SureSync®

SQL Protection
Evaluator’s Guide

Software Pursuits

Windows Server 2012 Certified

Windows 8 Compatible

Microsoft Partner
Silver Application Development

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Introduction

SureSync SQL Protection is an easy-to-use and affordable software solution for protecting critical Microsoft SQL Server databases. Information is the lifeblood of modern business. That information is often stored in Microsoft SQL Server databases. Protecting these databases is an essential component of any company's data protection and availability plans. With SureSync SQL Protection, you can quickly and easily protect these databases.

SureSync SQL Protection shares a common interface with SureSync making it easy to manage both file replication/synchronization and SQL protection jobs from one solution. This reduces the information technology overhead involved in maintaining multiple solutions for different data management needs.

System Requirements

SureSync SQL Protection’s basic operating system and hardware requirements are:

- **Supported Operating Systems:** Windows Server 2012 R2; Windows Server 2012; Windows Server 2008 R2; Windows Server 2008; Windows Server 2003 R2; Windows Server 2003; Windows 8.1; Windows 8; Windows 7; Windows Vista; and Windows XP
- **Processor:** Minimum: 1 GHz (x86 processor) or 1.4 GHz (x64 processor). Recommended: 2Ghz or faster processor (x86 or x64 processor)
- **RAM (total for system):** 1GB (Minimum); 2GB (Recommended)
- **Hard Disk:** 30MB for application files; 20MB+ for database
- **Display:** 1024x768 high color, 32-bit (Minimum)

SureSync SQL Protection can be run on Windows operating systems hosted in virtualization software such as VMWare or Hyper-V without issue. Each virtual machine being protected by SQL Protection must have the appropriate licensing.

SureSync SQL Protection requires a number of Microsoft components to be installed on the system. The installer will inspect your system for these components and offer to upgrade or install them as needed.

- Microsoft .NET Framework 4.5.2 (Windows 2008/Vista and newer)
- Microsoft .NET Framework 4.0 (Windows 2003/XP)
- Microsoft MDAC 2.8 Refresh with Service Pack 1
- Microsoft Visual C++ Runtime 12.0
- Microsoft Windows Installer 3.1
- Microsoft XML Parser 6.0
- Microsoft System CLR Types for SQL Server 2012
- Microsoft SQL Server 2012 Management Objects

Contact Information

If you need further information about SureSync SQL Protection or need clarification on anything within this guide, please contact our support group and they will be happy to assist you with your evaluation.

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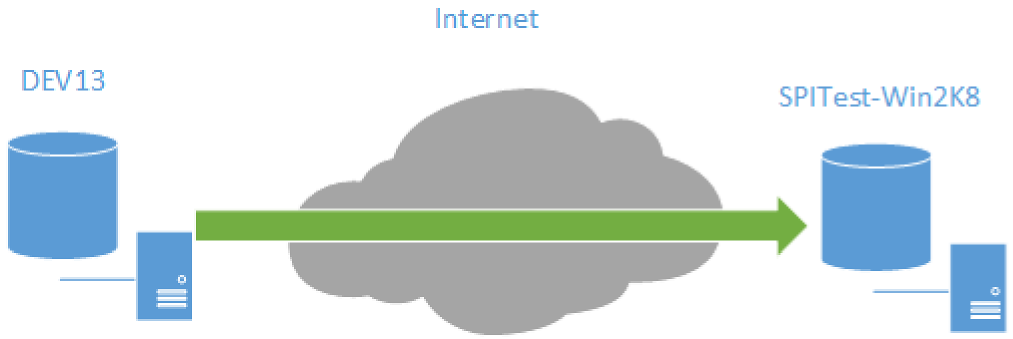
Technical support is available between 8:00AM and 5:00PM PST Monday through Friday.

Our Scenario

This guide will walk you through the configuration of SureSync SQL Protection to generate SQL backups from a source server named DEV13. These files will be transferred using the TCP/IP based Communications Agent over the Internet to a machine named SPITest-Win2K8. The backup files sent to SPITest-Win2K8 will be automatically restored into a standby SQL server on that same machine.



In this scenario, a full database backup will be performed once a day at midnight. A differential backup will be performed once an hour. In addition, SQL Protection will thin the staging folders to store only the 4 most recent full/differential backup sets.

SureSync SQL Protection can also be used to generate and copy SQL backup files to UNC paths allowing storage on devices that cannot run the Communications Agent.

Installation of Microsoft Required Components

A few components from the Microsoft SQL Server Feature Pack must be installed on each SQL server that SureSync SQL Protection will interact with. The required components are:

- Microsoft System CLR Types for SQL Server 2012

- Microsoft SQL Server 2012 Management Objects

These components must be installed manually using installers from Microsoft before using SureSync SQL Protection. CLR Types must be installed first and then Management Objects. Clicking the links below will download the correct components for you to install on the relevant systems.

32-Bit Installers

- Microsoft System CLR Types for SQL Server 2012
- Microsoft SQL Server 2012 Management Objects

64-Bit Installers

- Microsoft System CLR Types for SQL Server 2012
- Microsoft SQL Server 2012 Management Objects

All other required components will be checked by the installer. If those components are not at adequate levels, the installer will offer to install them for you.

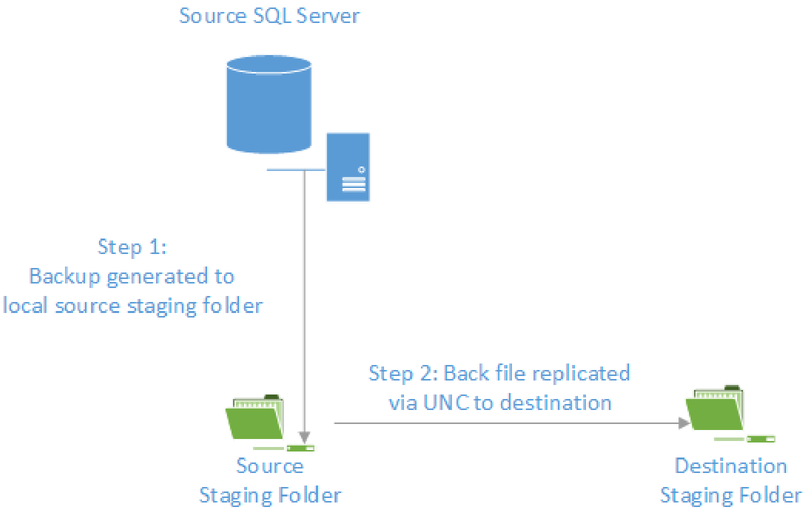
Understanding SQL Protection's Architecture

SQL Protection provides a comprehensive set of functionality to protect your SQL databases. This functionality includes:

- **Communications Agent**: The Communications Agent is a TCP/IP based agent that allows you to copy your SQL backup files securely to remote locations even over the Internet. Storing SQL backups at remote locations is an excellent way to protect mission critical SQL databases from natural disasters and other threats.
- **Encrypted data transmission**: The Communications Agent offers a number of FIPS certified encryption algorithms to ensure data security when transferred over public connections like the Internet.
- **Automated Restore to Destination SQL Server**: SureSync SQL Protection allows you to automatically restore the SQL backup files to a destination SQL server on a scheduled basis. On the destination SQL server, the database will be in the "restoring" state. This state allows you to continue restoring additional backup files and prevents users from accessing the database. As an administrator, you can switch the database out of the "restoring" state when necessary to allow users to access the database.
- **Automatic thinning of old backups**: Manage storage usage by automatically thinning old backup files. SQL Protection can be configured to keep *x* number of full backups. When a new full is generated, the oldest full and all associated differential or log backups can be automatically deleted.
- **Quick and easy restores**: An easy to use restore wizard is provided to allow your organization to quickly recover from any SQL database issues. You can also use the built-in SQL Management Studio tools to restore backups generated by SQL Protection giving you flexibility.
- **UNC path support**: SQL Protection can process SQL backups to any machine accessible via UNC path allowing you to store backups on devices that do not support running the Communications Agent. However, doing so eliminates the ability to use features of the Communications Agent including encryption. You also cannot automatically restore to a destination standby SQL server.

A Basic UNC Path Backup

SureSync SQL Protection is a flexible software solution allowing you to design a backup procedure that meets your specific needs. In the most basic form, SureSync SQL Protection will allow you to generate SQL backups on a schedule and replicate those files to another machine accessible via UNC path.



The basic backup process consists of two steps:

- In Step 1, the backup file is generated. SureSync SQL Protection uses standard Microsoft APIs to generate these backups ensuring that your backup files are consistent with Microsoft standards and are supported. This backup file is generated into a folder named the Source Staging Folder. Generally, this folder is on the same machine as the SQL Server software. The Source Staging Folder can also be a share on the same local network as the SQL server that can be accessed via UNC path. The Source Staging Folder is simply a staging area for the backup files.
- In Step 2, the backup file generated in the Source Staging Folder will be replicated to the Destination Staging Folder. The Destination Staging Folder is the final destination for the backup files. This folder is on a second machine that is accessible via UNC path.

With this solution, you have two usable copies of the SQL backup files generated automatically. A copy is available locally in the source staging folder and in the remote destination staging folder. This provides some additional redundancy of the backup files.

SQL Backups with the Communications Agent

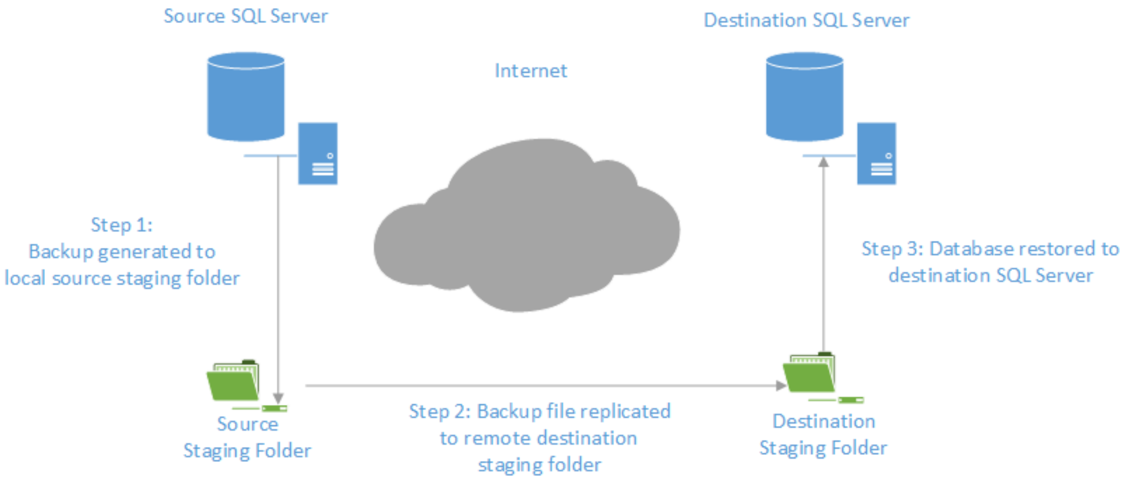
When implementing the Communications Agent in SureSync SQL Protection, the basic architecture is unchanged. The Schedule produces a backup from the SQL server and stores it in a local Source Staging Folder. From there, the backup file(s) are replicated to a Destination Staging Folder.

The Communications Agent adds the following:

- The Destination Staging Folder does not have to be accessible via UNC path. The Communications Agent is installed on the destination Windows based machine. The Communications Agent is a TCP/IP enabled Agent. With Communications Agents installed, SureSync SQL Protection can replicate the backup files to a Destination Staging Folder accessible by IP address or DNS name even over the Internet.

- The Communications Agent encrypts data transmitted with FIPS certified encryption algorithms. This enables the safe transmission of the SQL backup files to remote Destination Staging Folders even over the Internet.
- SureSync does not need to be installed on each SQL source server. With a Communications Agent installed on the SQL server, you can perform backup operations from a SureSync installation on a different machine.
- SQL Protection provides the option of automatically restoring the backup file onto a destination SQL server in the remote location. The database will be in the “restoring” state on the destination server. This allows you to continue restoring additional backup files and prevents users from accessing the database. As an administrator, you can switch the database out of the “restoring” state when necessary to allow users to access the database.

A visual representation of a fully implemented SureSync SQL Protection environment with the Communications Agent deployed and an automatic restore to a standby server would look like:



SQL Protection provides for the automatic thinning of backups stored in the staging folders. This feature helps control storage space consumed by backups. In-depth detail about SureSync SQL Protection can be found in the SureSync Data Protection & Availability Suite help file distributed with the product. Pressing F1 on any tab of the user interface will provide detailed context sensitive help about the options available on that screen.

Understanding the Types of Backups

If you are unfamiliar with SQL database backups, the first concept that must be understood is the difference between database backup types. Three different types of available backups are available: Full, Differential, and Log.

- **Full Backup:** A complete backup of the SQL database. This type of backup contains all of the data in the defined database. A full backup provides the foundation for Differential and Log backups. Without a Full database backup, the other database backup types are useless. Your SureSync SQL Protection Schedule must create a Full backup.
- **Differential Backup:** A Differential backup includes all of the data that has changed since the last Full backup. You must have access to the Full backup when performing a restore with Differential backups. For example, assume your full backup runs on Sunday nights at 11:00PM. For the remaining days of the week, you run a Differential backup at 11:00PM. If the database failed on Wednesday, you would need the Differential backup from Tuesday night and the Full backup from Sunday to perform a restore.
- **Log Backup:** This type of backup can only be used when the SQL database being backed up is in full recovery or bulk-logged recovery models. SQL databases using the simple recovery model cannot use a Log backup. Like Differential backups, a Log backup is dependent upon a Full backup of the database. A log backup contains the part of the transaction log that was active when the backup was created and includes all records not backed up in the previous log backup. If you maintain an uninterrupted set of log backups and are running the full recovery model then you can use the logs to restore to a point in time using SQL Management Studio.

Determining Acceptable Data Loss

In any disaster recovery scenario, your company must determine the acceptable amount of data loss. For example, could your company recover a day worth of lost data? An hour? If you're running something simple like a database of prices for products then the information lost could be entered into the database again after recovery. Generally, the more sensitive the data in the database the smaller the amount of data loss that is considered acceptable. When dealing with databases that have a very low level of acceptable data loss, you have to perform much more frequent backups. The ideal backup configuration is going to be the one that provides your acceptable measure of data loss.

Constraints exist on how frequently you can backup your SQL servers. These constraints are no different than for file backups. One, you have a limited amount of bandwidth available to move data. If you're copying a TB worth of data, that will take a certain amount of time based on the speed of the connections involved. Two, the machines and storage systems involved have a maximum capacity. For example, storing 6 months worth of backups for a 1TB database where a full backup is generated once a week will consume 24TB of storage for just the full backups. Any differential and/or log backups add to the storage requirement. The machines involved must have adequate storage available to meet your backup goals.

A Simple Acceptable Data Loss Example

A company is protecting a SQL database that includes information used by the company's human resources department. The company decides that 1 hour of data loss is acceptable. This is a commonly accepted measure and can be easily obtained with Scheduled backups in most situations.

The company creates a SureSync SQL Protection Schedule that runs a Full backup once a day. In addition, Differential backups are configured to be run once an hour. By taking the latest full and differential backup the company will be able to restore to the acceptable level.

Understanding the Purpose of the Standby Server

When running SureSync SQL Protection, you have the option of automatically restoring the backup files to a standby SQL server. The files restored to the standby SQL server are the backup files copied into the destination staging folder by the SQL Protection Job. Understanding the purpose of the standby SQL server is critical. With SureSync SQL Protection, the standby server is left in "Restoring" mode. This SQL mode allows differential and/or log backups to continue being restored to the database. While in "Restoring" mode, the database is unavailable for end user use. The goal is not to create an automated failover solution but to provide the following benefits:

- **Automatic validation of backups**: Simply having a backup file doesn't mean that it will restore properly. The entire restore process completing to the standby SQL server proves that the backup files are valid and function correctly.
- **Speed recovery in the event of disaster or hardware failure**: SQL Protection keeps a database in another office in "standby" mode with content as recent as the last backup. This speeds recovery in the event of a disaster or hardware failure.

The actual switch over process in the event of a disaster is a manual process of pointing users to the standby machine. This would only be done in situations where the primary SQL server goes down permanently due to some kind of hardware failure or other issue.

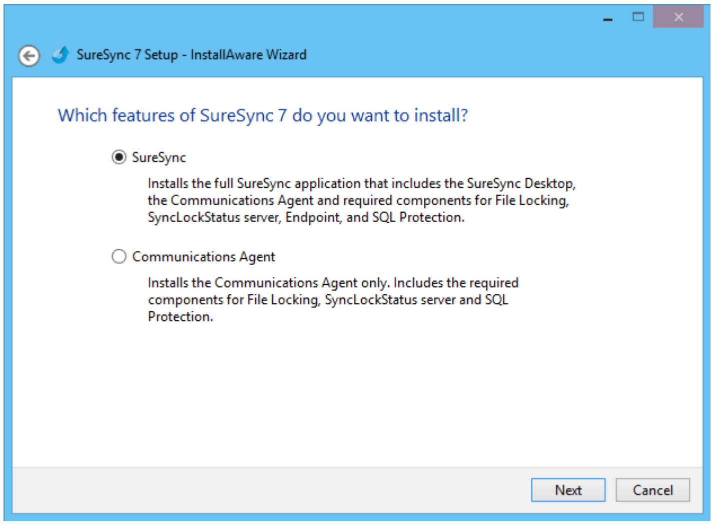
You do not want to allow write changes to the destination database if you ever intend to go back to the source server. This would result in two different copies of the same database. Write access on the destination server should only be allowed if you're making a permanent switch to the new location. Otherwise, you would have to perform backups from the destination machine and restore those backups on the source before allowing anyone to make additional changes to the original source machine.

If you decide to do nothing but backup and restore full backups, you can have the destination SQL database in a ready state. However, you still do not want to make write changes to this destination database unless you're planning to permanently switch. In general, write access to the destination server unless in the situation of a full and permanent switch over is a bad idea.

The standby server provides organizations with an affordable means of quickly moving to a new SQL server that contains copies of the databases current as of the last backup. This process is quicker in the event of a major failure than having to build a new server, install SQL server and have to restore copies of all of the databases. Instead, the server is already there with the databases and it's ready to go.

Installation

To begin your SureSync SQL Protection trial, you must install the appropriate components on the correct machines. For SQL Protection, the full SureSync application must be installed on one machine and the Communications Agent installed on any other machine that will be used as either a source SQL server or a remote staging / remote restore location.



Which features of SureSync 7 do you want to install?

● SureSync

Installs the full SureSync application that includes the SureSync Desktop, the Communications Agent and required components for File Locking, SyncLockStatus server, Endpoint, and SQL Protection.

○ Communications Agent

Installs the Communications Agent only. Includes the required components for File Locking, SyncLockStatus server and SQL Protection.

In our example, SureSync will be installed on the DEV13 database server. To install the SureSync components, launch the SureSync7Setup.exe installer on the machine in question and follow the prompts. Selecting “SureSync” will install the SureSync Desktop and all required components.

With SureSync SQL Protection, the Communications Agent must also be installed on the destination side. For this example scenario, the destination machine is SPITest-Win2K8. The same SureSync7Setup.exe should be run on that machine and the “Communications Agent” option selected.

Understanding the SureSync Desktop

The SureSync Desktop is a user interface component shared between all members of the SureSync Data Protection & Availability Suite. The SureSync Desktop is used to configure and manage SureSync SQL Protection Jobs, Schedules and Restores.

If you have SureSync deployed

SureSync SQL Protection shares the SureSync Desktop and your SureSync database. If you intend to run SureSync SQL Protection Jobs and Schedules from the same main SureSync machine used to run your SureSync tasks then you scan skip ahead in this guide to the “Importing a License” section.

If you’re new to the SureSync Data Protection & Availability Suite

If you are new to the SureSync Data Protection & Availability Suite, you will be installing components for the first time and will need to configure a SureSync database.

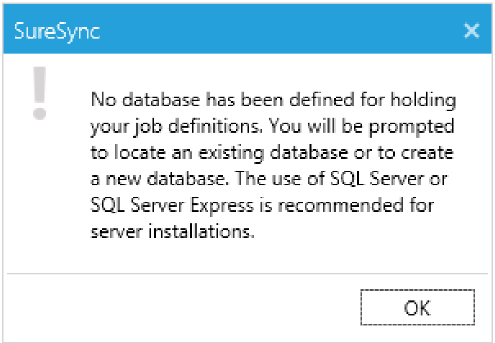
Launch the SureSync Desktop for the First Time

Now that the required components have been installed, we can continue with the configuration. To launch SureSync for the first time, go to the Start menu, select the SureSync folder and click on the SureSync Desktop icon. This will launch the SureSync Desktop where you will perform your entire synchronization job configuration.

On the first launch of the application, SureSync will present you with a series of questions to aide in completing the initial configuration.

Creating a SureSync Database

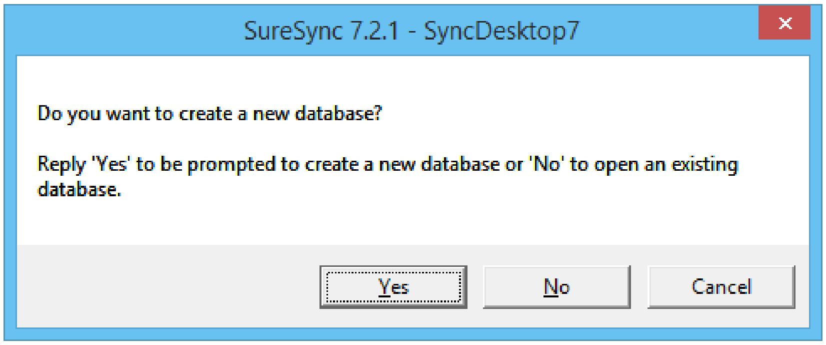
The prompt displayed below informs you that a SureSync database needs to be created. The SureSync database is used to store all of your synchronization/replication configuration and related information. This database can be either an Access or SQL database.



No database has been defined for holding your job definitions. You will be prompted to locate an existing database or to create a new database. The use of SQL Server or SQL Server Express is recommended for server installations.

Click “OK” to continue on with the creation of the database.

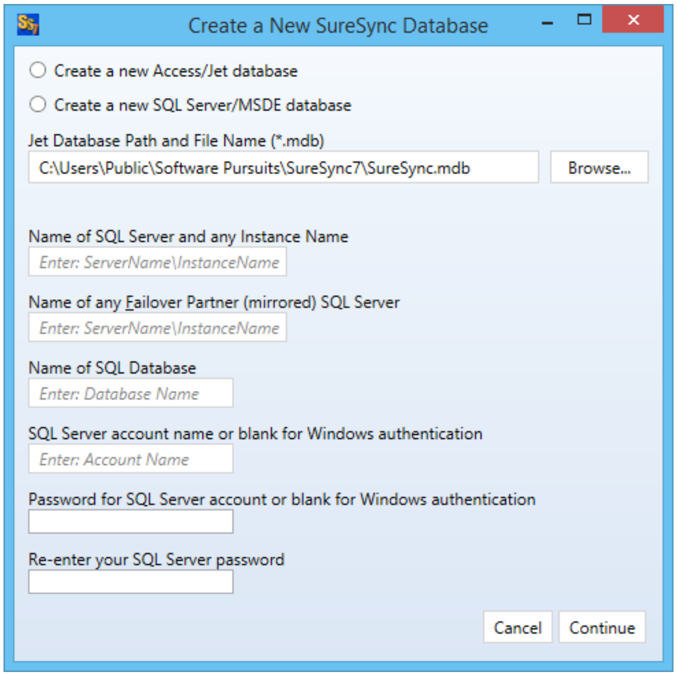
The next dialog box allows you to select an existing SureSync database to open with the new installation or allows the creation of a new database. For our example, this is a new installation and “Yes” should be selected to create a new database.



Do you want to create a new database?

Reply 'Yes' to be prompted to create a new database or 'No' to open an existing database.

On the next panel, the type of database is selected. For our example, we will select “Create a new Access/Jet database”.


Create a New SureSync Database

○ Create a new Access/Jet database

○ Create a new SQL Server/MSDE database

Jet Database Path and File Name (*.mdb)
C:\Users\Public\Software Pursuits\SureSync7\SureSync.mdb

Name of SQL Server and any Instance Name
Enter: ServerName\InstanceName

Name of any Failover Partner (mirrored) SQL Server
Enter: ServerName\InstanceName

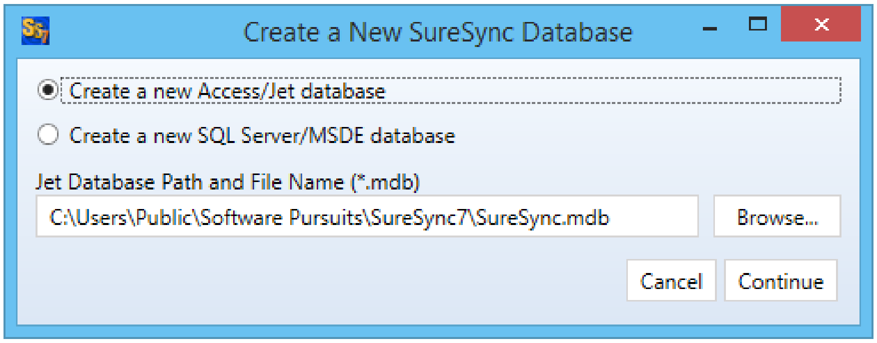
Name of SQL Database
Enter: Database Name

SQL Server account name or blank for Windows authentication
Enter: Account Name

Password for SQL Server account or blank for Windows authentication

Re-enter your SQL Server password

The form will change to show the path to the Access/Jet Database. We will select the default location of C:\Users\Public\Software Pursuits\SureSync7\SureSync.mdb.


Create a New SureSync Database

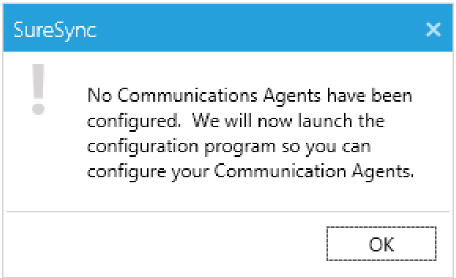
● Create a new Access/Jet database

○ Create a new SQL Server/MSDE database

Jet Database Path and File Name (*.mdb)
C:\Users\Public\Software Pursuits\SureSync7\SureSync.mdb

Configuring the Local Communications Agent

The next step in the initial configuration involves defining a credential for the local Communications Agent to run under.

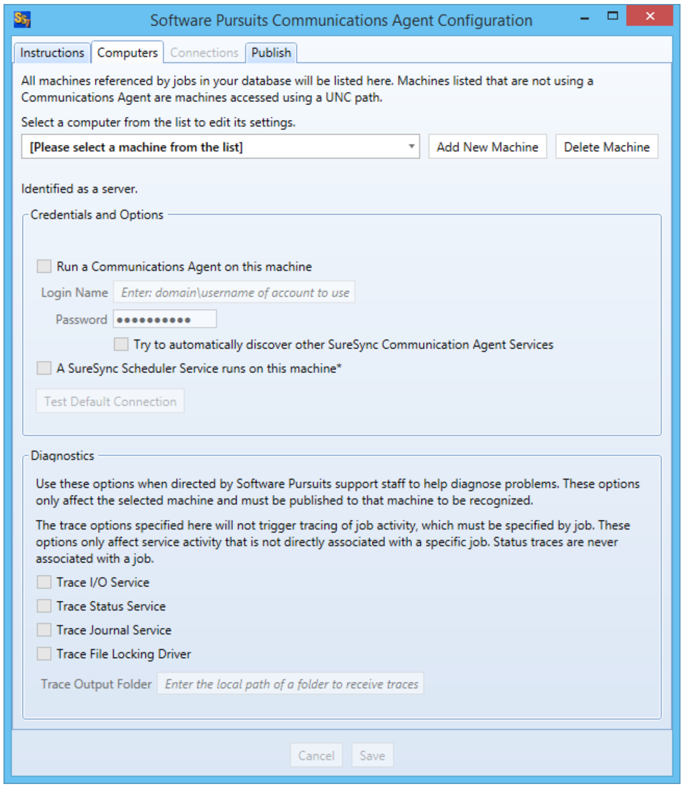

SureSync

No Communications Agents have been configured. We will now launch the configuration program so you can configure your Communication Agents.

Click “OK” and the Communications Agent Configuration panel will be launched.

The local Communications Agent must be given a credential for SureSync to function properly. We recommend this account be either a local administrator on the machine or a domain administrator to ensure rights to all the files and folders being synchronized. The local Communications Agent must be configured even if you're not licensed for the Communications Agent Add-on. The Add-on functionality is enabled by a license but the Communications Agent on the SureSync machine is responsible for all the basic I/O as well.

The only exception to the need to configure the local agent is if no paths of any kind, including UNC paths are referenced from the local machine. This scenario is extremely rare.



All machines referenced by jobs in your database will be listed here. Machines listed that are not using a Communications Agent are machines accessed using a UNC path.

Select a computer from the list to edit its settings.

[Please select a machine from the list]

Identified as a server.

□ Run a Communications Agent on this machine

Login Name: Enter: domain\username of account to use

Password: ••••••••••

□ Try to automatically discover other SureSync Communication Agent Services

□ A SureSync Scheduler Service runs on this machine*

Use these options when directed by Software Pursuits support staff to help diagnose problems. These options only affect the selected machine and must be published to that machine to be recognized.

The trace options specified here will not trigger tracing of job activity, which must be specified by job. These options only affect service activity that is not directly associated with a specific job. Status traces are never associated with a job.

□ Trace I/O Service

□ Trace Status Service

□ Trace Journal Service

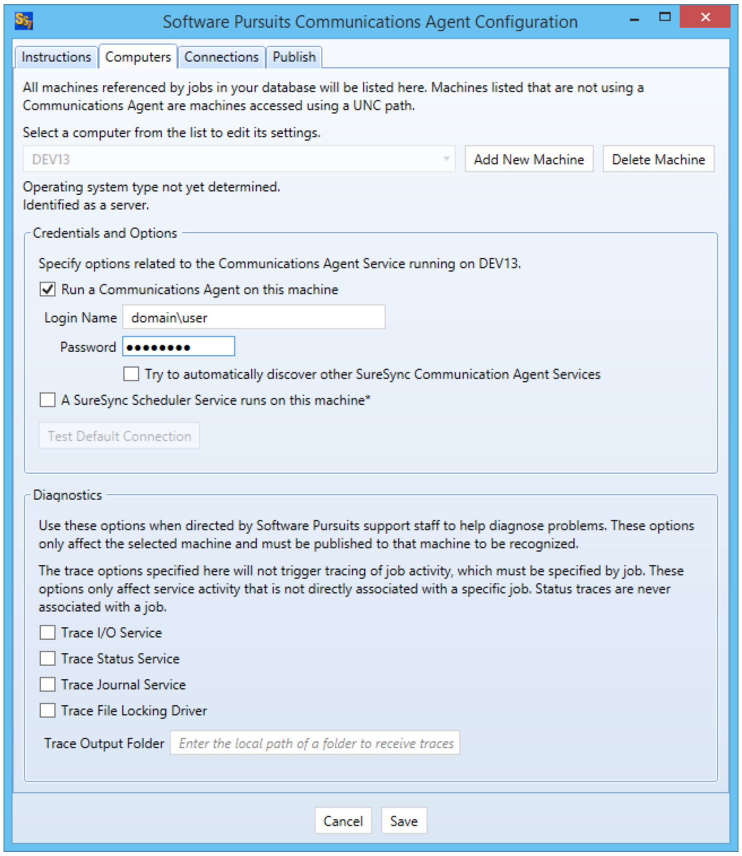
□ Trace File Locking Driver

Trace Output Folder: Enter the local path of a folder to receive traces

When the Communications Agent Configuration panel loads, click on the "Computers" tab. From the "[Please select a machine from this list]" dialog, select your local machine. In this case, the machine is "DEV13".

Check the "Run a Communications Agent on this machine" option and enter your credential in the "Login Name" and "Password" fields. The "Login Name" field should be in the format of domain\user or machinename\user. Click the "Save" button to save the credential.

When a Communications Agent configuration is saved, a default connection for TCP port 9033 is created automatically. In most environments, only the default connection is used.



Software Pursuits Communications Agent Configuration

Instructions | Computers | Connections | Publish

All machines referenced by jobs in your database will be listed here. Machines listed that are not using a Communications Agent are machines accessed using a UNC path.

Select a computer from the list to edit its settings.

DEV13 | Add New Machine | Delete Machine

Operating system type not yet determined.
Identified as a server.

Credentials and Options

Specify options related to the Communications Agent Service running on DEV13.

☑ Run a Communications Agent on this machine

Login Name: domain\user

Password: ••••••••

□ Try to automatically discover other SureSync Communication Agent Services

□ A SureSync Scheduler Service runs on this machine*

Test Default Connection

Diagnostics

Use these options when directed by Software Pursuits support staff to help diagnose problems. These options only affect the selected machine and must be published to that machine to be recognized.

The trace options specified here will not trigger tracing of job activity, which must be specified by job. These options only affect service activity that is not directly associated with a specific job. Status traces are never associated with a job.

□ Trace I/O Service

□ Trace Status Service

□ Trace Journal Service

□ Trace File Locking Driver

Trace Output Folder: *Enter the local path of a folder to receive traces*

Cancel | Save

If you want to test the configuration, click the “Test TCP Connection” button. Click the red X on the upper right hand corner of the Software Pursuits Communications Agent Configuration panel when done to close the panel and move on with the configuration process.

Importing a License

The SureSync Data Protection & Availability Suite installer does not contain a license file. To enable functionality, you must import a trial license or your purchased license obtained from Software Pursuits.

<u>If you have SureSync deployed</u>

If you are a current SureSync user and want to trial SQL Protection, you should request trial licensing be added to your existing license. This can be done by e-mailing our sales team at sales@softwarepursuits.com. You can also call the sales team at 1-800-367-4823.

Once an updated license file has been provided to you, click the “Licenses” button (Licenses) in the ribbon bar of the SureSync Desktop and click the “Import License…” button to import the updated file.

<u>If you’re new to the SureSync Data Protection & Availability Suite</u>

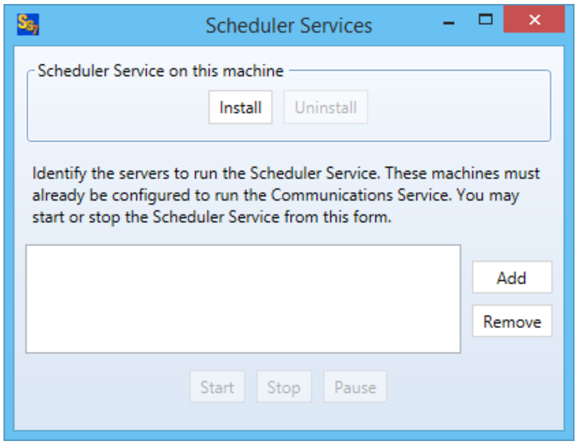
If you are new to the SureSync Data Protection & Availability Suite, you should request a trial license from http://www.softwarepursuits.com/suresync/download_trial.asp. A license file will be generated and sent to you via e-mail. You can also call our sales team at 1-800-367-4823.

Once an updated license file has been provided to you, click the "Licenses" button (Licenses) in the ribbon bar of the SureSync Desktop and click the "Import License…" button to import the updated file.

Installing the SureSync Scheduler

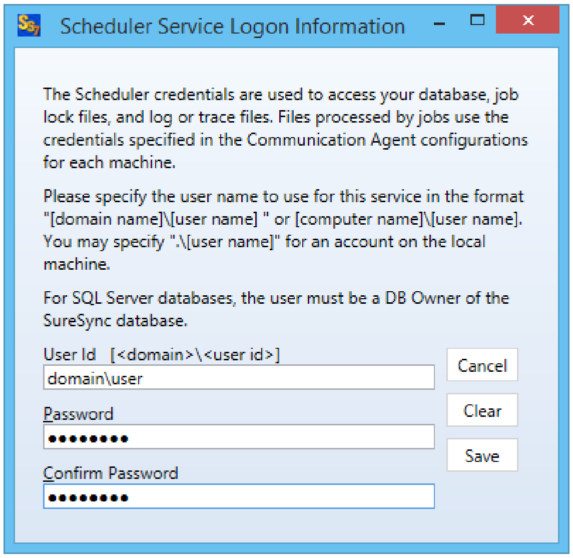
The SureSync Scheduler is a Windows service that runs on the main SureSync machine. This service is responsible for launching Schedules at the correct times and for running Real-Time Monitors. You must have a Scheduler running in order for your Schedule to execute at the configured time.

To install the SureSync Scheduler service, click on the Home button in the upper left hand corner of the SureSync Desktop and click on "Scheduler Services."



Identify the servers to run the Scheduler Service. These machines must already be configured to run the Communications Service. You may start or stop the Scheduler Service from this form.

To install the Scheduler, click the "Install" button, which will launch a window like the one below.



Scheduler Service Logon Information

The Scheduler credentials are used to access your database, job lock files, and log or trace files. Files processed by jobs use the credentials specified in the Communication Agent configurations for each machine.

Please specify the user name to use for this service in the format "[domain name]\[user name] " or [computer name]\[user name]. You may specify ".\[user name]" for an account on the local machine.

For SQL Server databases, the user must be a DB Owner of the SureSync database.

User Id [<domain>\<user id>]
domain\user

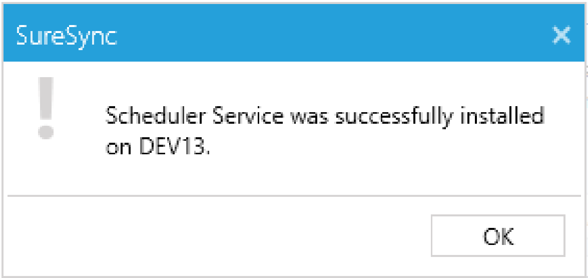
Password
••••••••

Confirm Password
••••••••

The user account the Scheduler service runs under must be a member of the local administrators group on the SureSync machine. If using SQL, the account must also be a DBOwner on the SureSync database.

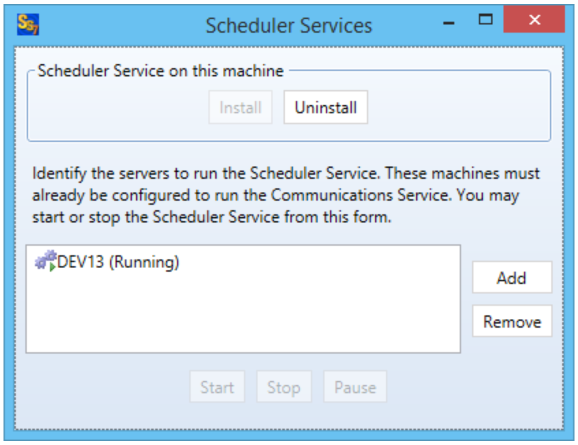
Enter the username formatted as *machinename\username* or *domainname\username*. This account must be an administrator on the machine. Click “OK” to install the service.

You will receive a confirmation dialog box that the Scheduler service was installed successfully as shown below.



SureSync

Scheduler Service was successfully installed on DEV13.



Scheduler Services

Scheduler Service on this machine

Identify the servers to run the Scheduler Service. These machines must already be configured to run the Communications Service. You may start or stop the Scheduler Service from this form.

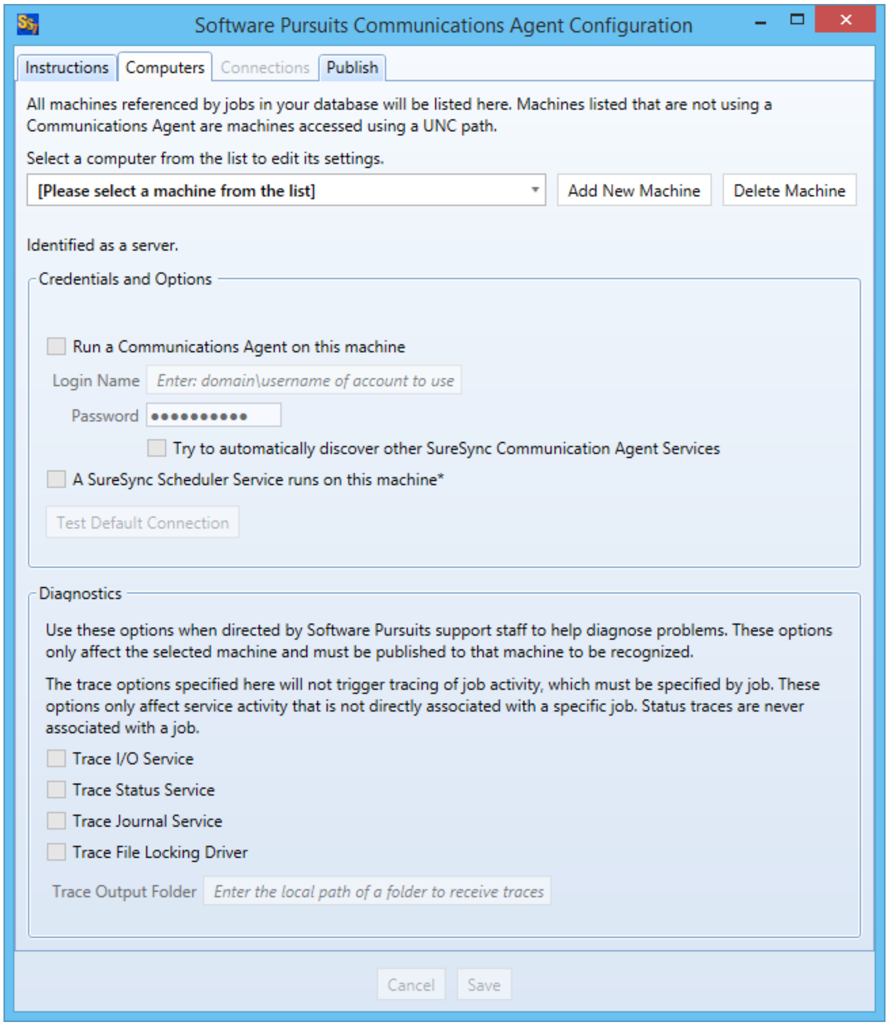
DEV13 (Running)

Once the service has been installed, click on the machine name and click “Start.” The Scheduler will now be listed as Machine Name (Running).

Configuring the Communications Agent Machines

The next step in the configuration is to define the remote Communications Agent machines in SureSync. To do this, launch SureSync, click on the “Home” button, click “Communications Agent” and click the “Configure Communications Agents” button.

Select the Communications Agent from the drop-down menu to begin configuring it. If the machine you want to configure does not appear in the list, you may enter a name for it by clicking the “Add New Machine” button.



All machines referenced by jobs in your database will be listed here. Machines listed that are not using a Communications Agent are machines accessed using a UNC path.

Select a computer from the list to edit its settings.

[Please select a machine from the list]

Identified as a server.

□ Run a Communications Agent on this machine

Login Name: *Enter: domain\username of account to use*

Password: ●●●●●●●●●●

□ Try to automatically discover other SureSync Communication Agent Services

□ A SureSync Scheduler Service runs on this machine*

Use these options when directed by Software Pursuits support staff to help diagnose problems. These options only affect the selected machine and must be published to that machine to be recognized.

The trace options specified here will not trigger tracing of job activity, which must be specified by job. These options only affect service activity that is not directly associated with a specific job. Status traces are never associated with a job.

□ Trace I/O Service

□ Trace Status Service

□ Trace Journal Service

□ Trace File Locking Driver

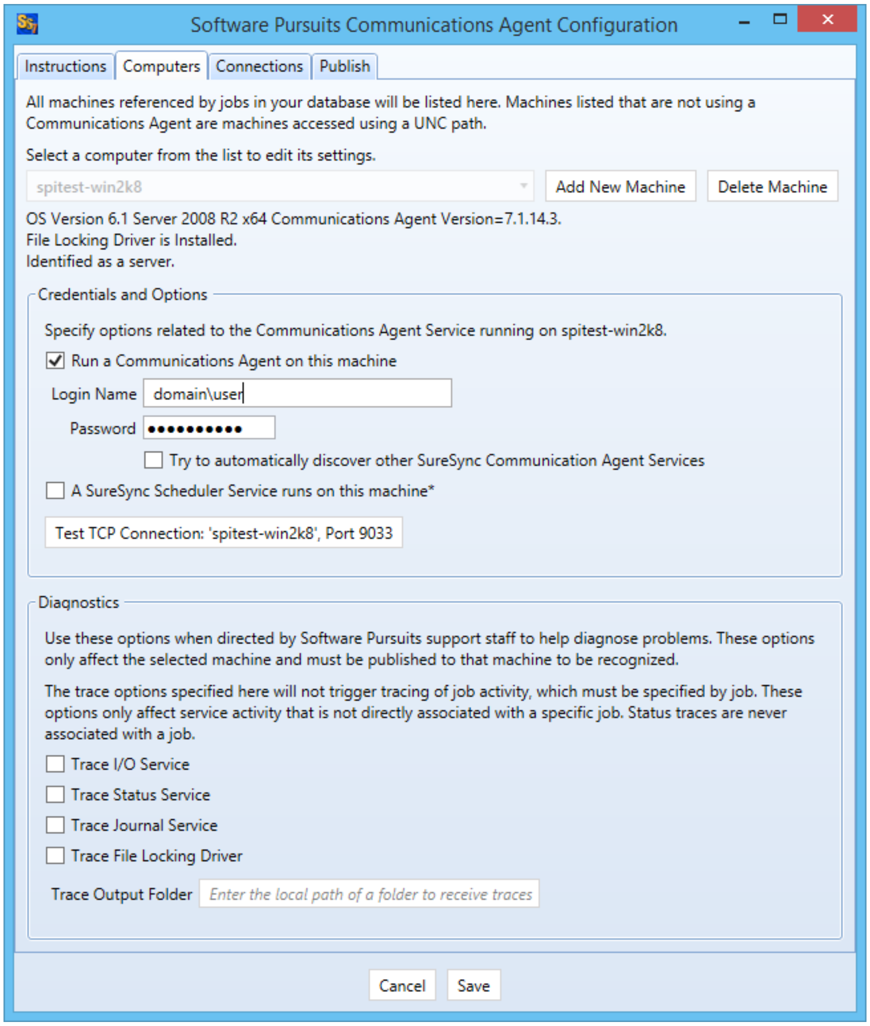
Trace Output Folder: *Enter the local path of a folder to receive traces*

The machine name listed in the "Select a computer from this list to edit its settings" drop-drop menu must be the actual machine name for the machine you’re trying to connect to. Using an IP address or a random name in the drop-drop menu will result in the test failing.

You will then want to:

1. Check the box that says "Run a Communications Agent on this machine."
2. Enter a username with adequate permissions to that machine in the “Login Name” field. We recommend a domain administrator account. Be sure to configure the account as domain\user. If you wish to use a local account on that computer, it can be formatted as machinename\user.
3. Enter the password for the account in the "Password" field.
4. Click the “Save” button. When a Communications Agent configuration is saved, a default connection for TCP port 9033 is created automatically. In most environments, only the default connection is used.
5. If you want to test the configuration, click the “Test TCP Connection” button.

These steps should be done for each remote Communications Agent that will be used. In the example scenario, *SPITEST-WIN2K8* would be defined. For SQL Protection, each SQL machine remote from the machine where SureSync is installed, must have a Communications Agent installed and be configured here. An example of a completed Communications Agent configuration is shown in the screenshot below.



All machines referenced by jobs in your database will be listed here. Machines listed that are not using a Communications Agent are machines accessed using a UNC path.

Select a computer from the list to edit its settings.

spitest-win2k8

OS Version 6.1 Server 2008 R2 x64 Communications Agent Version=7.1.14.3.
File Locking Driver is Installed.
Identified as a server.

Credentials and Options

Specify options related to the Communications Agent Service running on spitest-win2k8.

☑ Run a Communications Agent on this machine

Login Name: domain\user

Password: ●●●●●●●●●●●

□ Try to automatically discover other SureSync Communication Agent Services

□ A SureSync Scheduler Service runs on this machine*

Diagnostics

Use these options when directed by Software Pursuits support staff to help diagnose problems. These options only affect the selected machine and must be published to that machine to be recognized.

The trace options specified here will not trigger tracing of job activity, which must be specified by job. These options only affect service activity that is not directly associated with a specific job. Status traces are never associated with a job.

□ Trace I/O Service
□ Trace Status Service
□ Trace Journal Service
□ Trace File Locking Driver

Trace Output Folder: *Enter the local path of a folder to receive traces*

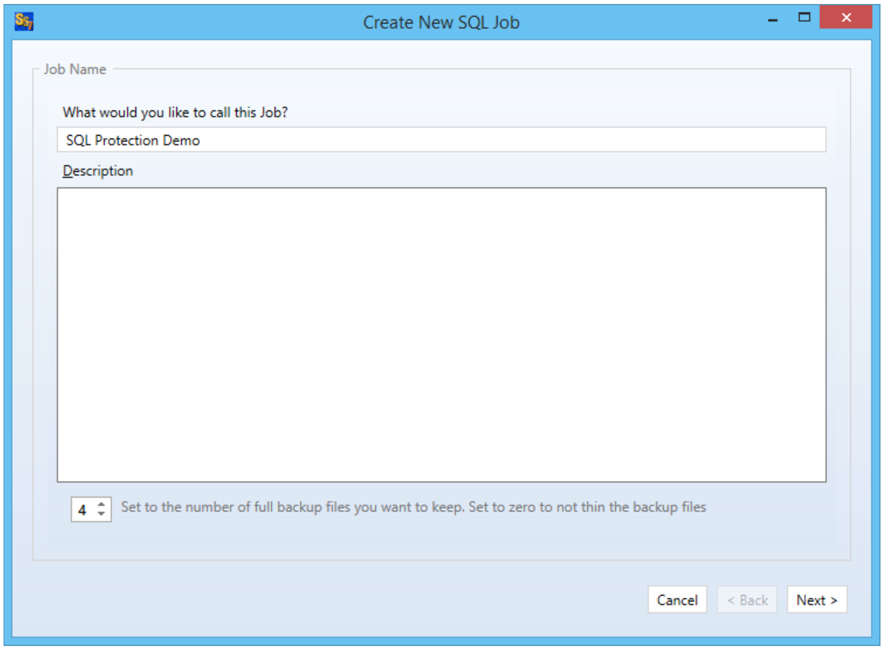
Creating a SQL Protection Job

SQL Protection Jobs are run on a Scheduled basis. A SQL Protection Job consists of a Schedule and the Job definition. Both components created using the same wizard. The Schedule will automatically be given a name based on the name of the Job. To launch the wizard, click on the "Job" button (Job) in the ribbon bar.

Name Your Job

The first wizard panel allows you to configure the Job name, an optional description and define the number of full backups that the Job should keep. When a number of backups is defined in the "Set to the number of full backups you want to keep" option, SQL Protection pruning is enabled. This means that SQL Protection will keep the number of full backups and associated differential and log backups defined here. When a new full is generated, the oldest one and the related differential and log backups are automatically purged. This feature helps keep the storage requirements for your SQL backups under control.

For this Schedule, we will use the name "SQL Protection Demo" and define 4 as the number of full backups to maintain.



Create New SQL Job

Job Name

What would you like to call this Job?

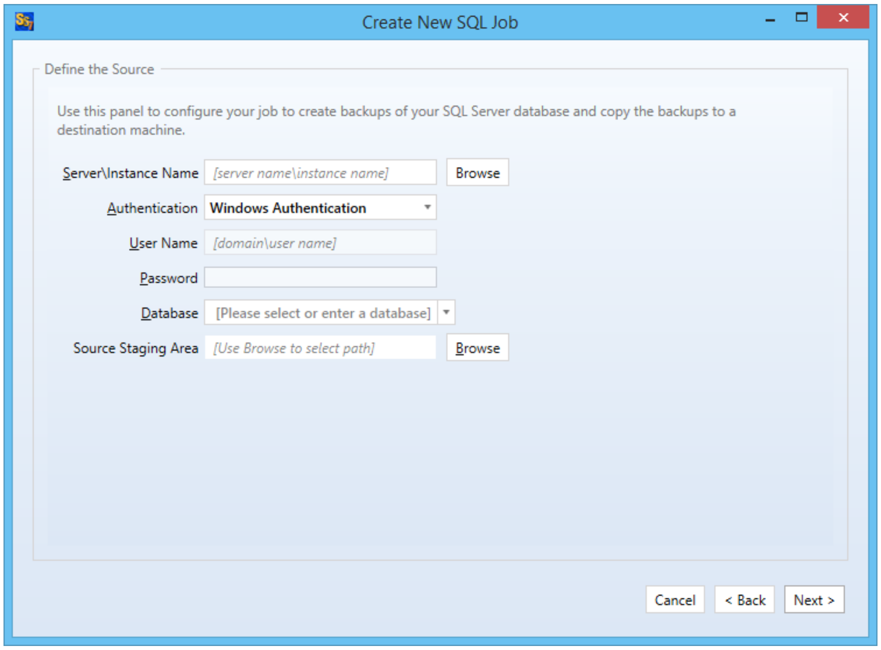
SQL Protection Demo

Description

4 Set to the number of full backup files you want to keep. Set to zero to not thin the backup files

Define the Source Database

The next panel in the Wizard is where you provide details about the source SQL database that you are looking to protect with the Job.



Create New SQL Job

Define the Source

Use this panel to configure your job to create backups of your SQL Server database and copy the backups to a destination machine.

Server\Instance Name: [server name\instance name]

Authentication: Windows Authentication

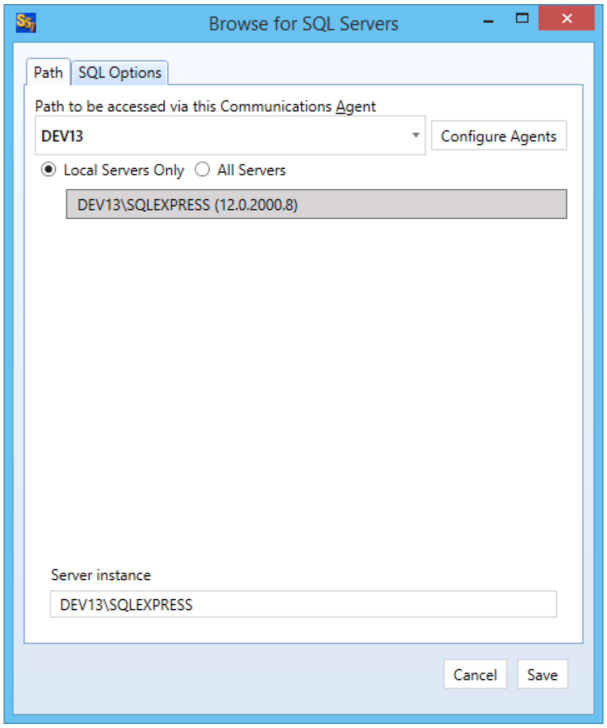
User Name: [domain\user name]

Password:

Database: [Please select or enter a database]

Source Staging Area: [Use Browse to select path]

Click the “Browse” button next to “Server\Instance Name” to select the SQL Server that hosts the database to be backed up.



Browse for SQL Servers

Path to be accessed via this Communications Agent: DEV13

● Local Servers Only ○ All Servers

DEV13\SQLEXPRESS (12.0.2000.8)

Server instance: DEV13\SQLEXPRESS

Select the SQL Server and click the “Save” button.

Define the Authentication Type

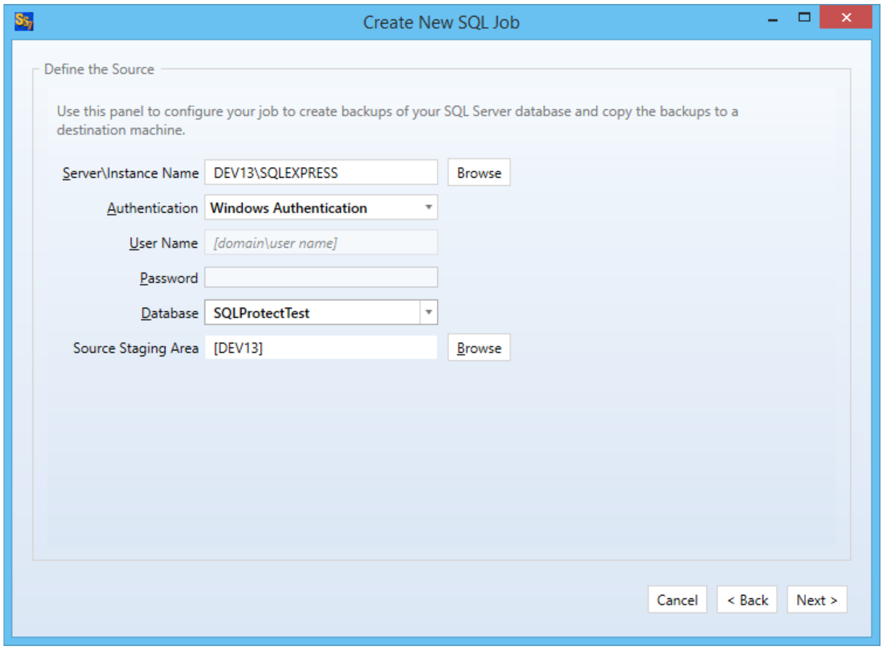
The next step is to define the correct authenication type for the SQL server using the “Authenticiation” drop-down menu. The available options are “Windows Authentication” or “SQL

Server Authentication." If using "SQL Server Authentication" you must also provide the SQL username and password in the available fields. The "Windows Authentication" option will use the username and password provided in Communications Agent Setup for the Agent in question.

For this example, we will use "Windows Authentication."

Define the Database & Source Staging Area

The "Database" drop-down will display a list of all SQL databases on the configured SQL server. For this example, we will select the "SQLProtectTest" database.

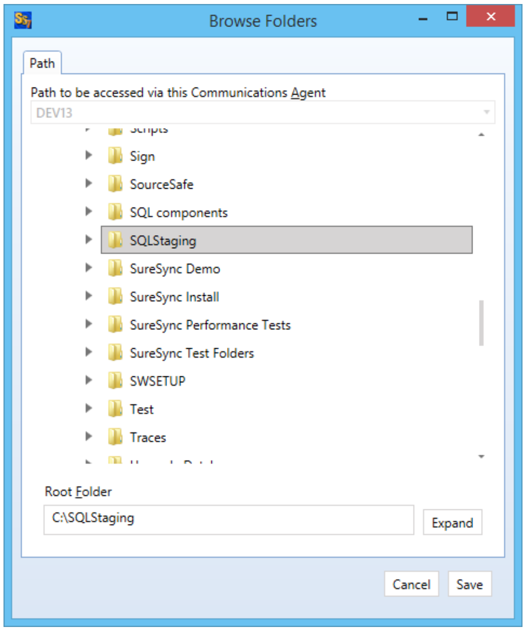


Use this panel to configure your job to create backups of your SQL Server database and copy the backups to a destination machine.

Server\Instance Name	DEV13\SQLEXPRESS
Authentication	Windows Authentication
User Name	[domain\user name]
Password	
Database	SQLProtectTest
Source Staging Area	[DEV13]

Finally, you must define a source staging area. The source staging area is a folder on the source SQL machine where the SQL backup files will be generated before they are replicated to your remote destination machine.

To define the Source Staging Area, click the "Browse" button and select the correct folder. For this example, we will use a folder "C:\SQL Staging."

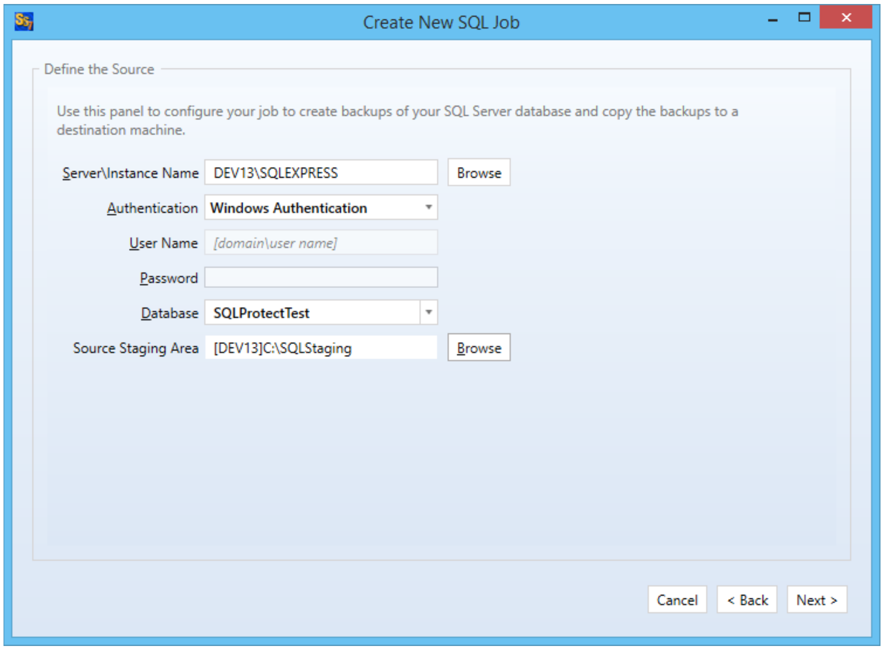


Path to be accessed via this Communications Agent: DEV13

Root Folder: C:\SQLStaging

Click the “Save” button to return to the main Job wizard.

The completed “Define the Source” panel looks like:



Use this panel to configure your job to create backups of your SQL Server database and copy the backups to a destination machine.

Server\Instance Name: DEV13\SQLEXPRESS

Authentication: Windows Authentication

User Name: [domain\user name]

Password:

Database: SQLProtectTest

Source Staging Area: [DEV13]C:\SQLStaging

Click the “Next” button to continue the Job configuration.

Define the Destination Staging Area

The Destination Staging Area is a folder on a remote machine where the SQL Protection Job should copy the backup files generated on the source.

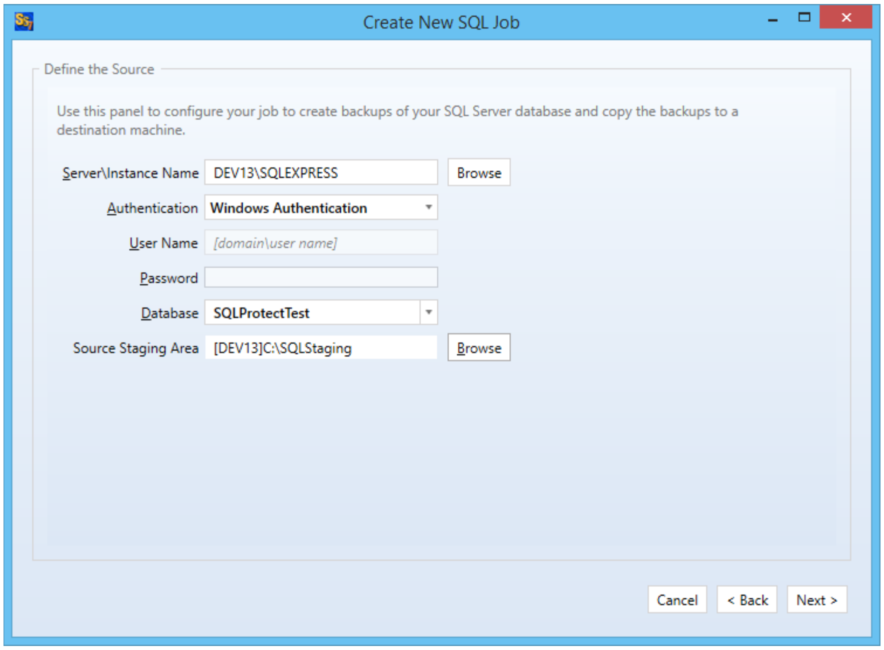
You cannot restore a SQL database backup to a SQL server running an older version of SQL than used on the source. For example, if your source SQL server is running SQL 2012, your destination server must be as well (or newer).

SQL Protection provides access to the Communications Agent. This powerful TCP/IP based agent allows you to communicate with any Windows machine accessible via DNS name or an IP address. The Communications Agent allows you to replicate SQL backups generated by SQL Protection to remote machines even over the Internet.

In addition, with SQL Protection you can chose to restore the backup files copied to the Destination Staging Area

When selecting a remote Communications Agent from the drop-down, the browse panel will display the drives and folders from that remote machine as if you were sitting down in front of the computer.

You do not have to restore to a standby server. If you do not provide the database details on the “Define the Destination” panel then the SQL backups will simply be copied to the Destination Staging Area for backup storage.



Create New SQL Job

Define the Source

Use this panel to configure your job to create backups of your SQL Server database and copy the backups to a destination machine.

Server\Instance Name: DEV13\SQLEXPRESS

Authentication: Windows Authentication

User Name: [domain\user name]

Password:

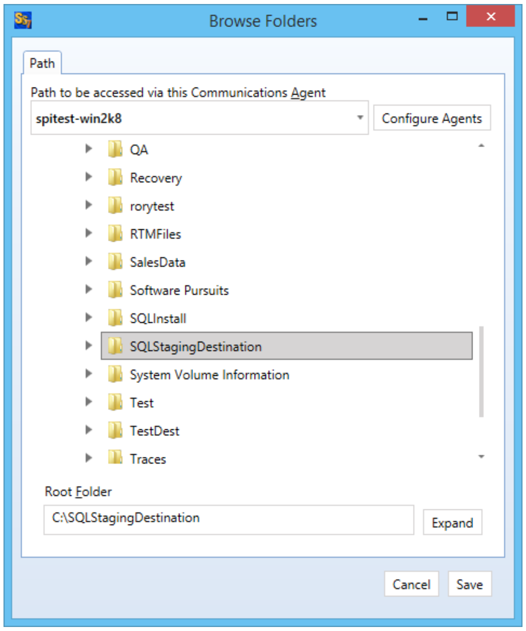
Database: SQLProtectTest

Source Staging Area: [DEV13]C:\SQLStaging

To define the Destination Staging Area, click on the “Browse” button. In this scenario, the destination is the remote SPITest-Win2K8 machine. Select the “SPITest-Win2K8” machine from the “Path to be accessed via this Communications Agent” drop-down menu.

When selecting a remote Communications Agent from the drop-down, the browse panel will display the drives and folders from that remote machine as if you were sitting down in front of the computer.

The path that we will store the SQL backup files on SPITest-Win2K8 is “C:\SQLStagingDestination” which we then select using the browse.



Path to be accessed via this Communications Agent

spitest-win2k8

- QA
- Recovery
- rorytest
- RTMFiles
- SalesData
- Software Pursuits
- SQLInstall
- SQLStagingDestination
- System Volume Information
- Test
- TestDest
- Traces

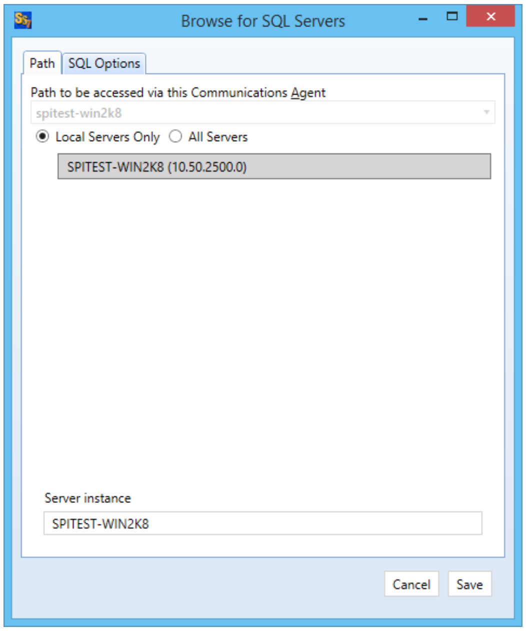
Root Folder

C:\SQLStagingDestination

Click the “Save” button to return to the main Job wizard.

With SQL Protection, the option to restore the transferred backups to a standby server automatically is available. For this example, we will fill out the rest of the “Define the Destination” wizard panel.

Click the “Browse” button next to “Server\Instance Name” to select the SQL Server that will be used to host the standby database.



Path to be accessed via this Communications Agent

spitest-win2k8

● Local Servers Only ○ All Servers

SPITEST-WIN2K8 (10.50.2500.0)

Server instance

SPITEST-WIN2K8

Click the “Save” button to save your selection and return to the main wizard panel.

Define the Authentication Type for the Destination Database

The next step is to define the correct authenication type for the SQL server using the “Authentication” drop-down menu. The available options are “Windows Authentication” or “SQL Server Authentication.” If using “SQL Server Authentication” you must also provide the SQL username and password in the available fields. The “Windows Authentication” option will use the username and password provided in Communications Agent Setup for the Agent in question.

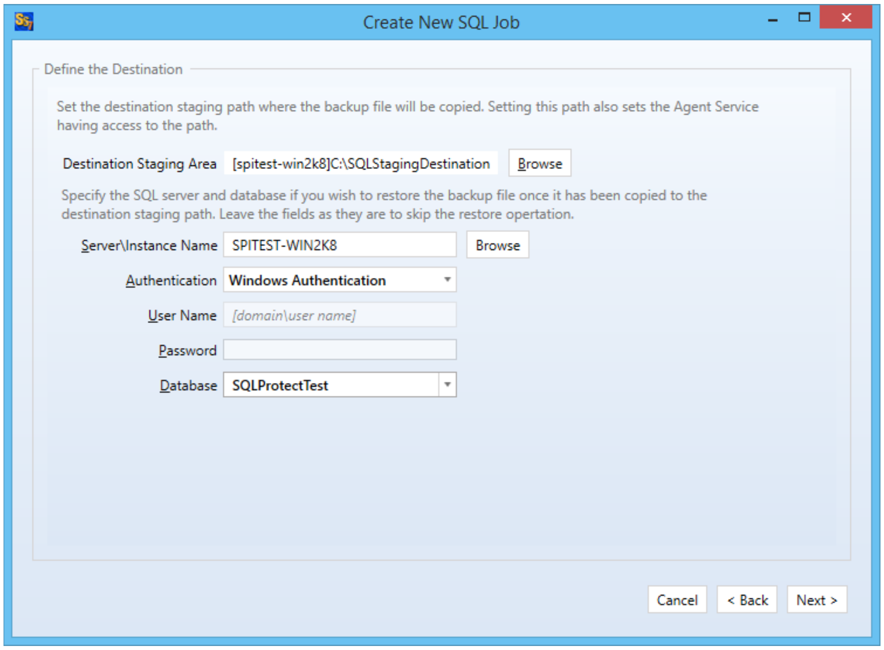
For this example, we will use “Windows Authentication.”

Define the Database Name

The “Database” drop-down on the “Define the Destination” panel allows you to select or enter the name of the database that SureSync SQL Protection should restore into. Often, this will be the same name as the source database. However, it can be a different name.

For this example, the database name on the destination will be “SQLProtectTest.”

The completed destination database configuration will look like this:



Create New SQL Job

Define the Destination

Set the destination staging path where the backup file will be copied. Setting this path also sets the Agent Service having access to the path.

Destination Staging Area: [spitest-win2k8]C:\SQLStagingDestination

Specify the SQL server and database if you wish to restore the backup file once it has been copied to the destination staging path. Leave the fields as they are to skip the restore opertation.

Server\Instance Name: SPITEST-WIN2K8

Authentication: Windows Authentication

User Name: [domain\user name]

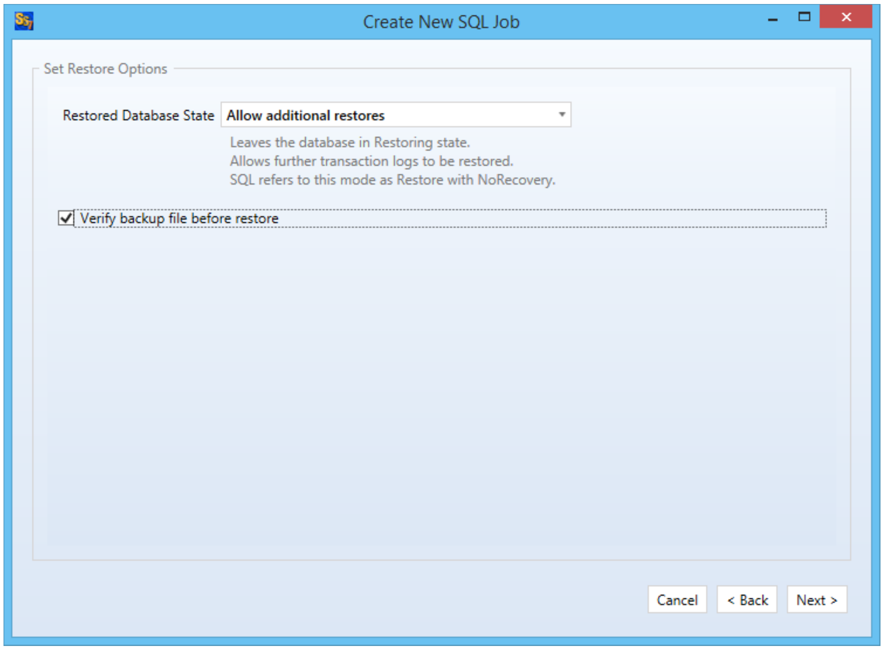
Password:

Database: SQLProtectTest

Click the “Next” button to continue.

Set Restore Options

The next panel of the wizard allows you to set options related to the restored standby database.



Restored Database State: Allow additional restores

Leaves the database in Restoring state.
Allows further transaction logs to be restored.
SQL refers to this mode as Restore with NoRecovery.

☑ Verify backup file before restore

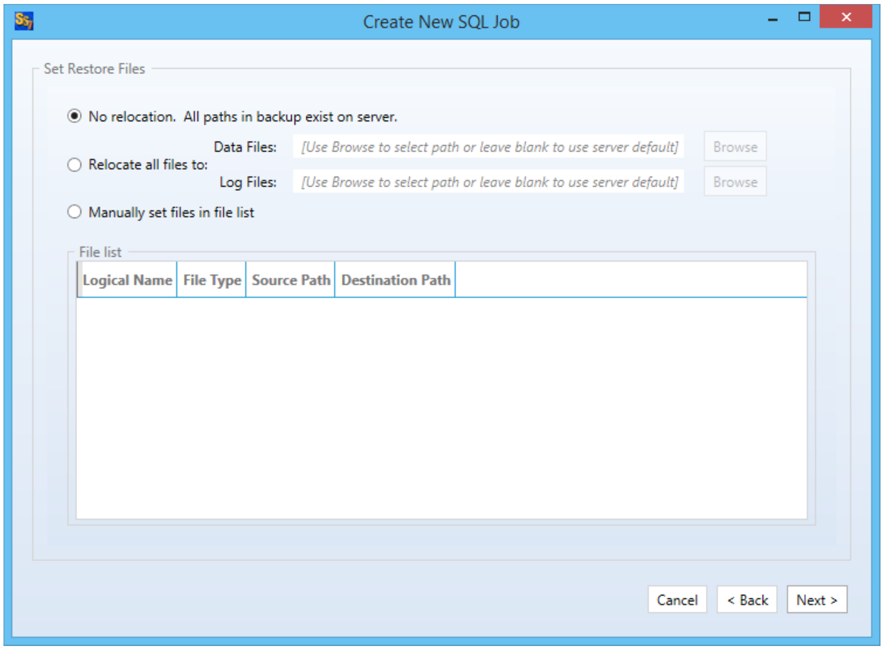
You have the option of "Allow additional restores" which leaves the database in the "Restoring" state and allows additional transaction log restores. This is the default setting. The "Restore in ready state" option will restore the database ready for use on the destination but does not allow any additional restores. This setting is only useful if you plan to restore nothing but full backups.

For this example, we will select "Restore with Recovery" and check "Verify backup file before restore."

Click the "Next" button to continue.

Set Restore Files

The paths where the data file (*.mdf) and log file (*.ldf) are located on the source server are stored within the SQL backup file. This next wizard panel sets options about the database paths for the destination server.



Create New SQL Job

Set Restore Files

● No relocation. All paths in backup exist on server.

○ Relocate all files to:
Data Files: [Use Browse to select path or leave blank to use server default]
Log Files: [Use Browse to select path or leave blank to use server default]

○ Manually set files in file list

File list

Logical Name	File Type	Source Path	Destination Path

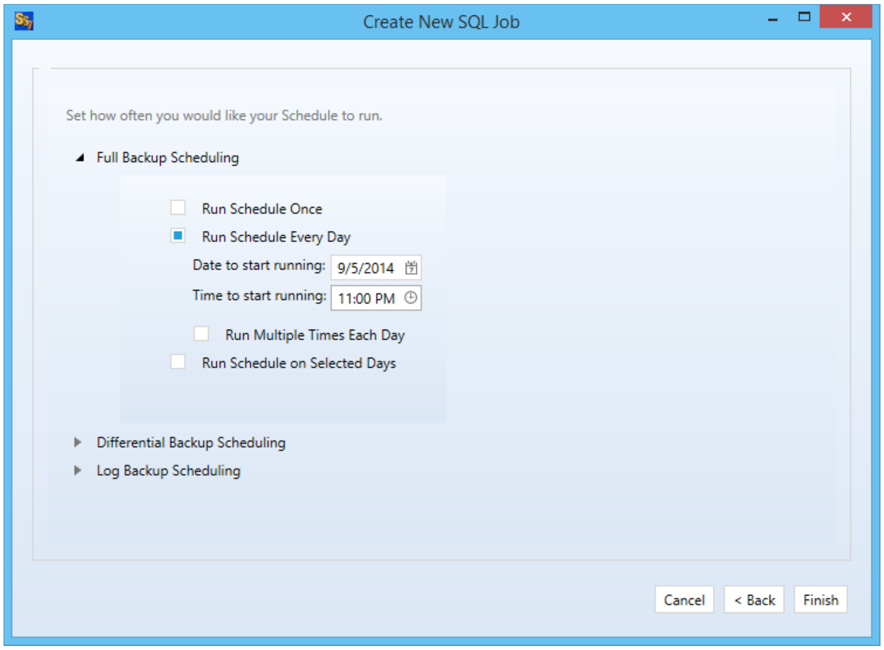
If the same folder structure exists on the destination to support storing the *.mdf and *.ldf files, the default “No Relocation” option can be selected. Otherwise, you must define a folder that exists on the destination server to serve as the storage location for the restored SQL data files.

Define Scheduling Frequency

SQL Protection provides powerful Scheduling of Full, Differential and Log backups. Each backup type can be configured with different repeat settings. For our scenario, a full backup will be performed once per day and a differential backup will be performed every hour.

> Please note that Log backups are only available when processing a database that is using the full or bulk-logged recovery model. Databases using the simple recovery model can only use Full and Differential backups.

First, we will configure the Full backup scheduling. To perform this task, click the triangle next to “Full Backup Scheduling” to expand the selection:



Create New SQL Job

Set how often you would like your Schedule to run.

◢ Full Backup Scheduling

☐ Run Schedule Once

☑ Run Schedule Every Day

Date to start running: 9/5/2014

Time to start running: 11:00 PM

☐ Run Multiple Times Each Day

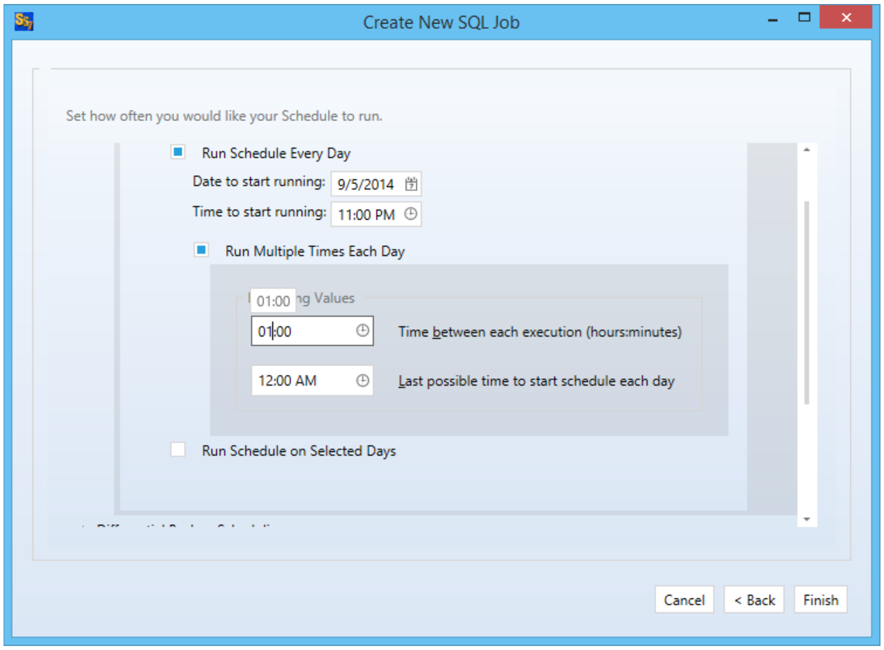
☐ Run Schedule on Selected Days

▶ Differential Backup Scheduling

▶ Log Backup Scheduling

For the Full backup, we want this to run once per day at midnight. To configure this, select "Run Schedule Every Day" and enter 12:00AM for the start time.

Second, we will configure the Differential backup scheduling. To perform this task, click the triangle next to "Differential Backup Scheduling" to expand the selection:



Create New SQL Job

Set how often you would like your Schedule to run.

☑ Run Schedule Every Day

Date to start running: 9/5/2014

Time to start running: 11:00 PM

☑ Run Multiple Times Each Day

01:00 ng Values

01:00 Time between each execution (hours:minutes)

12:00 AM Last possible time to start schedule each day

☐ Run Schedule on Selected Days

For the Differential backup, we want to run it every hour. To configure this, select "Run Schedule Every Day" and check the "Run Multiple Times Each Day" option. For the "Repeating Values" change the "Time between each execution (hours:minutes)" option to 01:00 to tell the Schedule to run the Differential every hour.

It is natural to have times for Full, Differential and Log backups that conflict. In our example scenario, the Full and Differential backups will want to run at the same time once per day at 11PM.

SureSync SQL Protection gives Full backups priority over all other backup types and Differential priority over Log. In this scenario, at 11PM the Full backup will "win" and be selected to run.

Click "Finish" and SureSync SQL Protection will build the SQL Protection Job and Schedule.

Configuration Complete

You have now successfully configured a SQL Protection Schedule and Job! The SQL database will be backed up according to the scheduling options defined in the Schedule automatically as long as your Scheduler service is running.

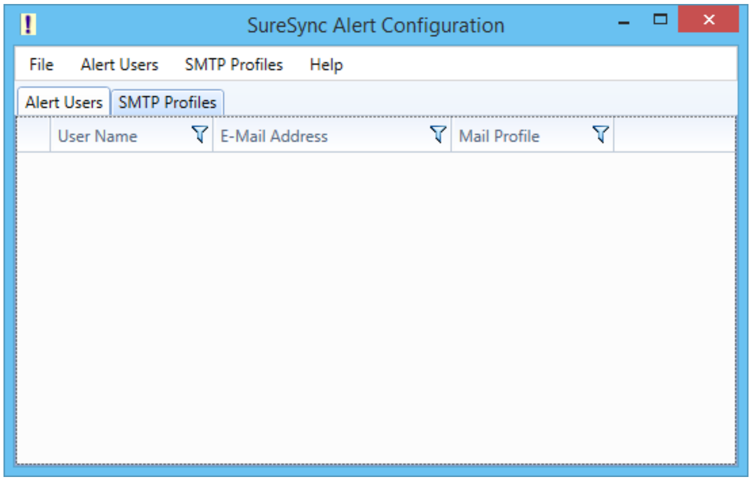
Configuring E-mail Alerts

E-mail alerts can be a useful way of notifying the SureSync SQL Protection administrator of a problem that should be investigated.

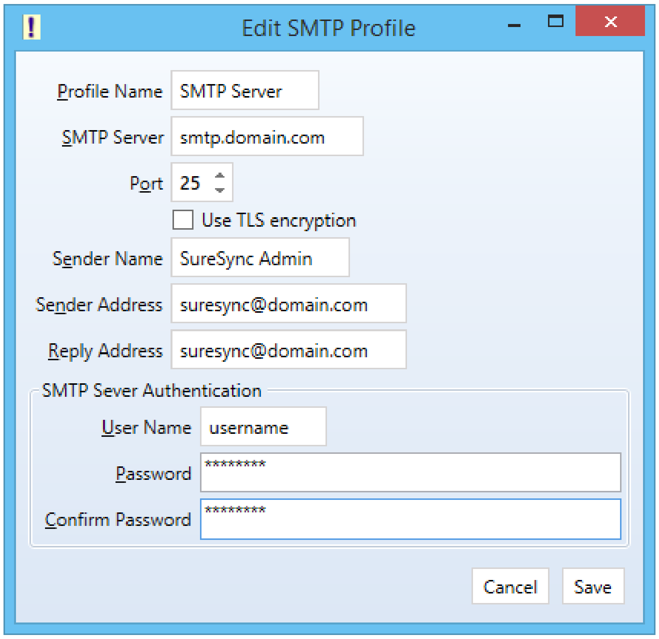
Configuring a SMTP Profile

To start the configuration of alerts, you must launch the SureSync Alerts Configuration utility and create a SMTP profile. The SMTP profile provides SureSync with the necessary details about your SMTP e-mail server so the program can send messages to you.

To launch the SureSync Alerts Configuration utility, open SureSync, click on the "Home" button and click on "Alert User List"



To create a SMTP Profile, go to the SMTP Profiles menu and select "New SMTP Profile"



Edit SMTP Profile

Profile Name: SMTP Server

SMTP Server: smtp.domain.com

Port: 25

□ Use TLS encryption

Sender Name: SureSync Admin

Sender Address: suresync@domain.com

Reply Address: suresync@domain.com

SMTP Sever Authentication

User Name: username

Password: ********

Confirm Password: ********

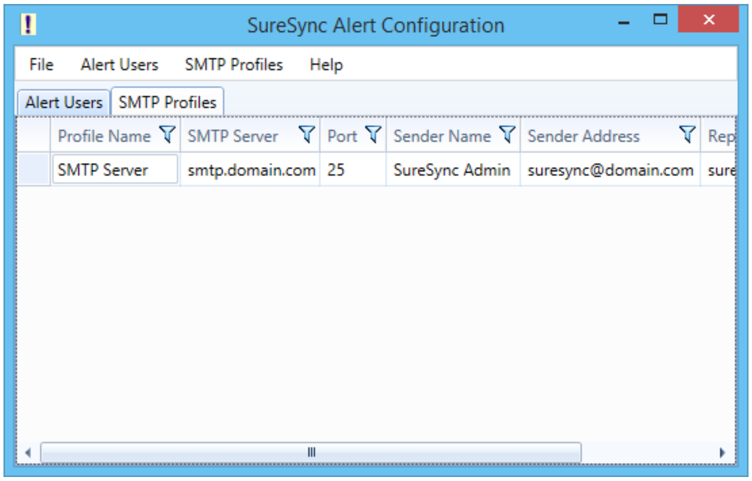
The “Add SMTP Profile” panel allows you to define the SMTP settings for your mail server. The following fields must be configured:

- **Profile Name:** The name of the profile that you are configuring. For example, you might use the name of the SMTP server.
- **SMTP Server:** The server address of the SMTP server. For example, smtp.mail.com.
- **Port:** The SMTP port for the SMTP server. The default SMTP port is 25.
- **Use TLS Encryption:** If your SMTP server requires encryption, check this box.
- **Sender Name:** The name that will appear in the From: field of messages sent by SureSync.
- **Sender Address:** The e-mail address that will appear on messages sent by SureSync.
- **Reply Address:** The reply address that will appear on messages sent by SureSync.

You can also define SMTP Server Authentication settings if your SMTP server requires a valid logon to send messages (most do). The following fields can optionally be configured:

- **User Name:** The username that SureSync will log into this SMTP server with when sending an e-mail alert.
- **Password:** The password for the username defined in "User Name" should be entered here.
- **Confirm Password:** The password for the username defined in "User Name" should be confirmed here.

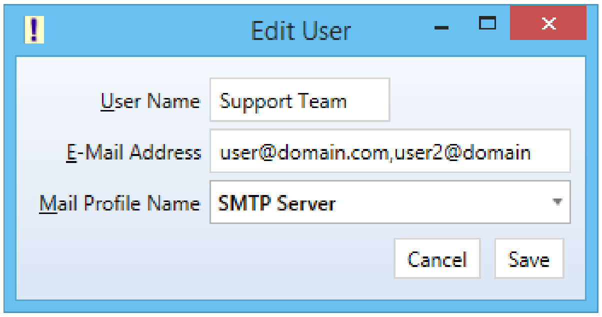
Click “Save” to create the SMTP Profile. Clicking on the SMTP Profile tab of the SureSync Alert Configuration utility will show the new profile.



Profile Name	SMTP Server	Port	Sender Name	Sender Address	Rep
SMTP Server	smtp.domain.com	25	SureSync Admin	suresync@domain.com	sure

Configuring an Alert User

The second part of configuring E-mail Alerts is to define an Alert User. The Alert User defines the e-mail address(s) that will be sent messages when errors occur. To configure an Alert User, click on the “Alert Users” menu and select “New Alert User”



User Name: Support Team

E-Mail Address: user@domain.com,user2@domain

Mail Profile Name: SMTP Server

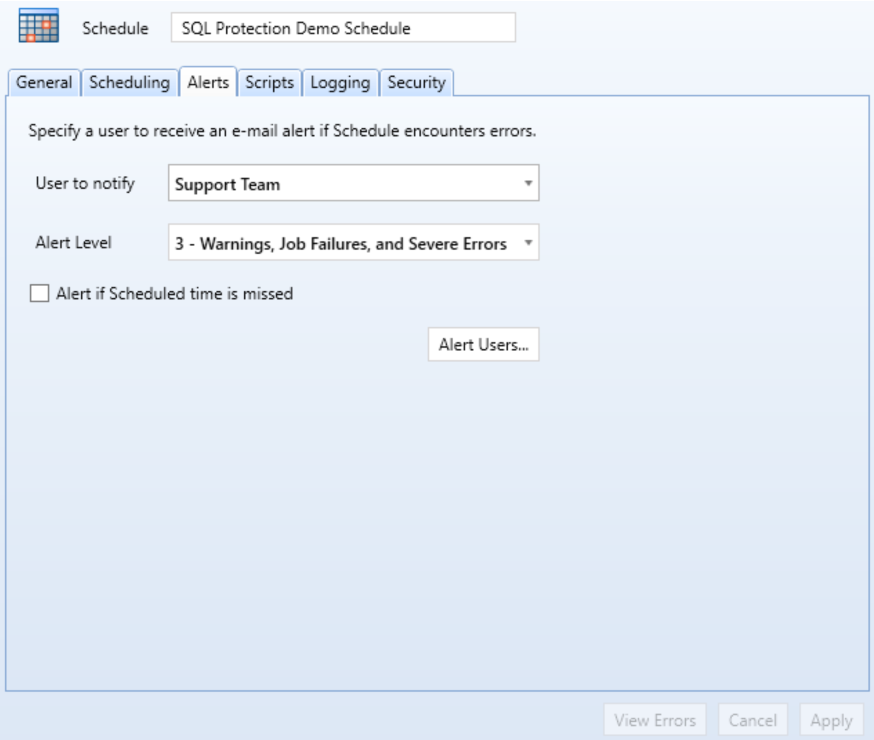
The “Add User to Alert” field has the following fields to be configured:

- **User Name:** The username that will be used in SureSync to represent this e-mail address.
- **E-mail Address:** The e-mail address that SureSync will send the alert messages to.
- **Mail Profile Name:** The SMTP profile that will be used to send the message.

> Multiple e-mail addresses can be added by separating the addresses with commas (,) or semi-colons (;). This allows you to easily send messages to a group of SureSync administrators.

Configuring the Schedule to Send Alerts

The final step of the alerts configuration is to tell the Schedule to use the Alert User, and at what level of errors to send alerts. This is accomplished by clicking on the Schedule in the SureSync desktop, clicking on the Alerts tab, selecting the Alert User from the drop-down menu and then clicking “Apply.”



Schedule: SQL Protection Demo Schedule

Specify a user to receive an e-mail alert if Schedule encounters errors.

User to notify: Support Team

Alert Level: 3 - Warnings, Job Failures, and Severe Errors

☐ Alert if Scheduled time is missed

Additional details about the E-mail Alert levels available can be found by pressing “F1” while on the Alerts tab.