyrights: -Json processing from LitJson – All the source code and related files distributed with this software have been dedicated to the public domain by the authors. Anyone is free to copy, modify, publish, use, compile, sell, or distribute the software, either in source code form or as a compiled binary, for any purpose, commercial or non-commercial, and by any means. - Parsing PEM files from Bouncy Castle - Copyright (c) 2000 - 2011 The Legion Of The Bouncy Castle (http://www.bouncycastle.org) Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions: The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software. THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF

Component	License or acknowledgement
	ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
	- Performing CRC32 checks from vbAccelerator.com
	vbAccelerator Software License
	Version 1.0
	Copyright (c) 2002 vbAccelerator.com
	Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
	Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer
	Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
	The end-user documentation included with the redistribution, if any, must include the following acknowledgment:
	"This product includes software developed by vbAccelerator (http://vbaccelerator.com/)."
	Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear.
	The names "vbAccelerator" and "vbAccelerator.com" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact vbAccelerator through steve@vbaccelerator.com.
	Products derived from this software may not be called "vbAccelerator", nor may "vbAccelerator" appear in their name, without prior written permission of vbAccelerator.
	THIS SOFTWARE IS PROVIDED "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL VBACCELERATOR OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY

Component	License or acknowledgement
	OF SUCH DAMAGE.

This software consists of voluntary contributions made by many individuals on behalf of the vbAccelerator. For more information, please see http://vbaccelerator.com/ .

The vbAccelerator licence is based on the Apache Software Foundation Software Licence, Copyright (c) 2000 The Apache Software Foundation. All rights reserved.

- MD5 checks in the Windows Phone 8 variant of the SDK from Microsoft Corporation

Microsoft Public License (MS-PL)

This license governs use of the accompanying software. If you use the software, you accept this license. If you do not accept the license, do not use the software.

1. Definitions

The terms "reproduce," "reproduction," "derivative works," and "distribution" have the same meaning here as under U.S. copyright law.

A "contribution" is the original software, or any additions or changes to the software.

A "contributor" is any person that distributes its contribution under this license.

"Licensed patents" are a contributor's patent claims that read directly on its contribution.

2. Grant of Rights

(A) Copyright Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free copyright license to reproduce its contribution, prepare derivative works of its contribution, and distribute its contribution or any derivative works that you create.

(B) Patent Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free license under its licensed patents to make, have made, use, sell, offer for sale, import, and/or otherwise dispose of its contribution in the software or derivative works of the contribution in the software.

3. Conditions and Limitations

(A) No Trademark License- This license does not grant you rights to use any contributors' name, logo, or trademarks.

(B) If you bring a patent claim against any contributor over patents that you claim are infringed by the software, your patent license from such contributor to the software ends automatically.

(C) If you distribute any portion of the software, you must retain all copyright, patent, trademark, and attribution notices that are present in the software.

(D) If you distribute any portion of the software in source code form, you may do so only under this license by including a complete copy of this

Component	License or acknowledgement
	license with your distribution. If you distribute any portion of the software in compiled or object code form, you may only do so under a license that complies with this license.

(E) The software is licensed "as-is." You bear the risk of using it. The contributors give no express warranties, guarantees or conditions. You may have additional consumer rights under your local laws which this license cannot change. To the extent permitted under your local laws, the contributors exclude the implied warranties of merchantability, fitness for a particular purpose and non-infringement.

** iOS4Unity - https://github.com/Hitcents/iOS4Unity/

** SQLitePCLRaw - https://github.com/ericsink/SQLitePCL.raw

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work

(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes

Component	License or acknowledgement
	of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and |

Component	License or acknowledgement
	(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
	(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.
	You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
	5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
	6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
	7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
	8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or

Component	License or acknowledgement
	agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
	9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.
	END OF TERMS AND CONDITIONS
	- Endian Conversion for EventStream Event decoding [Amazon.Util.EventStreams.EndianConversionUtility] from IPAddress.cs https://github.com/Microsoft/referencesource/
	The MIT License (MIT)
	Copyright (c) Microsoft Corporation
	Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:
	The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.
	THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Developer Express .Net (DXperience) 16.2.5	Copyright Notice - Developer Express .Net (DXperience) 16.2.5 Copyright © 1998-2016 Developer Express Inc.
Google APIs Client Library for .NET 1.38	Apache License Version 2.0, January 2004.

Component	License or acknowledgement
Google.Api.Gax (Google API) 2.5	Copyright Jerome Touffe-Blin ("Author") All rights reserved. Copyright 2016, Google Inc. All Rights Reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. * Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Google.Api.Gax.Rest (Google API) 2.5	Copyright Jerome Touffe-Blin ("Author") All rights reserved. Copyright 2016, Google Inc. All Rights Reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are

Component	License or acknowledgement
	met: * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. * Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Google.Cloud.Storage.V1 (Google API) 2.2	Apache License Version 2.0, January 2004.
JEDI JCL/JVCL 2.8	Mozilla Public License (MPL) 1.1
jsoncpp 1.9.2	Copyright (c) 2007-2010 Baptiste Lepilleur and The JsonCpp Authors Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is

Component	License or acknowledgement
	furnished to do so, subject to the following conditions:
	The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.
	THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
	EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
	MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
	NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS
	BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
	ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
	CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
	SOFTWARE.
LibTomCrypt 1.17	Copyright Notice - LibTomCrypt 1.17
LZMA 4.65	Public Domain
Microsoft Windows Azure Storage 9.3	Apache License Version 2.0, January 2004
Newtonsoft.Json 12.0.1	Copyright (c) 2007 James Newton-King
	Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:
	The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.
	THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
pugixml 1.9	Copyright (c) 2006-2015 Arseny Kapoulkine
	Permission is hereby granted, free of charge, to any person obtaining a

Component	License or acknowledgement
	copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:
	The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.
	THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
QuickLZ 1.5	QuickLZ Commercial License 1.0
SharpZipLib 0.81.0.1407	The library is released under the GPL with the following exception:
	Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License cover the whole combination.
	As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module. An independent module is a module which is not derived from or based on this library. If you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version.
	Note The exception is changed to reflect the latest GNU Classpath exception. Older versions of #ziplib did have another exception, but the new one is clearer and it doesn't break compatibility with the old one.
	Bottom line In plain English this means you can use this library in commercial closed-source applications.
Spring4D 1.2.2	Copyright (c) 2009 - 2018 Spring4D Team. Apache License Version 2.0
System.Net.Http 4.3.4	Copyright Notice - System.Net.Http 4.3.4 © Microsoft Corporation. All rights reserved.
Task Scheduler Managed Wrapper 2.8	Copyright (c) 2003-2010 David Hall

Component	License or acknowledgement
	Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:
	The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.
	THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
TimeSpan Helper Library 2.2	BSD Copyright (c) 2009, dahall All rights reserved.
	Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
	Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
	Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
	Neither the name of CodePlex Community nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.
	THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Component	License or acknowledgement
Tulpep.ActiveDirectoryObjectPicker 2.3	Microsoft Public License (Ms-PL) http://www.opensource.org/licenses/MS-PL
Virtual Treeview (JAM Software) 7	Mozilla Public License (MPL) 1.1
WinForms Group Controls 1.8	This component is governed by the Apache License 2.0 (Apache)
Wizard .NET Library 2.2.3	Copyright (c) 2013 David Hall Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions: The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software. THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
zlib 1.2.8	Portions copyright 1995-2012 Jean-loup Gailly and Mark Adler
zlib portable 1.11.0	Portions copyright 1995-2012 Jean-loup Gailly and Mark Adler

Index

C

clean up backups 19
command-line utility 13
configure LiteSpeed to work with TSM 9
convert TSM backups to disk files 20

F

file space 11

H

high-level name 11

I

install TSM backup-archive client 10
integration with TSM 5

L

LiteSpeed extended stored procedures 13
low-level name 11

R

register the TSM client node 9
requirements 8

S

select TSM object 11
SmartCleanup 19

T

troubleshoot TSM 11

TSM 5
    configure client 8
TSM archive 21
TSM object name 11
TSM requirements 8

U

use command-line to back up or restore 13
use LiteSpeed procedures 13