

Attix5 Pro Plug-ins

V6.0 User Manual

for Microsoft Windows

*Your guide to installing
and using Attix5Pro
plug-ins.*



Copyright Notice and Proprietary Information

All rights reserved.

© Attix5, 2010

Trademarks

® - Microsoft, Windows, Microsoft Windows, Microsoft Windows Server, MS Windows, MS Exchange, MS SQL, MS SharePoint, Exchange, System State, Windows Backup, Windows Explorer and VMware are registered trademarks of respective owners.

Instruction Symbols

The following icons appear in the user manual:



The information icon precedes important information.



The example icon indicates a practical illustration of a process or procedure.



The hint icon indicates a suggestion or hint to guide or assist you with performing a task.



The warning icon provides a warning against potential mistakes and actions that could cause critical error.

Table of Contents

1. Plug-in Installer	4
Installation and Configuration	4
2. Plug-ins	6
1. MS Exchange 2000 2003 2007.....	7
2. MS SQL Server MS SQL 7	13
3. MS SharePoint (2003/2007).....	16
4. MS VSS Database plug-in	19
5. Sybase ASE 12.5	24
6. Lotus Domino 6.5 / 7	26
7. Oracle 9i / 10g	29
8. Email Notification.....	37
9. Script Plug-in	39
10. System State Backup Plug-in.....	41
11. Single Mailbox Recovery (SMR)	43
12. VMware Plug-in	52
13. Exchange Single Item Recover (SIR).....	55
14. System State using Wbadmin plug-in	58

1. Plug-in Installer

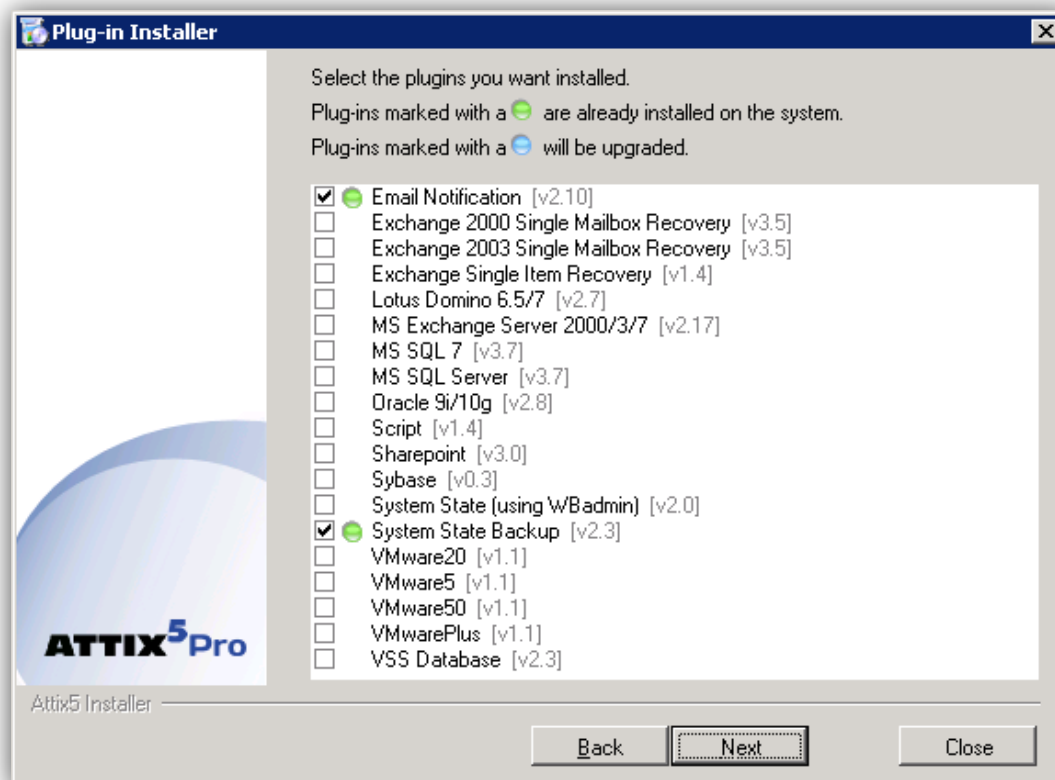
The Plug-in Installer allows you to upgrade existing Server Edition (SE) Backup Clients with added functionality by installing application-specific plug-ins and other monitoring tools. You can also upgrade existing plug-ins with this installer. As from Attix5 Pro v5.0, plug-ins can also be auto-updated during the backup process, if enabled on the Storage Platform.

The SE Client must be installed on the computer before you can install any plug-ins. SE Plug-ins require working space for the cache and disk space for creating a data dump and patches.



Note: Ensure that the drive on which the SE Client is installed has enough free hard drive space to store an extra copy of all the selected files. If not, move the **ToBackup**, **Cache** and **dump** folders to another drive.

Installation and Configuration

The application does not have to be installed before updating the SE Client. Simply run the Plug-in Installer executable and supply the necessary information. The installer will prompt you to close the SE Client interface, if it is open, when running the Plug-in installer.



The installer will detect the current SE Client installation location and confirm it as part of the installation process.

A list of available plug-ins will enable you to select the plug-ins you wish to install and/or configure. Plug-ins marked with  are already installed on the system. Any plug-ins marked with a  blue icon will be upgraded to the latest plug-in version.

Version Information displays the Plug-in Installer version information. Select or deselect any of the plug-ins by clicking in the checkbox next to the plug-in name. After you have made all the necessary changes, click **Next**. The next step in the wizard will display a summary of all the changes that you have requested.

Click **Apply requested changes** to continue with the upgrade or **Back** if you want to modify your selection.

The Plug-in Installer stops the SE Client service, installs/upgrades/uninstalls the selected plug-ins and starts the service again. Click **Finish** to close the application. After installing the plug-ins, open the SE Client and configure the installed plug-ins. For more information about the plug-ins, see Chapter 2, “Plug-ins” below.



Note: *As a precaution, the Plug-in Installer does not remove the dump folder used by the plug-ins or any plug-in-specific settings when you remove plug-ins. You have to remove it manually if needed.*

2. Plug-ins

Adding to its features and functionality, Attix5 Pro Server Edition also provides a solution for numerous databases and applications. These solutions are provided as plug-ins to the Server Edition of the Client software.

Once installed, plug-ins display in one of two areas of the SE Client application: in the *selection tree* or in a dedicated *dialog box*. Plug-ins available in the selection tree can be selected/excluded for backup in the same manner as all other items in the tree. Plug-ins available in dialog boxes can be enabled/disabled/configured via the **Tools** menu.

The table below lists the plug-ins included in the SE Client (in the same order as displayed in the Graphical User Interface), alongside the section numbers in this chapter that describe them.

Server Edition Plug-ins currently available			
Plug-in name (As listed in Plug-in Installer)	Section	Description	Backup Client location
Email Notification	8	V2.10	Dialogue
Exchange 2000/2003 Single Mailbox Recovery	11	V3.5 (SMR)	Dialogue
Exchange Single Item Recovery	13	V1.1 (SIR)	Tree
Lotus Domino 6.5 7	6	V2.7	Dialogue
MS Exchange Server 2000 2003 2007	1	V2.17	Dialogue
MS SQL 7	2	V3.7	Tree
MS SQL Server	2	V3.7 (2000/2005/2008)	Dialogue
Oracle 9i 10g	7	V2.8	Dialogue
Script	9	V1.4	Dialogue
SharePoint	3	V3.0 (2003 & 2007)	Tree
Sybase	5	V0.3	Dialogue
System State Backup	10	V2.0	Dialogue
System State using Wbadmin	14	V1.0	Dialogue
VMware (20, 5, 50 & Plus)	12	V1.1	Tree
VSS Database	4	V2.0	Tree

1. MS Exchange 2000 | 2003 | 2007

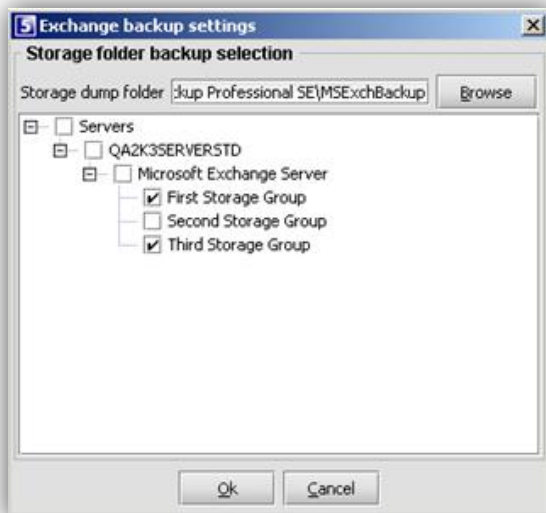
The Attix5 Exchange plug-ins enable fast and flexible ways to protect vital Exchange 2007, 2003 and 2000 critical data while the applications are online. Using the Exchange APIs to communicate with the Exchange server, the plug-ins provide backup and restore capabilities for all Exchange Server components, including embedded files.

Installation and Configuration

Note: The SE Client with the MS Exchange Plug-in must be installed on an existing Exchange Server as it automatically detects and configures the communications between the two applications. The Exchange Server services must be running for the Plug-in to access the files selected for backup. If you wish to install the SE Client on a different machine, you need to first install Exchange on that second machine to provide the libraries required by the Exchange plug-in.

If you are installing the Single Mailbox Recovery (SMR) plug-in as well, please do so before installing the Exchange plug-in to ensure that the SMR mail profile is configured correctly.

Server Edition can be upgraded with the Exchange Plug-in by running the Plug-in Installer and then selecting the **MS Exchange 2000/2003** plug-in. After the upgrade, open the Client to configure the plug-in. On the **Tools** menu, select **Plug-ins**, and then click **Exchange 2000/2003 Backup settings**.



Select where you would like the SE Client to create a **Storage dump folder**. This folder is used to dump a copy of the selected storage groups from the Exchange server. From here, the files will be encrypted and backed up. The default dump folder is **C:\Program Files\Attix5 Pro SE\MSExchBackup**.

Note: Ensure that your computer has enough free hard drive space to store a dump of all the selected storage groups.

The SE Client requires working space for the cache (which is compressed), a temporary copy of each Exchange storage group (the dump folder) and temporary disk space for creating patches to be sent to the Storage Platform.

The next step is to select the storage group(s) that you would like to back up. You have the option to select individual storage groups by expanding **Servers** and selecting the Storage Groups one by one. If you select the **Servers** box, you will automatically back up all the storage groups within the Server.

You have the option to choose between Full or Incremental backups. Right-click on a Storage Group and select **Properties** to specify your preferences. The following window will be displayed:

From here you can modify the **Daily Backup Type** for the selected storage group. The SE Client will, by default, do full backups during each backup.



To enable incremental backups (only the Exchange log files), deselect the **Only do full backups** box, and then specify the days on which to do incremental backups.

Note: At least one full backup per week will still be enforced if you enable incremental backups.

Select the **Apply this selection to all storage groups** check box if you wish to use the same configuration for all selected storage groups. Click **OK** to save the changes or **Cancel** to go back to the **Exchange backup settings** dialog box.

Click **Ok** to save the settings. Your Exchange Server Backup is now configured.

The Backup Process: To create your first backup, select **Backup Now** on the **File** menu. Attix5 Pro will create an exact copy of the selected storage groups in the dump folder. These files will be compressed and transferred to the Storage Platform. Subsequent backups will compare the selected storage groups with the selection from the previous backup, which is stored in a cache. Attix5 Pro will create a patch file for each storage group with all the changes made to the storage group since the last backup. Only the patch files and any new selections will be backed up.

Full Backups vs. Incremental Backups

Attix5 Pro provides you with two options when backing up Exchange 2000/3; Full and Incremental Backups.

The **Full Backup** process is straightforward. All databases are backed up, and the log files for the particular storage group are removed after the data has been incorporated into the databases using a process called truncation. Using the efficient patching techniques available in Attix5 Pro, only a small percentage of the full backup is transferred to the Storage Platform on a daily basis.

During **Incremental Backups**, only the storage group changes since the most recent full backup are protected. These changes are stored in the Exchange log files and truncated into the storage group during the next full backup. Note that when restoring you need the most recent full backup as well as all the incremental backups between the last full and the required recovery point (RPO). Attix5 Pro will automatically restore all the required files during the restore process.

How to Restore an MS Exchange Storage Group

It is very important to follow the following steps:

1. Ensure that Exchange has the same service pack level as when the data was backed up.
2. Set the database to be overwritten by a restore. Right-click on the different stores in Exchange, click **Database**, and then select the **This database can be overwritten by a restore** option.
3. Delete or move all the .log files in the **MDBDATA** folder in the Exchange installation directory. If these files are locked, stop the Exchange Information Store service and try again. Start the service and if there are any logs created (after starting the service) delete or move them as well. A restore can now be performed as usual.
4. Open the SE Client, select **Plug-ins** on the **Tools** menu, and then click **Exchange 2000/2003 Restore wizard**. The **Exchange Restore Wizard** enables you to restore any Exchange Storage group without having to restore the backup from the Storage Platform first, as the Exchange Wizard will automatically restore the files from the Storage Platform, should you choose to restore from a previous backup. Follow the steps as outlined below.


Restore Wizard Step 1

In the first step, select either **Restore from locally available backup** or **Restore from previous backups**. Click **Next** to continue.

Restore Wizard Step 2

If you select the first option, the SE Client will use the last backup that is stored locally on the server. If you select the **Restore from previous backups** option, the SE Client will connect to the Storage Platform and display a list of available Exchange backups.

The Storage Groups available in the backup that you selected are displayed in the second step. Select whether you wish to **Dismount the stores** before recovering the groups.

 | **Note:** Deselect this option if you are restoring to a Recovery Storage Group.

Specify whether you want to **Restore all Storage Groups** or **Specify restore options for each Storage Group**. Click **Next** to continue.

Restore Wizard Step 3

In the third step, specify the Exchange Server and Storage Group to which you wish to restore the data. The original Exchange Server and Storage Group information is displayed by default. Also specify the following by enabling/disabling the checkboxes:

- **Mount databases after restore** - If you deselect this option, you will have to manually mount the Store after restoring it.
- **Wait for Exchange to complete restore** - the SE Client will wait for confirmation from MS Exchange before it notifies you of the successful Restore.
- **Only restore log files** – Use this option to only restore the log files.

Click **Next** to continue.

The last step displays a summary of what you have configured. You can change the temporary path that the SE Client will use for the log and patch files by clicking the **Browse** button. Click **Start restore** to start the restore process. You have to select a backup set that you would like to **Restore from**. Click **Browse**, and then select the storage group that you wish to restore. The Client will list all the details from the backup – displaying the Backup date, to which server the backup should be restored and the selected Storage group.

If Exchange cannot mount the store, run the Exchange “eseutil” application and try again.

Restoring Exchange 2007 into a Recovery Storage Group using VSS

Create the Recovery Storage Group

You can do this either by using the Microsoft Exchange Troubleshooting Assistant (ExTRA) tool, or by running the New-StorageGroup cmdlet with the –Recovery parameter in the Exchange Management Shell. In this FAQ, ExTRA is used.

To create the RSG using ExTRA, launch the tool by opening the Database Recovery Tool. (This is found under the Toolbox work center in the navigation tree of the Exchange Management Console (EMC). The tool will first want to check for any tool or configuration file updates that may be available. After this, click on the **Go to Welcome screen** link. Enter a label for this activity (such as “Create RSG”), and then click **Next**. On the appearing Tasks list, click **Create a Recovery Storage Group**, and then select the Storage Group you wish to link with the RSG. For example, if your Storage Group is called “First Storage Group”, you will select that. Click **Next** once again.

You now need to provide a name for your RSG. The default name should be fine, namely Recovery Storage Group. After this is done, click **Create the RSG**. After a while, you will be notified that the RSG for the respective Mailbox Database has now been created. With the RSG created, we can now move, copy or restore db and transaction log files to the RSG paths. To see the path for the recovery storage group log and database files, click **Show Create Recovery Storage Group Information**. The default is C:\Program Files\Microsoft\Exchange Server\Mailbox\

Restore the Mailbox Database using Attix5 and VSS

Go to the **Restore** tab in the Attix5 SE client. Click on the date that you require the data from. As soon as you have closed the date, you will have the option to expand and all the data backed up will appear. Click on the VSS writer section to the bottom of the selected date. One of the options will be called **Exchange writer**. Expand this until you get to the databases. The databases will have their GUID names, so you will have to go into the folder to identify the database. Select the specific Mailbox Database you wish to restore, as well as the checkpoint files and logs. DO NOT SELECT THE EXCHANGE WRITER IN ITS ENTIRETY FOR RESTORE, AS THIS WILL OVERWRITE THE LIVE DATA!

Restore these files to an alternative location, for example D:\Restore. Now copy the restored files to the Recovery Storage Group location as created in the previous part.

Checking Integrity and retrieving Data

Go to the ExTRA Task Center. Under **Manage Databases**, Click **Verify Database and transaction Log Files**. This is to verify that the database is in a clean shutdown state. As soon as this is complete, you can mount the RSG by clicking on Mount or Dismount databases in the Recovery Storage Group. This is under the Manage Recovery Storage Group heading. On the next screen, you can mount the database. When the Mailbox Database has been mounted, click **Go back to task center**, and then select **Merge or copy mailbox content**. The next screen will show us the mailbox database, and there will be a button for **Gather merge information**.

On the Select Merge Options page we must click on **Perform pre-merge tasks**. The final step would be to select the mailboxes you wish to merge. You will have a list of users on the mailbox database, click on the ones you want to merge. After doing this, wait for the tool to merge the mailbox data from the RSG Mailbox Database to the selected mailbox.

When you have merged or copied the required Mailbox data, you can use ExTRA to dismount and then remove the Recovery Storage Group. Be sure you remove the files in the RSGxxxxxxxx folder again after you have removed it, so that the files don't take up valuable disk space

2. MS SQL Server | MS SQL 7

The Attix5 MS SQL plug-in provides SQL Server 2000/2005/2008/MS SQL 7 protection down to the individual table or file group. Execute binary patching backups as well as Transaction Log backups with automatic truncation. Restore options include redirection to another SQL Server using the native SQL restore procedures and the ability to perform “rollback restores”, enabling a database to be recovered to a specific backup job.

Note: There are two plug-in versions available, MS SQL Server that supports any database from SQL 2000 and a plug-in for the older MS SQL 7. Usability is the same, so both Plug-ins are described in this section.

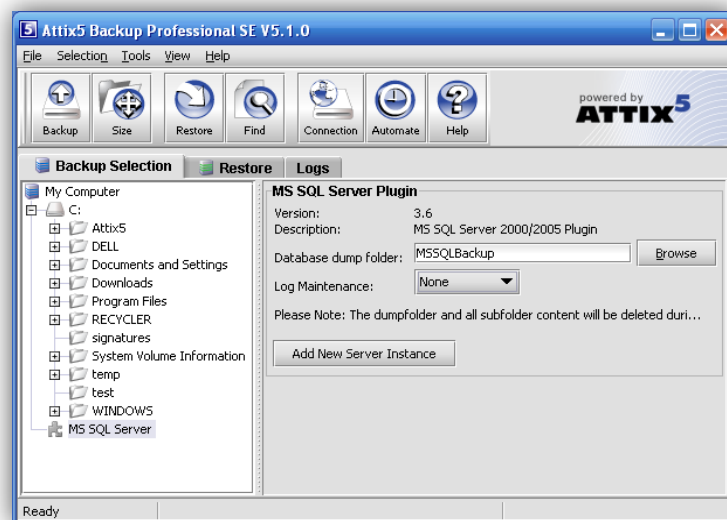
Installation and Configuration

Note: Attix5 Pro SE and the MS SQL Server plug-in need to be installed on the actual SQL Server and the SQL services must be running.

Run the Plug-in Installer and select the **MS SQL Server** (or MS SQL 7) plug-in to upgrade the SE Client with the MS SQL Server plug-in. After the upgrade, open the Attix5 Pro Client. You will notice a new entry on the **Backup Selection** tab, in the left-hand pane, called **MSSQL Server**. To add and configure a SQL instance click on this entry.

In the right-hand pane, specify the global database dump folder for the SQL instances in the **MSSQL Server Plug-in** section. You can use the **Browse** button to browse to a specific folder.


Note: Ensure that the server has enough free hard drive space to store a data dump of all the selected databases.



Log Maintenance enables you to specify whether the SQL plug-in must truncate the MS SQL logs once the backup has been completed to ensure that the log files will not use unnecessary disk space. Click the **Add New Server Instance** button to add the first SQL Server instance.

A sub-node will be created in the MSSQL Server section in the left-hand pane, as displayed in the image below. Use the MSSQL Server Instance section pane to configure this SQL instance.

MSSQL Server Instance: Last status provides information about the last connection to the SQL Server. Enter the Server address, SQL username, password and port that the SE Client must use to connect to the SQL Server.

 | **Note:** You need to manually enable TCP/IP ports in the SQL 2005 Management tools.

Click **Test Connection**.

The list of the available SQL databases is populated in the left-hand pane as sub-notes of the selected instance, from where you can select the database that you want to backup. If you select the entire section, all databases will be included, as well as any new databases created.


Select the database(s) that you wish to backup. *Backup & Restore operations are not allowed on the tempdb database (SQL-DMO ODBC SQLState: 42000).*

To add another instance, click the **MSSQL Server** entry in the left-hand pane, and then click the **Add new server** button in the right-hand MSSQL Server Plug-in section. A new node will be added. Configure the SQL Server settings and select the necessary databases.

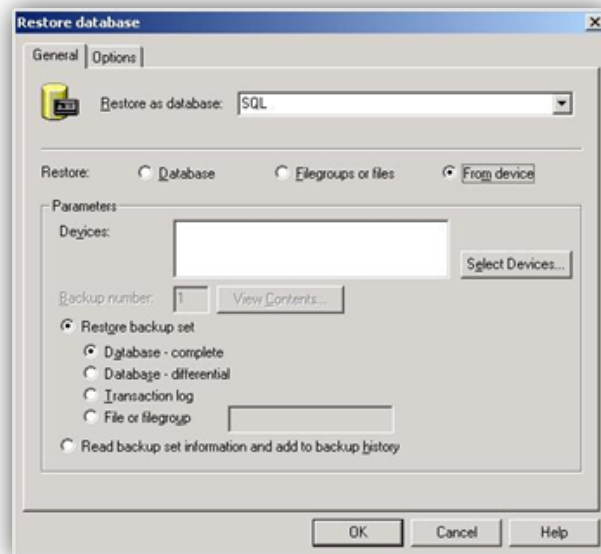
 | **Note:** Ensure that you have sufficient rights if protecting a remote server.

Verify that you have included all the required SQL databases in the left-hand pane before you initiate the first backup. To create your first backup, select **Backup Now** from the **File** menu. Attix5 Pro will create an exact copy of the selected databases in the dump folder. These files will be compressed and transferred to the Storage Platform. The next backup will compare the selected storage groups with the selection from the previous backup, which is stored in the cache. Attix5 Pro will create a patch file for each database. This file consists of all the changes made to the database since the last backup. Only the patch files and any new selections will be backed up.

How to Restore a SQL Database from a backup device

The first step is to restore the database from the Storage Platform. Click on the  **Restore** tab and select the dump folder from the specific backup date. On the **File** menu, click **Restore**. Select a restore location and restore the database.

Open the **SQL Enterprise Manager**. From the Console root, expand Microsoft SQL Servers and browse to the Server where you would like to restore the database. Expand the databases section and select the database that you would like to restore. If the database does not exist anymore, you have to create and configure the database first. Right-click on the database, select **All Tasks** and click **Restore Database**.



In the **Restore as database** window, select the database you wish to restore.

Select **From device** and then click **Select Devices**. From the **Restore from** option, select **disk** and then click **Add**. Browse to the folder where you have restored the database and select the file.

Click **OK** accept the filename selected and **OK** again to accept the device. Using SQL functionality, you can select how you would like to restore the backup set. You can choose between a complete or differential database, the transaction log or file group. If you are restoring to a new database, you need to enable SQL to overwrite the database.

Click **OK** to start restoring the database. SQL Server Enterprise Manager will confirm that you have successfully restored the selected database.

3. MS SharePoint (2003/2007)

The Attix5 SharePoint 2003/2007 plug-in provides protection for Content and individual document/items of MS SharePoint 2003 (including SharePoint Services 2.0), MS SharePoint 2007 (including SharePoint Services 3.0) and MS SharePoint 2010.

Before you install

The default option to install the Attix5 SE Client service is as local system user but the Local Windows system user account cannot be given access rights in SharePoint and the SE Client Service should therefore be configured to run in another account other than System.

A Windows (or domain) user must be created that will only be used to run the SE Client service. This user should be made a member of the Backup Operators group and should be protected with a strong password as it will be given full rights in SharePoint.

Once the user has been created, it should be given the **Site Collection Administrator role** in SharePoint using the SharePoint interface. This should be done for all Site Collections that need to be backed up. Remember to include any Shared Services Provider (SSP) Site Collections in this step. Failure to do so will result in errors when trying to back-up the SSP Web Applications in your farm.

The user needs rights to read the registry:

The specific key that needs to be read from the registry for SharePoint 2007 (WSS 3.0) is:

LocalMachine\SOFTWARE\Microsoft\Shared Tools\Web Server\Extensions\12.0\Secure\ConfigDb\dsn

The specific key that needs to be read from the registry for SharePoint 2003 (WSS 2.0) is:

LocalMachine\SOFTWARE\Microsoft\Shared Tools\Web Server Extensions\Secure\ConfigDb\dsn

In addition, this user must be given **db_owner role** (using SQL Management Studio) to the Config database and all Content databases that needs to be backed up.

The above-mentioned user (as well as the SQL Server service user) should also be given **Read and Write file system rights** to the dump folder as specified in the Attix5 SharePoint plug-in interface.

Note: The dump folder itself is deleted and created again before being used, so if a UNC path is used, the actual dump folder must not be a shared folder (this will cause an access violation).

Example, the UNC path should be as follows: `\\server\share\dump` where `dump` can be deleted by the user mentioned above. Specifying `\\server\share` as the dump folder might cause access violations, because the service will then try to delete the share itself.

The steps should ensure that backups and restores can be done without access problems.

To summarize:

1. Special user for running the Attix5 service.
2. Strong password.
3. Site Collection Administrator role for all Site Collections.
4. Db_owner role for Config and Content databases in SQL Server.
5. File system rights in dump folder for Attix5 and SQL Server services.
6. Dump folder should not be a share itself, but can be a subfolder in a share.

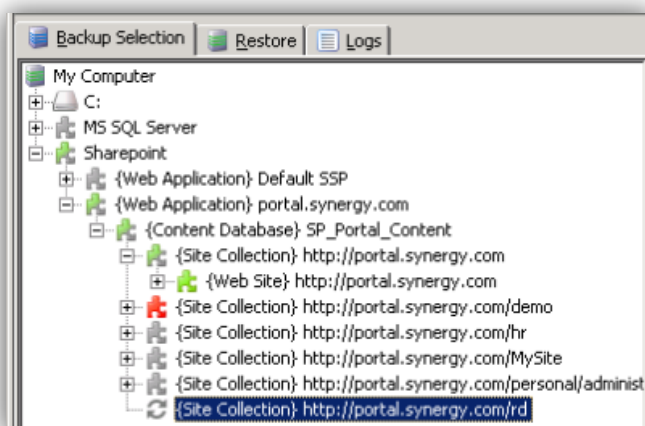
Note: The new SharePoint 2007 Attix5 Plug-in required the installation of .Net 3.5 SP1. This applies for both SharePoint 2003 and 2007 when using the Attix5 SharePoint Plug-in V3.0 and above. This requires that .Net be installed prior to any upgrade of the previous 2003 SharePoint Plug-in.

Installation and Configuration

Notes:

- Attix5 Pro SE and the Attix5 SharePoint plug-in must be installed on a physical SharePoint server that is joined to the farm that is required for backup.
- Please refer to the additional information provided in the “Attix5 SharePoint Disaster Recovery” guideline.

Run the Plug-in Installer and select the **SharePoint** plug-in to add the plug-in to the existing SE Client. After the upgrade, open the client.



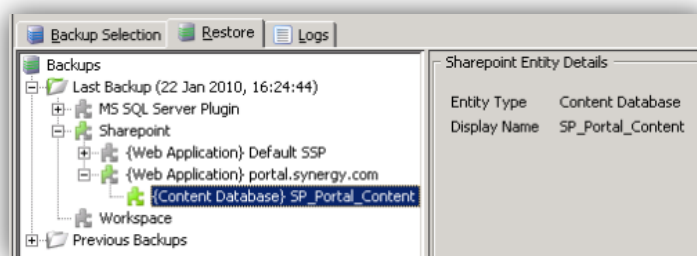
After the installation, a new node will be available in the left-hand pane, called **SharePoint Farm**. The plug-in will automatically communicate with the SharePoint farm using the SharePoint APIs and then retrieve and display a hierarchy of content in the tree. As seen in the image on the left,


individual files are displayed on the right-hand side.

Browse through the available nodes and select the items that you want to back up as you would select files and folders in the default **Backup Selection** tab. Once you have made your selection, you can click the **Backup** toolbar button to initiate the first backup.

Restoring SharePoint data

Restoring SharePoint data is as simple as selecting the applicable SharePoint node and the required sub-nodes in the left-hand pane and then any individual files, if needed. The plug-in does the rest.




Open the  **Restore** tab, select the required databases and files in the **SharePoint** section and then click on the **Restore** button in the toolbar.

Specify the restore location, and then click **Ok**. The SE Client will restore the files to the specified location and the SharePoint plug-in will pick up the files and restore it to the SharePoint server.

Once the restore is completed, confirmation will be supplied in the **Restore** dialog box and the log file.

For a complete **Disaster Recovery**, first reinstall SharePoint, then select the complete **SharePoint** node and do the restore.

 **Note:** For Disaster Recovery, the server being restored to must have the same hostname as before. Please refer to the additional information provided in the “Attix5 SharePoint Disaster Recovery” guideline.

4. MS VSS Database plug-in

Attix5 Pro makes use of the MS Volume Shadow Copy Service (VSS) to back up open files like your Outlook PST file, which is just a fraction of what VSS can do. The MS VSS Database plug-in utilises VSS on a much more advanced level by allowing you to protect any VSS-enabled database and application available on your server with a single plug-in; without the need for a database dump.

VSS Explained

Please note that this explanation will only focus on functionality related to databases, even though VSS is not limited to databases. VSS (Volume Shadow Copy Service) consists of three basic components:

- 1. Writers (e.g. MSSQL)**

It is the responsibility of each database vendor (MS SQL, Oracle, Exchange, etc) to develop a VSS writer which will allow a requestor (see below) to back up the data without having to understand the exact inner workings of the database engine. The writer ensures data consistency and provides a safe way to back up the data, even while the application or database is still running. It provides a common backup interface that is similar across all databases, regardless of the vendor. Using writers is a way to ensure that the database vendor controls the data access, not an outside party.

- 2. Requestors (e.g. Attix5 Pro)**

A requestor initiates the VSS process. The requestor uses a generic set of instructions to initiate the VSS process and read data from the database. The instructions are the same regardless of the database being backed up.

- 3. Providers (e.g. Microsoft Windows)**

The provider is the interface to the point-in-time imaging capabilities. An in-depth discussion of providers is not needed for the purpose of this document. It is more important to understand the Writer and Requestor.

The Attix5 VSS Database Plug-in

The VSS database plug-in is a “Requestor” that (in theory) can back up any database or service that has a VSS writer. These would include MS Exchange, MS SQL, System state, Registry and Active Directory to name a few. In short, it works like this:

1. During the first backup, the VSS plug-in connects to the VSS writer of the database, reads all the data and compresses it to the **ToBackup** folder from where it is transmitted to the Storage Platform - **no database dump is done**.
2. After the backup, the data that has been sent to the Storage Platform is moved from the **ToBackup** folder to the cache.
3. For subsequent backups, the data in the cache is compared to the database data as it is being read by the VSS plug-in, to work out patches which is again stored in the **ToBackup** folder.
4. The patches are transmitted to the Storage Platform.
5. After transmission to the Storage Platform the cache is updated by applying the patches to the files in the cache.
6. Repeat from step 3.

It can be seen that with the VSS plug-in, databases are treated as large files with no need to dump them separately. If delta blocking is used, the disk space requirements are further reduced (at the expense of larger backups).


Advantages

- Makes use of a generic set of instructions. So as new Writers are developed for databases, Attix5 Pro should be able to back them up via the VSS Database plug-in.
- NO DUMP SPACE needed. The VSS Database plug-in reads the data directly from the database, without the need to make a database dump.
- The backup should be much quicker since data is not first dumped and then patched and compressed.

Disadvantages

- Not all the features that are provided in the existing Attix5 Pro plug-ins are available in the VSS plug-in (for example to use an Exchange recovery group).

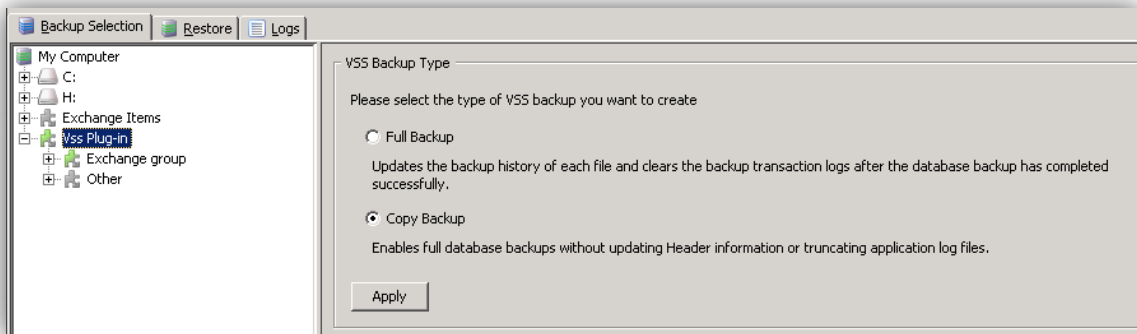
Installation and Configuration

 **Note:** The VSS Database plug-in can only support VSS enabled databases, applications and files on the local machine where it is installed.

Run the Attix5 Pro Plug-in Installer and select the **VSS Database** plug-in to upgrade the SE Client with the plug-in. After the upgrade, open the Attix5 Pro Client.

You will note a new entry in the left-hand pane, called **VSS Plug-in**. The VSS Database plug-in will automatically display all the writers available on the server. If you do not see the expand option (+) next to the **VSS Plug-in** node, right-click the node, and then select **Refresh** on the shortcut menu that appears.

When you select the **VSS Plug-in** node, the VSS Backup options display in the right-hand pane.




Select the type of backup you wish to perform: **Full Backup** or **Copy Backup**.

Full Backup

Following a Full Backup, the backup history of each file will be updated and, in the case of Exchange writers, the backup transaction logs will be truncated. This option saves disk space but could cause problems during a restore, depending on your restore process/setup.

Copy Backup

Copy Backups leave the backup history of each file and the application logs as they were before the backup. This is recommended if you wish to be able to recreate the database using the log files.


 **Warning:** If both the SQL database and Exchange server are on the same machine, the Full/Copy setting will apply to both.

Browse through the available writers and select the items as you would select folders in the left-hand pane. Once you have made your selection, you can click the **Backup** toolbar button to initiate the first VSS Database plug-in backup, as described earlier in this document.

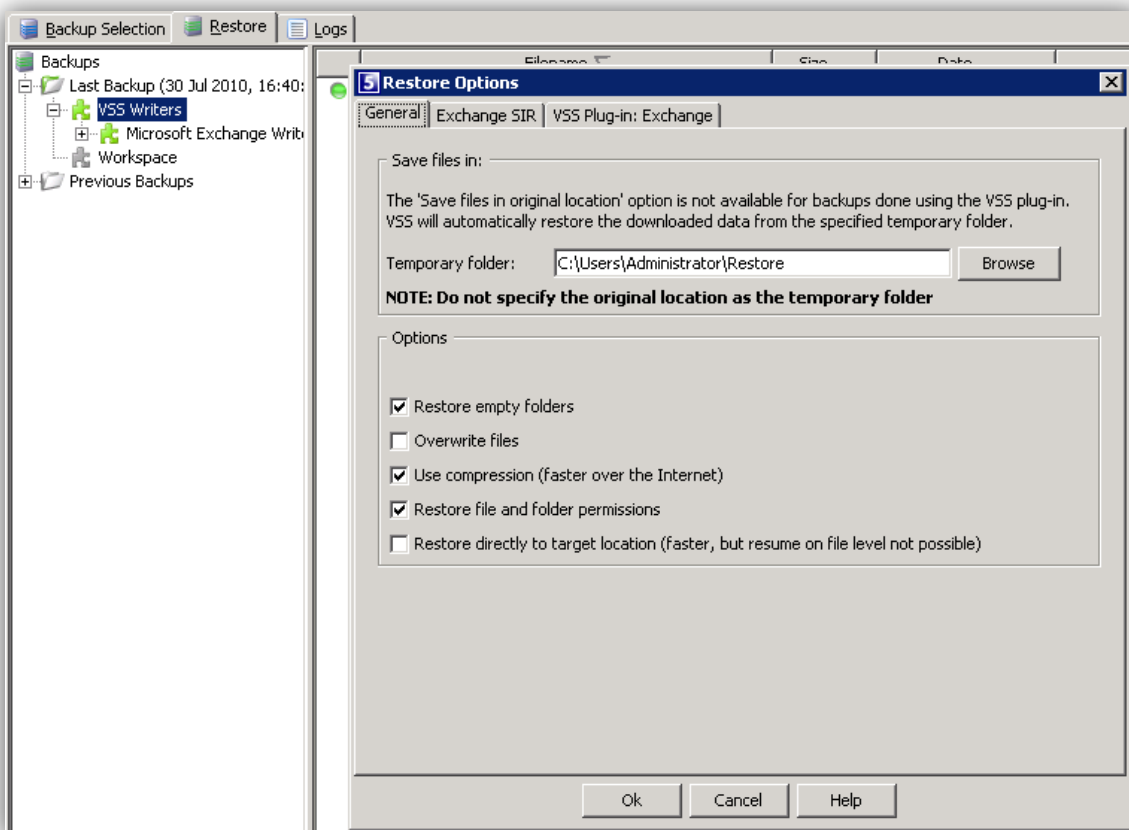


***Tip:** If selecting the Microsoft Exchange Writer, you have the option to bypass the database integrity check. Please note that integrity checking is recommended by Microsoft but may slow the backup preparation process down significantly. It should only be skipped if it is certain that the files are in a good state and can be used for recovery.*

Restoring Databases Using the VSS Database Plug-in

Open the  **Restore** tab, select the required databases and files in the VSS Writers section and then click on the **Restore** button in the toolbar.

The **Restore Options** dialog box will appear. On the **General** tab, you will note that you cannot restore to the original location when selecting any items from the VSS Database section as VSS will do that once the data is restored. Select a temporary restore location using the **Browse** button or enter a path to on in the **Temporary folder** box.






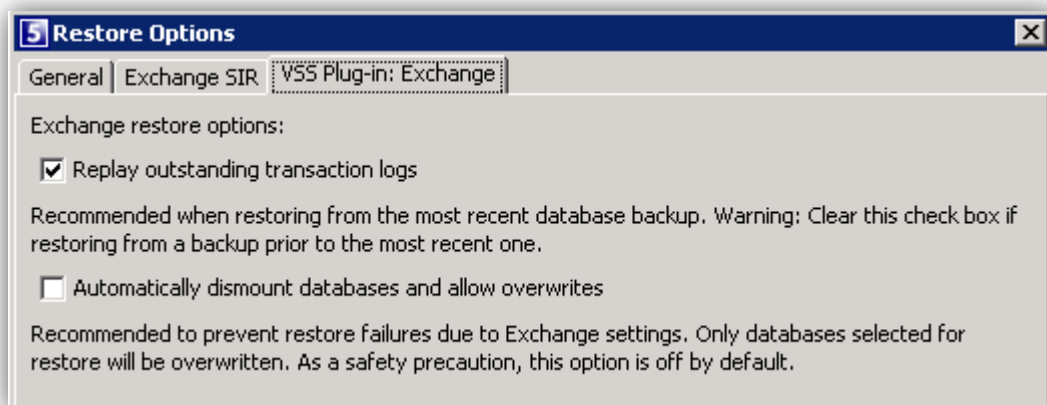
Tip: A **VSS Plug-in: Exchange** tab in the **Restore Options** dialog box enables you to configure VSS Exchange-specific restore options. If restoring Exchange Writer items, ensure that you configure this tab, before proceeding to the next step.

Once you have configured all the relevant restore options, click **Ok**.

The SE Client will restore the files to the specified location and VSS will thereafter pick up the files and restore them to the applicable database. Confirmation will be supplied in the **Restore** dialog box and the log file once the restore is completed.

Example: Restoring Microsoft Exchange Writer using the VSS Database Plug-in

1. Open the  **Restore** tab, expand the **VSS Writers** node, and then select the **Microsoft Exchange Writer** node.
2. Include the writer by right-clicking the node, and then selecting **Include** on the shortcut menu that appears.
3. Click the **Restore** button in the toolbar. The **Restore Options** dialog box will appear.
4. On the **General** tab, you will note that you cannot restore to the original location when selecting any items from the VSS Database section as VSS will do that once the data is restored. Select a temporary restore location using the **Browse** button or enter a path to on in the **Temporary folder** box.
5. Click the **VSS Plug-in: Exchange** tab and configure the restore options.



Tips:

- It is recommended that **Replay outstanding transaction logs** be enabled when restoring from the most recent database backup. Please note that you need to disable this option if restoring from a backup prior to the most recent one.
- **Automatically dismount databases and allow overwrites** is disabled by default (as a safety precaution) but enabling it is recommended to prevent restore failures due to Exchange settings. Only databases selected for restore will be overwritten.

6. Click **Ok**.

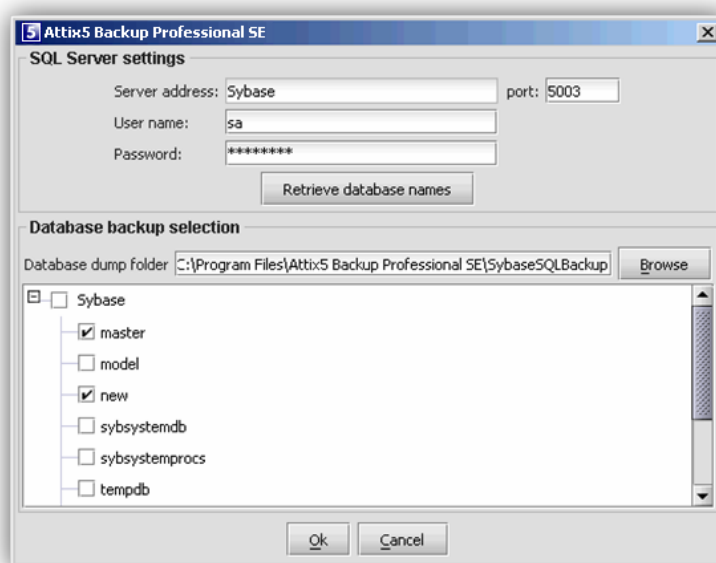
5. Sybase ASE 12.5

Critical data protection of any Sybase ASE 12.5 database, while the application is online, is possible with the Attix5 Sybase ASE 12.5 Plug-in. Restore options include recovering from a specific backup date and redirecting to another Sybase database.

Installation and Configuration

Note: Attix5 Pro SE with the Sybase Plug-in needs to be installed on a server running Sybase and the Sybase services must be running.

To upgrade SE with the **Sybase** plug-in, run the Plug-in Installer and select the Sybase plug-in. After the installation, open the Attix5 Pro Client.



To configure the Sybase settings, open the **Tools** menu, select **Plug-ins** and click **Sybase**.


SQL Server settings: Enter the username and password that the SE Client will use to connect to the local Sybase Server. Make sure that you change the port to the correct port that Sybase is configured to use. Click **Retrieve database names**. You will see a list of all the available Sybase databases.

Database backup selection: Select where you would like the Client to create the Database dump folder. This folder is used by the Client to dump a copy of the selected databases from where they will be backed up. The default folder is C:\Program Files\Attix5 Pro SE\SybaseSQLBackup.

Note: Ensure that your computer has enough free hard drive space to store a data dump of all the selected databases.

After you have selected the databases, click **OK** to close the window. Your Sybase Backup is now configured. To create your first backup, select **Backup Now** on the **File** menu. Attix5 Pro will create an exact copy of the selected databases in the dump folder. These files will be compressed and transferred to the Storage Platform. The next backup will compare the selected storage groups with the selection from the previous backup, which is stored in the cache. Attix5 Pro will create a patch file for each database. This file consists of all the changes made to the database since the last backup. Only the patch files and any new selections will be backed up.

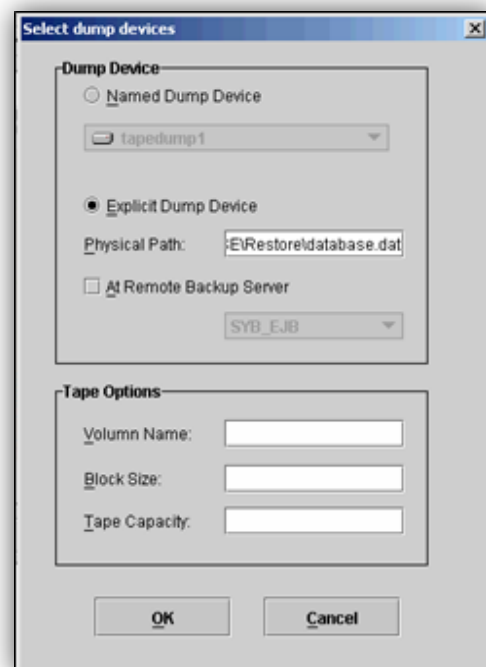
How to Restore a Sybase Database

The first step is to restore the database from the Storage Platform. Click the  **Restore** tab, and then select the dump folder from the specific backup date. On the **File** menu, click **Restore**. Select a restore location and restore the database.

Open the **Sybase Central Java Edition** and connect to the **Adaptive Server Enterprise** by selecting **Connect** on the **Tools** menu. Expand the Sybase server tree in the left-hand pane until you can see the available databases in the right-hand pane. Right-click the database that you wish to restore, and then select **Restore**. If the database does not exist, you have to create a new database first. Make sure that you allocate enough space in the database to restore the data into the new database. Select **Restore the entire database**, and then click **Next**.

In the next window, you need to select a dump device. Click **Add**, change the Dump Device to **Explicit Dump Device**, type the path (including the database name) to the location in which you restored the database, and then click **OK**. You will see that the dump device is included in the list. Click **Next** and then **Finish**, to continue with the restore.

A window will be displayed with all the SQL commands. The next step is to bring the database online. Open **Utilities** in the left-hand pane in the **Sybase Central Java Edition** and open **JISQL** from the right-hand pane. Type your username and password to connect and then click **OK**. Type the command **online database database_name** in the **Input window** and click **Go**. The **Status window** will confirm that the database is online.



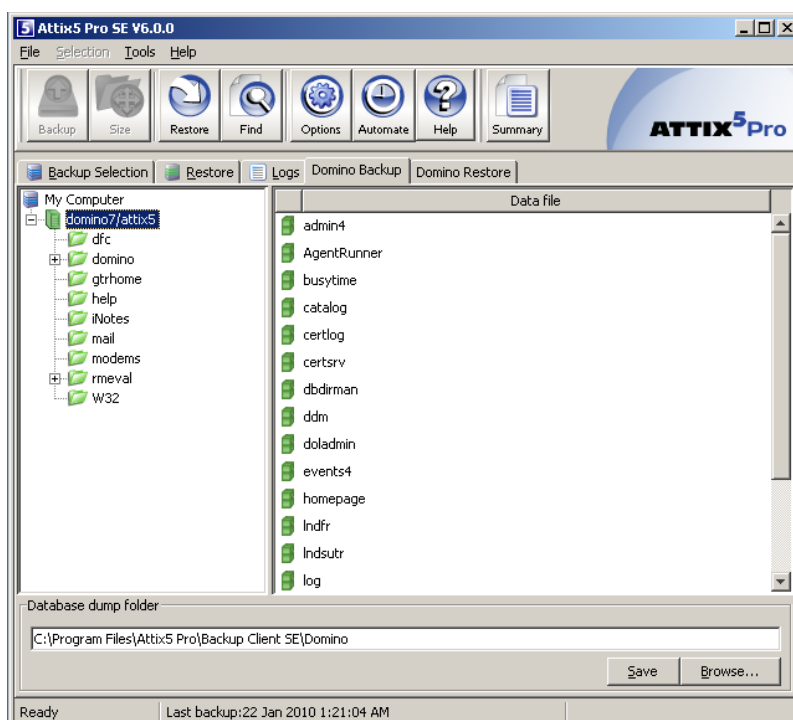
6. Lotus Domino 6.5 / 7

Integrate the critical data protection of Lotus Domino messaging and collaboration databases within daily backup activities. Using the native Domino backup API, this option integrates non-disruptive data protection of the database and transaction logs. Flexible restore options include database redirection and point-in-time roll back recovery of databases or transaction logs. Lotus Domino plug-in for version 6.5 and 7 also gives administrators the flexibility to perform individual mailbox backup with selective restores of individual messages.

Installation and Configuration

Note: Attix5 Pro SE with the Lotus Domino Plug-in should be installed on a Lotus Domino server as it automatically configures the communications between the two applications. The Domino services must be running in order for the Plug-in to access the files selected for backup.

To upgrade SE with the Lotus Domino plug-in, run the Plug-in Installer and select the **Lotus Domino 6/7** plug-in. After the installation, open the Attix5 Pro SE Client.



If you are familiar with the SE Client interface, you will notice that there are two new tabs, **Domino Backup** and **Domino Restore**.

Open the **Domino Backup** tab. The SE Client displays the Domino Server in the left-hand pane.

The **Domino Backup** tab enables you to select the components that you wish to backup. To select the Domino Server or any of its subfolders, right-

click the folder name in the left-hand pane and **Include** the selection. Individual files can be selected in the right-hand pane. If you **Include** the **Domino Server**, you will automatically back up the entire Domino Server as well as any new files added to the server in future.

Select the location for the **Database dump folder** beneath the selection window. The default path is `C:\Program Files\Attix5 Pro\Backup Client SE\Domino`. A copy of the selected components from the Domino server is created in this folder should you wish to change this location, use the **Browse** button. From here, the files will be encrypted and backed up.

The SE Client requires working space for the cache (which is compressed), a temporary copy of each database (the dump folder) and temporary disk space for creating patches to be sent to the Storage Platform.



Notes:


- *Make sure that your computer has enough free hard drive space to store a data dump of all the selected databases.*
- *Note that you have to click the **Save** button after you have made your selection. The **SE Client will not backup the selected components if you do not save the selection.***

Your Domino Server Backup selection is now configured.

The Backup Process: To create your first backup, select **Backup Now** on the **File** menu. Attix5 Pro will create an exact copy of the selected components in the dump folder. These files will be compressed and transferred to the Storage Platform. Subsequent backups will be compared with the selection from the previous backup. Attix5 Pro will create a patch file for each database or mailbox with all the changes made since the last backup. Only the patch files and any new selections will be backed up.

How to Restore a Domino Server

Open the SE Client and click on the **Domino Restore** tab.

You first have to retrieve the dump folder from the Storage Platform before you can restore the Domino Server. Click the  **Restore** tab, select the dump folder from the specific backup date and restore the folder to its **original location**.

On the **Domino Restore** tab, use the **Browse** button to select the Recovery folder that you restored from the Storage Platform. The default path is `C:\Program Files\Attix5 Pro SE\Domino`. The Domino Restore tab displays all files available from the specific backup. Note that you have to browse and select the **Recovery folder** before you will be able to view the data. You can browse through the available folders to select the specific mailboxes and files, or you can select the top node to restore all available files.

A Full Media Restore is initiated by enabling the check mark next to **Full Media Recovery**. This option selects the entire backup set, including the necessary configuration files (ini file, cert

ID and server ID) to do a full media restore. The procedure when you have to do a Full Media Recovery:

1. Install the Domino Server
2. Run the Domino setup, but **DO NOT START THE SERVER**
3. Restore the recovery folder
4. Do a Full Media Recovery
5. Start the Domino Server

After you have selected the files that you want to restore and click on **Restore**.




Note: *The selected databases or mailboxes should be closed during the restore process.*

The SE Client will restore the selected files to the Domino Server and the SE Client will notify you when the restore has been completed. You are advised to initiate a full backup after recovering a large amount of data.

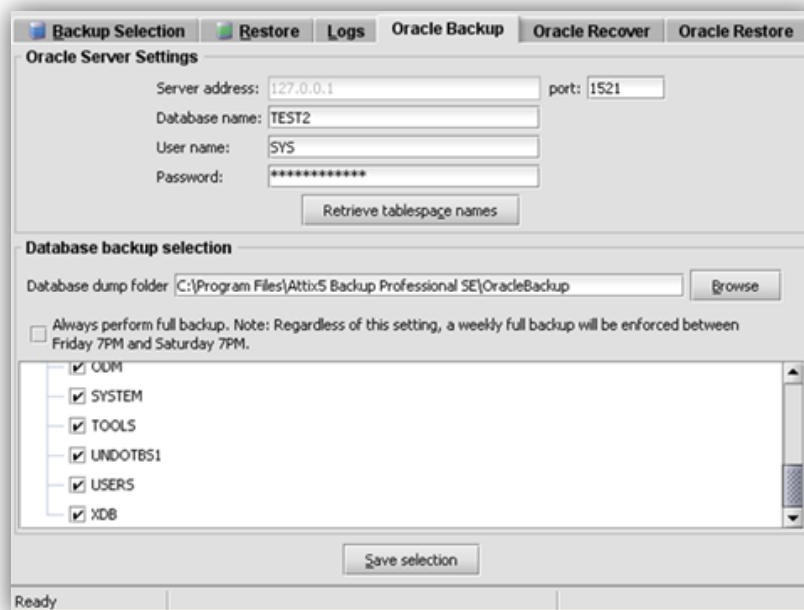
7. Oracle 9i / 10g

The Oracle plug-in, combined with the SE Client, provides an automated backup solution for your Oracle Database at tablespace level. The plug-in will ensure that your business-critical data is protected in case of corruption or loss. New files are automatically included for backup without having to open the interface and selecting the files. Restore options include full media, tablespace or datafile recovery.

Installation and Configuration

 **Note:** Attix5 Pro SE with the Oracle plug-in needs to be installed on an Oracle Server and the Oracle services must be running.


To upgrade Server Edition, run the Plug-in Installer and select the **Oracle 9i/10g** plug-in. After the installation open the SE Client.




It is very important to ensure that the database is in Archive Log mode. Open the Oracle Enterprise Manager Console, right-click on the database and select **View/Edit Details**. Click the **Recovery** tab and enable **Archive Log mode** and **Automatic archival** if it is not enabled. The database will have to be restarted. Open the SE Client and click on the **Oracle Backup** tab to configure the necessary settings.

Oracle Server settings: Enter the database name, user name and password that the SE Client will use to connect to the Oracle database. Leave the port at its default setting of 1521. Click **Retrieve tablespace names**. A list of all the available tablespaces will be displayed.

Database backup selection: Select where you would like the SE Client to create the Database dump folder. This folder is used by the SE Client to dump a copy of the selected datafiles from where they will be backed up. The default folder is C:\Program Files\Attix5 Pro\Backup Client SE\OracleBackup.

 **Note:** Ensure that your computer has enough free hard drive space to store a data dump of the selected datafiles.

Select the tablespaces that you wish to backup. Selecting the root (127.0.0.1) will back up all the tablespaces. The SE Client will perform a full backup of the selected files during each backup if you enable the **Perform Full Backup** check box. If you do not enable full backups, it will only backup the archive logs.


 **Note:** The SE Client will enforce a weekly full backup between Friday 7PM and Saturday 7PM.

Click **Save** selection. **The SE Client will not back up the selected datafiles if you do not save the selection.**

Your Oracle Server Backup is now configured. To create your first backup, select **Backup Now** from the **File** menu. The SE Client will create a hot backup of the selected datafiles in the dump folder. These files will be compressed and transferred to the Storage Platform. The next backup will compare the selected storage groups with the selection from the previous backup, which is stored in the cache. The SE Client will create a patch file for each datafile. This file consists of all the changes made to the datafile since the last backup. Only the patch files and any new selections will be backed up.

How to recover an Oracle tablespace or datafile

You have the option to either recover or restore Oracle tablespaces or datafiles. If you **recover** the datafiles, The SE Client will ensure that the tablespace or datafile is offline, restore the data to its original place, recover the data and place the datafiles online again. **This cannot be done with the System tablespace, as it has to be online when you restore it.**

The first step is to retrieve the files that you want to restore from the Storage Platform. Click the  **Restore** tab and select the dump folder from the specific backup date. On the **File** menu, click **Restore**. Select a **restore location** (do not restore to the original location) and ensure

that you select the **recreate the directory structure** check box. Restore the files. After the files have been restored, open the **Oracle Recover** tab.

Oracle Server Settings: Supply the Oracle database name and your user name and password that you use to connect to the Oracle database. **Server Restore selection:** Use the **Browse** button and select the Recovery Folder where you restored the data from the **Restore** tab.

Click **Retrieve Tablespaces**. A list of the available tablespaces and datafiles will be displayed. Select the datafiles that you wish to recover and click on **Recover**.

The files will be taken offline, the data will be restored to their original locations and the files will be recovered. The SE Client will place them online after they have been recovered.



Advanced Note: *If the restore dialog window displays any warnings or errors in red, it is probably requiring a log file that is not located in the default location. In such a case, you need to perform a manual recovery using SQL Plus, as described below.*

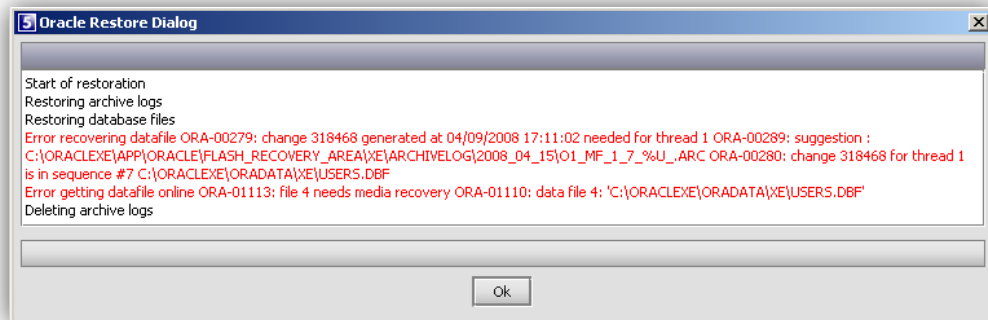
Manual Recovery using SQL Plus (as sysadmin)

Follow these steps if the Recovery Tab restore process failed.

1. Open SQL Plus and log in as sysadmin
2. Run the command **Alter database recover cancel;**
3. And then **Recover datafile 'path to table space';**
4. Follow the on screen prompts. You may be asked to supply the path to specific log files. These log files form part of the backup selection and would have been restored to the specified dump folder during the restore process. If you cannot find it, search for the missing log files in the backup history. You can either supply the path (remember to use inverted commas) or copy the files to the Oracle folder listed in the error message.
5. Next you must set the database to online again with **Alter database datafile 'path to table space.dbf' online;**
6. The last step is to open the database with **Alter database open;**
7. The Oracle database will be opened and ready.



Manual Recovery Example: If you see the follow error, or something similar as the log names will not be the same, you must follow the above-mentioned steps to recover the database.



- Run the command **Alter database recover cancel;**
- And then **Recover datafile 'C:\oraclexe\oradata\xe\users.dbf';**

```
SQL> recover datafile 'C:\oraclexe\oradata\xe\users.dbf';
ORA-00279: change 318468 generated at 04/09/2008 17:11:02 needed for thread 1
ORA-00289: suggestion :
C:\ORACLEXE\APP\ORACLE\FLASH_RECOVERY_AREA\XE\ARCHIVELOG\2008_0
4_15\O1_MF_1_7_%U_.ARC
ORA-00280: change 318468 for thread 1 is in sequence #7
```

Specify log: {<RET>=suggested | filename | AUTO | CANCEL}

- If you hit RET, it will automatically try to use the suggested file, as specified in the example. If the file is not available in the folder, a message will be displayed:

```
ORA-00308: cannot open archived log
'C:\ORACLEXE\APP\ORACLE\FLASH_RECOVERY_AREA\XE\ARCHIVELOG\2008_
04_09\O1_MF_1_8_3ZSQ4MML_.ARC'
ORA-27041: unable to open file
OSD-04002: unable to open file
O/S-Error: (OS 2) The system cannot find the file specified.
```

- If the file cannot be found you have two options. Either point SQL Plus to the Recovery folder with the **filename** command, or you can copy the file into the required Oracle folder, C:\ORACLEXE\APP\ORACLE\FLASH_RECOVERY_AREA\XE\ARCHIVELOG\2008_04_09\ in the example above.
- Files are copied back to the Oracle folder in this example. Once the file has been copied, press RET to continue.
- And then **Recover datafile 'C:\oraclexe\oradata\xe\users.dbf';**

```
SQL> recover datafile 'C:\oraclexe\oradata\xe\users.dbf';
ORA-00279: change 318494 generated at 04/09/2008 17:11:10 needed for thread 1
ORA-00289: suggestion :
```

```
C:\ORACLEXE\APP\ORACLE\FLASH_RECOVERY_AREA\XE\ARCHIVELOG\2008_04_15\O1_MF_1_8_%U_.ARC
ORA-00280: change 318494 for thread 1 is in sequence #8
```

Specify log: {<RET>=suggested | filename | AUTO | CANCEL}

```
ORA-00279: change 318498 generated at 04/09/2008 17:11:15 needed for thread 1
ORA-00289: suggestion :
C:\ORACLEXE\APP\ORACLE\FLASH_RECOVERY_AREA\XE\ARCHIVELOG\2008_04_15\O1_MF_1_9_%U_.ARC
ORA-00280: change 318498 for thread 1 is in sequence #9
ORA-00278: log file
'C:\ORACLEXE\APP\ORACLE\FLASH_RECOVERY_AREA\XE\ARCHIVELOG\2008_04_09\O1_MF_1_8_3ZSQ4MML_.ARC' no longer needed for this recovery
```

Specify log: {<RET>=suggested | filename | AUTO | CANCEL}

- Continue with the **Recover datafile 'C:\oraclexe\oradata\xe\users.dbf';** command and supplying the log files until you see the following message

...

Specify log: {<RET>=suggested | filename | AUTO | CANCEL}

Log applied.

Media recovery complete.


- **Alter database datafile 'C:\oraclexe\oradata\XE\users.dbf' online;**

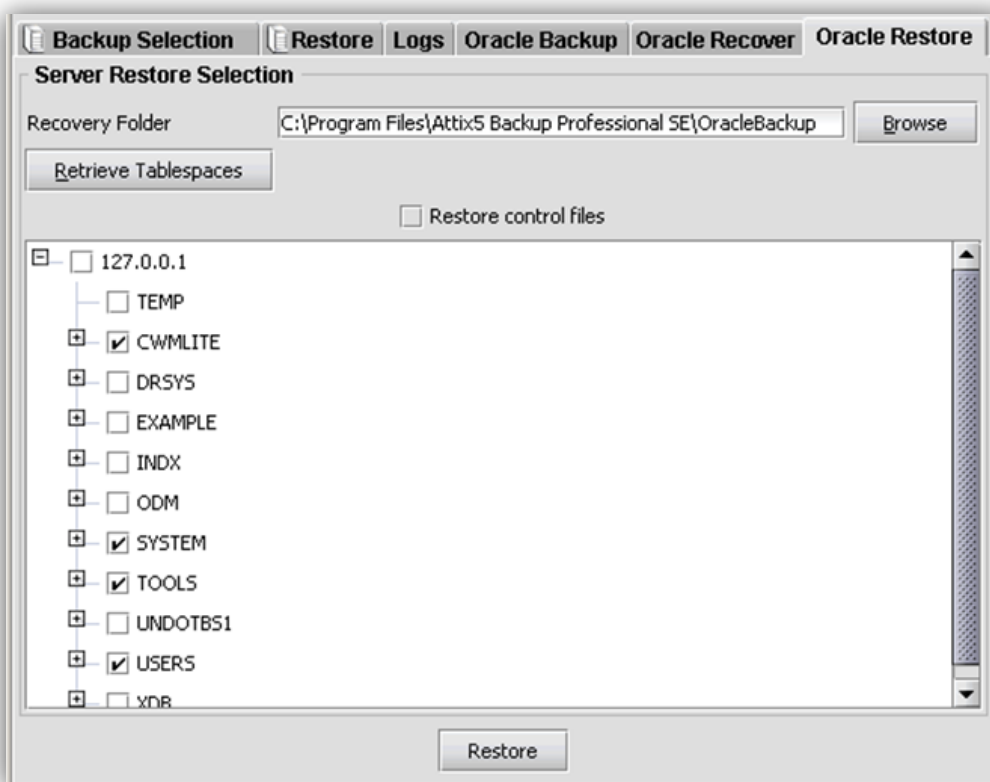
Database altered.

- **alter database open;**

Database altered.

How to restore an Oracle tablespace or datafile

The first step is to retrieve the files that you want to restore from the Storage Platform. Click the  **Restore** tab and select the dump folder from the specific backup date. On the **File** menu, click **Restore**. Select a restore location and restore the files. Do not recreate the directory structure.



There are a few different scenarios when recovering an Oracle database, tablespace or datafile. After you have selected the recovery folder (the folder to where you restored the data) click on **Retrieve Tablespaces**. A list of the available tablespaces will be displayed. **Restore control files** must be enabled when you do a full restore. When you click **Restore**, the SE Client will remind you to make sure that the database is offline. If you are only restoring a few datafiles, make sure that they are offline before continuing. Change the necessary settings and click **Restore**. The SE Client will restore the selected files to their original location but they will not be recovered. After the Client has restored the files, you have to manually recover the files and start the database.

The following examples provide some assistance if you prefer to restore the data using SQL Plus. Please note that these are advanced Oracle settings and that you need the required Oracle skills to attempt any of these options.

Oracle tablespace or datafile Recovery

Recovering a Closed Database

Media or hardware failure:

1. Determine which datafile or datafiles need to be recovered.
2. Shutdown immediately.
3. Open the SE Client and restore the dump directory from the Storage Platform. Open the **Oracle Restore** tab and select the files that you want to restore. Click on **Restore**.
4. Open SQL Plus with the following command: **sqlplus /nolog**
5. **Connect / as sysdba**
6. Mount the database with the **startup mount;** command
7. **Recover datafile 'c:\data\datafile1.dbf'; or recover tablespace tablespacename; or recover database;**
8. Open database.

Recovering a Opened Database

Media or hardware failure (Not the System Tablespace):

1. Determine the datafile or datafiles that need to be recovered.
2. Open **sqlplus /nolog** and **connect /as sysdba**
3. Take the datafile offline **alter database datafile 'filename' offline;**
4. Open the SE Client and restore the dump directory. Select the datafile that you want to restore.
5. **Recover datafile 'c:\data\datafile1.dbf'; or recover tablespace tablespacename;**
6. Bring the tablespace or datafile online (Step 16 in the next section – Recovery/Full Recovery)

Recovering a Database

Media or hardware failure (System Tablespace):

1. Unlike other tablespaces, the SYSTEM tablespace must be available in order to open the database. Therefore, if any members of the system tablespace are damaged, they must be restored now. Before doing this, make sure that the database is not open. It may be mounted. To make sure, run the following command on the mounted, closed database.
2. C:\Oracle\Ora92\bin> **sqlplus / nolog**
3. **connect / as sysdba**

4. **select status from v\$instance;** The following will be displayed:

```
STATUS
-----
MOUNTED
1 row selected.
```

5. If the database is not open, restore the damaged files from the most recent backup available restore dump directory and select the datafiles. Once all damaged files in the system tablespace are restored, run the following command on the mounted, closed database:
6. **recover tablespace system;**
7. **alter database open;**
8. **quit**

Full Media Recovery

Recovery to the same location:

1. Open SQL Plus and stop the database with the **shutdown abort;** command.
2. Open the SE Client and Restore the entire dump folder from the Storage Platform. Open the **Oracle Restore** tab and restore all files including the control files.
3. Mount the database in SQL Plus: **startup mount**
4. **Recover database using backup controlfile;** Accept the default path that is suggested when restoring the log files. If the last log file cannot be located run the recover database using backup controlfile; command again and supply the path to the redo folder that you restored as well as the filename of the redo log file within that folder.
5. **Alter database open resetlogs;**
6. The Oracle database will be opened and ready.

8. Email Notification

The Email Notification plug-in enables you to receive email notification on backup activity. You can configure the plug-in to notify you on a specified email address when a backup has been successful, when it failed or both. The level of information can also be specified.



Note: Please refer to the Attix5 SE Client User manual seeing that this Plug-in comes standard with every SE Client installation.

Installing the Email Notification plug-in

This plug-in has been included in SE installers since v4.2. If it is not installed, run the Plug-in Installer and select the **Email Notification** plug-in.



Note: The Plug-in installer will run automatically during the SE Client installation if located in the same folder as the Client MSI.

Configuration and Use

To configure the email notification plug-in:

1. On the **Tools** menu, point to **Plug-ins**, and then click **Email Notification**.
2. Select the **Use email notification** check box to enable the plug-in.
3. Select the types of notifications to be emailed. The following options are available:
 - Notify me when a backup fails
 - Notify me after a successful backup
 - Append the subject line with the following options and message:
 - Warnings
 - Errors

**Notes:**

- You can modify the Email subject and content for each of the options by clicking in the relevant message box, and then editing the text.
- The Backup Account name is automatically included in the subject, e.g. "Backup Completed [Backup Account name]".

4. In the Mail Settings area, type **To** and **From** email addresses in the fields provided and supply the SMTP server address and authentication information if necessary.

**Tips:**

- In the **SMTP Server** box, you can specify the SMTP Server name in isolation (e.g. mail.attix5.com) or you can include the port number (e.g. mail.attix5.com:80).
 - When no port is specified, 25 will be used by default.
5. Click the **Test** button to verify that the settings are correct. A test email will be sent to the address specified in the **To** field and a message will appear confirming if the email was sent successfully. Click **OK** to close the message and return to the **Email Notification settings** dialog box.
 6. Select the **Attach log file** check box to include a log file as an attachment.
 7. In the Attachment settings area, select one of the following options:
 - **Summary, warnings and errors**
 - **Entire log file (as per Advanced Options log level setting)**
 8. Click **OK** to save the settings and close the **Email Notification settings** dialog box.

The email notification plug-in is now activated and will start emailing reports during the next backup.

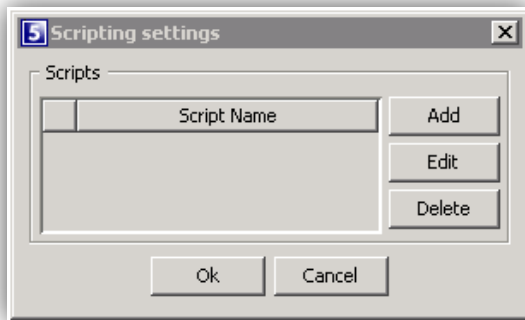
9. Script Plug-in

The Script plug-in enables you to execute scripts and batch files during the backup process. This allows you to prepare an application for backup and to create a data dump of a database. You can also stop and start applications or services before, during or after any backup.

Installing the Script Plug-in

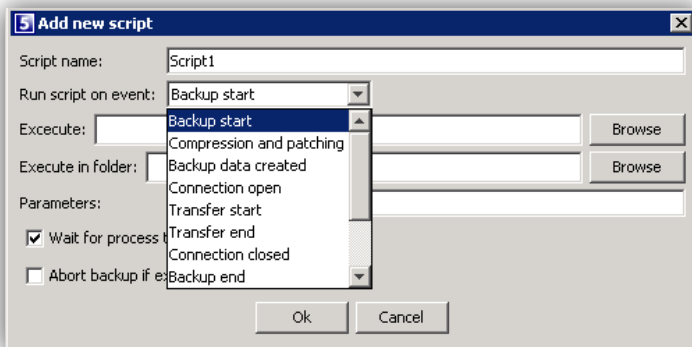
To install the Script plug-in, run the Plug-in Installer and select the **Script** plug-in. After the installation, open the SE Client interface.

Configuration and Use



To add scripts, open the **Tools** menu, select **Plug-ins** and click on **Scripting**.

The Scripting settings window allows you to **Add** new and **Edit** or **Delete** existing scripts. Click on **Add** to create a new script.



Start by supplying a Script name and specify when this script should run.

You can choose between:

- Backup/Restore start/end
- Backup data created
- Connection open/closed
- Backup/Restore Transfer start/end

Browse to the application or batch file that should be executed. Supply a location where it should be executed as well as any other **Parameters** needed.

Specify whether you want the SE Client to wait for the process to be completed before continuing with backup process by enabling the checkbox next to **Wait for process to complete**.


Click **Ok** to save the new script. You can enable/disable scripts by clicking in the checkbox next to the Script Name. After you have configured all your scripts, click **Ok** to close the Scripting settings window.

10. System State Backup Plug-in

The Attix5 Pro System State plug-in enables you to back up a collection of system-specific components as a unit to a target directory that is automatically included in the daily backup routine. These components include the following (depending on the operating system):

- Boot files, including system files, and all files protected by Windows File Protection (WFP)
- The registry.
- COM+ Class Registration database
- Active Directory
- SYSVOL directory

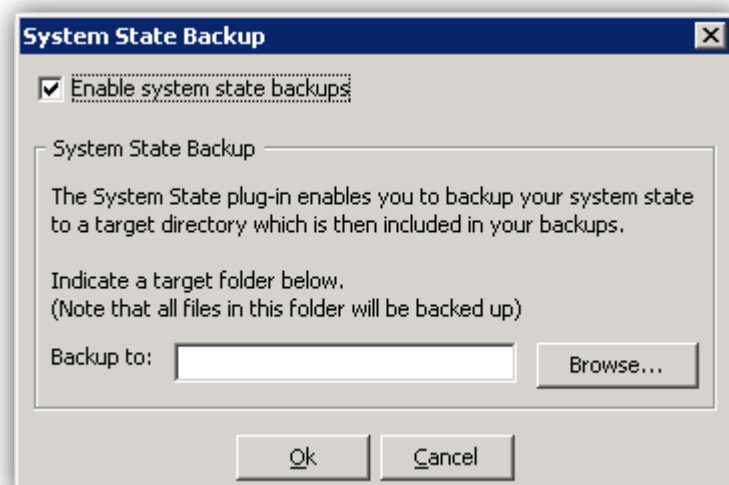
This plug-in is included in the SE installer. If it is not installed, run the Attix5 Pro Plug-in Installer and select **the System State Backup plug-in**. (For more information, please refer to the **Attix5 Pro Server Edition Plug-ins User Manual**.) After the installation, open the SE Client application window.

 **Note:** Please note that this plug-in is only supported from MS Windows 2000 up to Windows Server 2003. We recommend using System State Wbadmin for Server 2008 installations.

Installation and Configuration

Windows Server 2000 and 2003

1. On the **Tools** menu, point to **Plug-ins**, and then click **System State**.
2. In the **System State Backup** dialog box that appears, select the **Enable System State backups** check box.



3. A local target folder is required to create the System State backup. Type the path to a folder in the **Backup to** box or use the **Browse** button to specify it, and then click **OK**. If the target folder does not exist, the

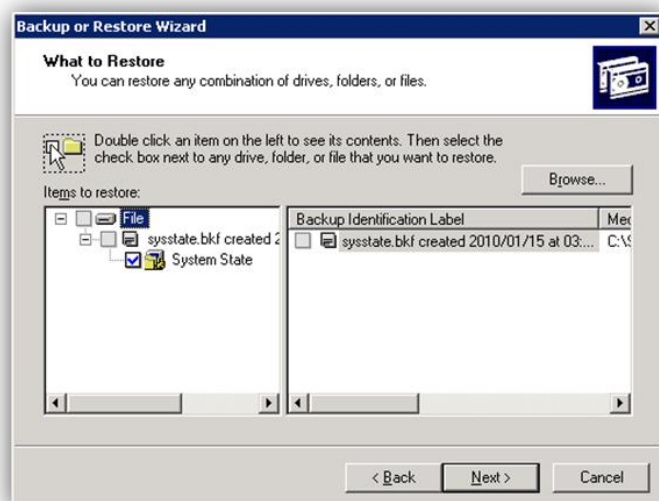
SE Client will display a message asking if it should create the folder. Click **Yes**. This folder will be included in the backup selection list automatically.

The System State plug-in is initiated at the beginning of each backup and uses Windows Backup and Recovery tools to create the backup file. SE continues with the rest of the backup procedure after the System State backup has been saved in the specified target folder.

Restore process

Windows Server 2000 and 2003 (complete recovery):

1. Click the **Restore** tab in the Backup Client.
2. Expand the backup date folder to restore from in the left-hand pane and restore the **sysstate.bkf** file located in the target folder (see step 3 in “To enable System State backups” [Windows Server 2000 and 2003] above).
3. Open the Windows Backup and Recovery application (**Start > All Programs > Accessories > System Tools > Backup**).
4. If the Restore Wizard does not appear by default, click **Restore Wizard** on the **Tools** menu. In the **Restore Wizard**, click **Next** to proceed to the **Backup or Restore** step.
5. Select **Restore files and settings**, and then click **Next**.
6. Browse to the restored **sysstate.bkf** file. (The default restore location is C:\SystemState.)
7. In the left-hand pane, expand **File > sysstate.bkf created**, and then select the **System State** check box.
8. Click **Next**, and then click **Finish** to complete the Restore Wizard.



11. Single Mailbox Recovery (SMR)

The SMR plug-in is used to backup and restore single Exchange server mailboxes. The SMR plug-in makes use of a robust Exchange tool called ExMerge to perform the backup and restore operations. However the plug-in presents a user interface façade to the ExMerge settings file (usually exmerge.ini) so that ExMerge can be configured from the Attix5 Pro SE client. Once configured, ExMerge can be run in 'batch' mode that does not require user interaction.

SMR no longer requires MAPI or a MAPI profile to perform its functionality as the plug-in makes a native call via the COM component to query LDAP for the list of Exchange mailboxes. The SMR Plug-in supports Exchange 2000 and 2003.

Installing the SMR Plug-in

To install the SMR plug-in on an existing SE Client, run the Plug-in Installer and select the **Exchange 2003** or **Exchange 2000 Single Mailbox Recovery** plug-in.

Additional files are created after running either SMR Backup, or SMR Restore, but these will be detailed later in this chapter. These files pertain to ExMerge settings with SMR Backup files having a 'smrb_' prefix, and SMR Restore files having a 'smrr_' prefix.

Additional server configuration

You have to change the **Attix5 Backup SE Service** Log On during start-up from the Local System account to an account with adequate permissions/administrative rights on the server to access the Exchange Information Store. Open the **Computer Management** console by right-clicking on the **My Computer** icon and selecting **Manage**. Expand the Services and Applications section and click on **Services**. Right-click on the **Attix5 Backup SE Service** and select **Properties**. Click on the **Log on** tab, select an Administrator account and supply the log on password.

Microsoft Exchange 2003 note: You must add an **ExMerge** security group to the server if you are using Microsoft Exchange 2003. Add this group by selecting **Active Directory Users and Groups** from the **Administrative tools** menu in the **Control Panel**. The user that you selected for the **Attix5 Backup SE Service** start-up must be added to this group.

SMR Backup – Configuring the Backup Settings

Select **Plug-ins** from the **Tools** menu and select **SMR Backup**. Enter the details as indicated in the dialog box (screenshot available on the following page). **Folder to backup to:** Specify where the mailbox PST's must be stored. SMR will specify <SE Root Dir>\pstbackups by default but this can be modified to any location visible on your server, including mapped drives.

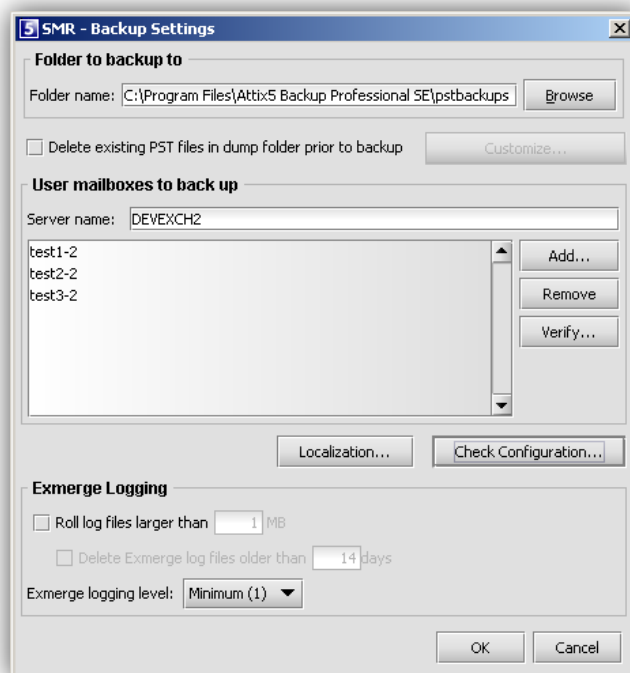
Exmerge appends a PST file with the changes since the last backup. The file may therefore increase during each backup and Exmerge cannot reduce the size of the PST file. The **Delete existing PST files** option enables you to specify that existing PST files must be deleted during the backup process. A smaller file will be generated and compared with the copy in the Cache to create the patch. This option is especially useful after reducing mailbox limits/sizes in the Exchange server. Click on **Customize** to specify which days of the week you wish to delete the

PST files in the dump folder. All days are selected by default.

User mailboxes to back up: Here you must provide the name of your Exchange server in the **Server Name** text field and the '**Add ...**' and '**Remove**' buttons are used to select/remove the Exchange mailboxes. See the '**Add...**' note below.

The **Verify** button can be used to verify whether the selected mailboxes are in sync with Active Directory. The plug-in will list any missing mailboxes and provide you with the option to remove them from the list.

Use the **Localization** button at the bottom of the SMR Backup window in case you are experiencing problems connecting to the Exchange Server.

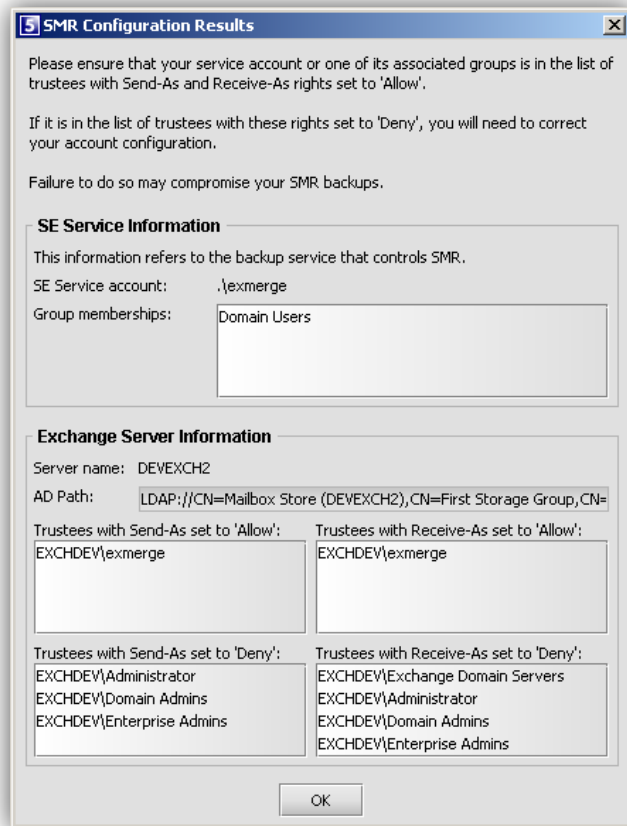


The **Check Configuration** button determines whether the SE service has sufficient permissions to access Exchange and the SMR Configuration Results page will provide in depth information about the configuration, and possible permission issues.

Please ensure that your service account or one of its associated groups is in the list of trustees with Send-As and Receive-As rights set to **Allow**.

If it is not, you will have to correct your account configuration. Failure to do so may compromise your SMR backups.

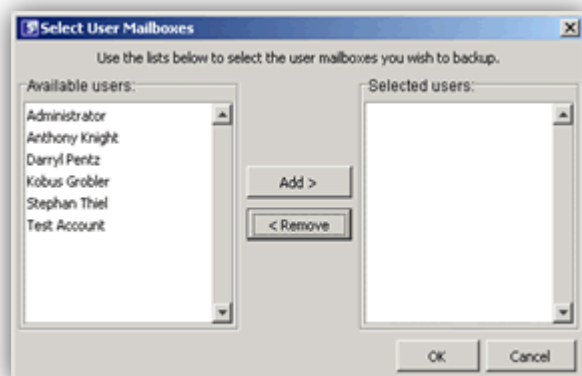
The one exception to this is if your SE account is setup as LocalSystem. In this case, the 'Check Configuration' feature will simply warn you that it is set to LocalSystem. The onus will be on you to ensure that LocalSystem is sufficient, or whether you need to setup a unique account for your SE service.



Exmerge logging option enables you to specify the level of information logged in the Exmerge logfile. You can enable log file rolling and a log file retention period to limit the space required by these logs. Note that the plug-in will process these options before each backup, so files may exceed their size, until the next backup.

Click the '**Add...**' button to retrieve a list of available user mailboxes on the indicated server as shown below.

Select the users from the '*Available users*' list by selecting the users and clicking the '*Add >*' button to add them to the list of '*Selected users*'. Click **OK** to return to the previous dialog. The selected users will now be shown in the list of mailboxes that will be backed up (as is shown in image to the right).



Once you have completed your selection, click the **OK** button on the ‘*Backup Settings*’ dialog box. This will store your settings in a “.ini” file ready for your next manual or automatic backup.

Backup Settings

The settings you selected are stored in two files in the <SE Root Dir>. These files are:

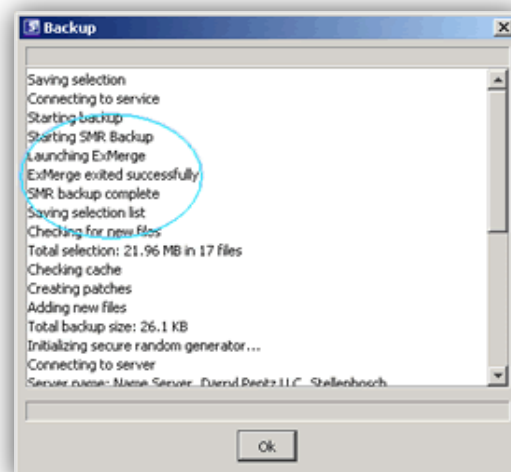
- smrb_exmerge.ini – this is the main settings file that ExMerge will use for the backups
- smrb_mailboxes.txt – this indicates the mailboxes you selected from the list of available user mailboxes

Once you have completed your first backup, you will find an additional log file in the directory where you indicated your mailbox PST files to be stored:

- smrb_exmerge.log – this file provides detailed information about the backups performed and can be examined if any errors are suspected to have occurred

Output during a Backup

When you initiate a manual backup, you will see the following output as evidence that the SMR Plug-in is doing its job.

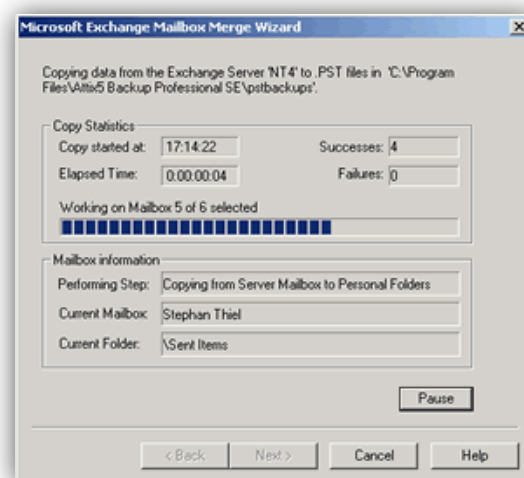


During the backup, when the line: **“Launching ExMerge”** appears in the output, you will also notice an additional dialog box, from ExMerge, will be launched for the duration of the SMR backup. This dialog box provides details about the ExMerge backup in progress.

Once the ExMerge backup has completed, this dialog box will be closed automatically.



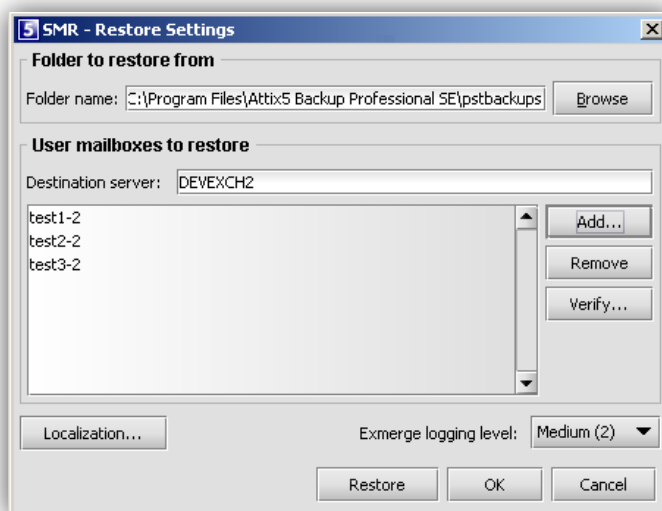
Note: This dialog box does not appear for automatic backups.



SMR Restore – Running a Restore

Unlike the SMR Backup functionality, which effectively configures the backup settings to be used at a later stage (either when an automatic backup runs, or the user manually requests a backup); the SMR Restore functionality should only be used when an actual restore operation is required.

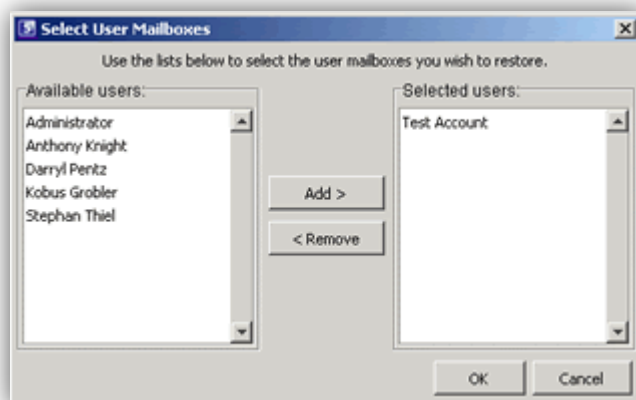
Select **Plug-ins** from the **Tools** menu and then **SMR Restore**.



Folder to restore from: This indicates the folder where the PST files can be found that match the user mailboxes you selected for restore.

User mailboxes to restore: This is where you indicate both the server to which the PST files should be restored, and the available mailboxes that should be restored. Only previously backed up mailboxes available in the specified folder will be in the list of available mailboxes. You can use the **Verify** button to determine whether the mailboxes you are about to restore, actually exist in Active Directory, as this is a requirement of a successful restore.

As per the SMR Backup instructions specified above, indicate a destination server in the **Destination server** text field and click the **Add Users...** button. Select the users from the **Available users** list by selecting the users and clicking the **Add >** button to add them to the list of **Selected users**. Click **OK** to return to the previous dialog. The selected users will now be shown in the list of mailboxes that will be restored (as is shown the previous image).



Once you have completed your selection, click the **Restore** button on the **Restore Settings** dialog box to begin the restore operation. This will store your settings in an .ini file and launch ExMerge to perform the restore operation.

Restore Settings

The settings that are saved prior to the restore being launched are stored in two files in the <SE Root Dir>. These files are:

- smrr_exmerge.ini – this is the main settings file that ExMerge will use for the restore
- smrr_mailboxes.txt – this indicates the mailboxes you selected, to be restored, from the list of available user mailboxes

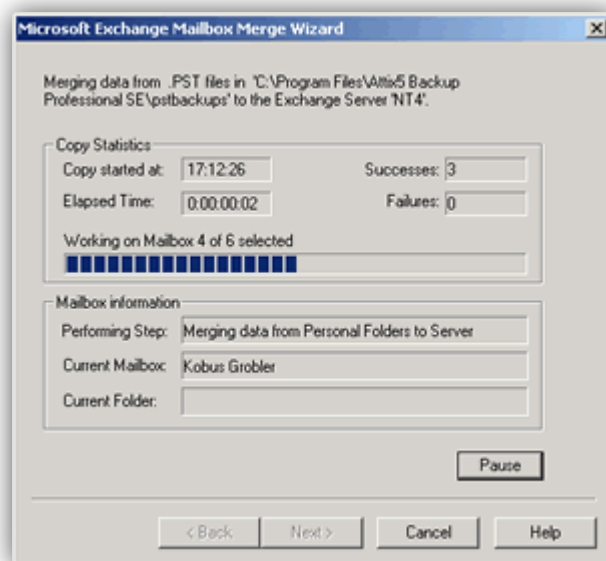
Once you have completed the restore, you will find an additional log file in the <SE Root Directory> as follows:

- smrr_exmerge.log – this file provides detailed information about the backups performed and can be examined if any errors are suspected to have occurred.

Output during a Restore

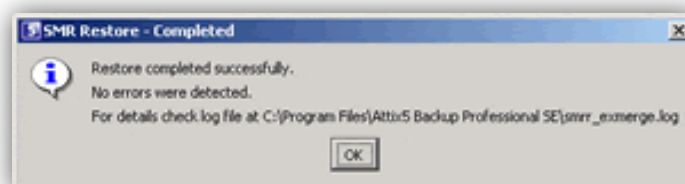
After you click 'Restore' and your restore settings are saved, ExMerge will launch to perform the restore. You will see the following output during the process of the restore operation (see right-hand image).

This details the activity during the restore, including how many mailboxes will be processed, and where ExMerge is in the restore progress.

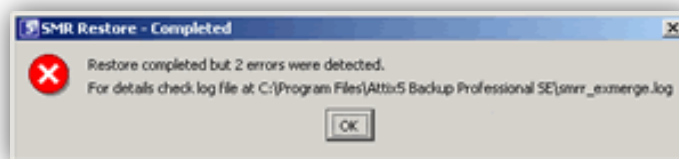


Upon completion, the SMR Restore plug-in will then determine whether any errors were detected and report this to the user.

If no errors were detected then the dialog on the right will be shown.



If errors were detected, then the dialog on the right will be shown.



The indicated log file will detail the errors for further troubleshooting or problem solving.

Using ExMerge

ExMerge is a utility provided free by Microsoft™. Its initial intention was to alleviate the burden of moving mailboxes between servers, and migrating mailboxes from, say, Exchange 2000 to Exchange 2003. It primarily uses MAPI to accomplish all of this functionality and is a very useful and configurable tool.

You will find an “**Exmerge.doc**” Word document provided with the SMR plug-in. This document provides some insight into the functionality ExMerge provides. In addition to information about the various settings available for configuration with ExMerge, you should read this document to understand what the various releases are, past and current bugs, limitations of ExMerge etc. While we do not recommend that you manually change any of the settings in the various configuration files, it is useful to know the full power of ExMerge’s capabilities. Some important configuration settings to take note of:

MergeAction

;This setting controls which merge procedure to use:

;

; Possible values:

; 0 - Extract (Merge data to Personal Folders)

; 1 - Import (Merge data from Personal Folders)

; 2 - Extract&Import (Export from one server and Import into another server)

;

; Default value: 0

SMR Backup: 0

SMR Restore: 1

SourceServerName

; Name of the source Exchange server, from which data will be extracted.

; This setting must be specified if the MergeAction specified is Extract or Extract&Import

SMR Backup only: set to whatever user specifies in ‘Server name’ text field

DestServerName

; Name of the destination Exchange server, to which data will be written.
 ; This setting must be specified if the MergeAction specified is Import or Extract&Import

SMR Restore only: set to whatever user specifies in 'Server name' text field

LogFileName

; Name of the log file to be used

;

; Default value: C:\ExMerge.log

SMR Backup: <PST Data Dir>\smrb_exmerge.log

SMR Restore: <SE Root Dir>\smrr_exmerge.log

LoggingLevel

; Set the level of logging:

;

; Possible values:

; 0 - None

; 1 - Minimum

; 2 - Medium

; 3 - Maximum

; Default value is 0

SMR Backup and Restore: 2

DataDirectoryName

; Name of the directory to which .PST files will be written or where .PST files will be expected.

; If the directory does not exist, it will be created.

;

; Default value: C:\EXMERGEDATA

;

SMR Backup: set to value of 'Folder to backup to' text field

SMR Restore: set to value of 'Folder to restore from' text field

FileContainingListOfMailboxes

; Name of a text file containing the Exchange Distinguished Names (DN) of mailboxes to be worked on.

; Each line of the file should have the following format:

; <SourceDN> [, <TargetDN>]

; The TargetDN is optional. If it is specified, depending on what the selected merge action

; is, it will be used to get the name of the PST file to be generated, or the name of the mailbox into which data will be merged. By default, a comma is used as the delimiter between the source and target DNs. You can specify another delimiter, using the `DelimiterUsedInMailboxFile` setting.

;

; Blank lines are ignored.

; Lines beginning with a `##~` are ignored as comments

; If this setting is not specified, all mailboxes, except those for services (DS, IMS etc) on the specified server will be processed.

;

; Default value: Blank

SMR Backup: <SE Root Dir>\smrb_mailboxes.txt

SMR Restore: <SE Root Dir>\smrr_mailboxes.txt

DataImportMethod

; This setting controls how the data will be copied from the source store to the target store.

;

; Possible values:

; 0 - Copy all messages from the source store to the target store

; 1 - Merge messages into the target store. Copy only those messages that do not exist in the target store.

; 2 - Replace existing messages in the target store. (If a message in the source store exists in the target store, delete that message in the target store and then copy the message from the target store.

; 3 - Archive existing messages from the source store into the target store. If this option is selected, the program will copy data from the source store to the target store and then delete the data from the source store.

;

; This option is only valid if the `MergeAction` is `Extract`.

;

; Default value: 1

SMR Backup and Restore: 1

12. VMware Plug-in

The Attix5 Pro VMware Plug-in has been designed for the backup of complete VM hosts via VMware Consolidated Backup (VCB).

Supports the following subsets and related products:

- ESX3i through VCB

The VMware plug-in will connect to an ESX Server (or VirtualCenter Server) and show you the list of installed VMs from which they can then be selected for backup.

With every backup, the VMware plug-in will dump a copy of each selected VM to a specified location from which it will be backed up. Subsequent backups will result in patches being generated. (Sufficient disk space and processing needed.)

This process does not require the VMs to be shut down or suspended prior to backup.

Installation

VCB as a third party application is required for the Attix5 Plug-in to work. It can be downloaded from the on-site VM Server. Note the installation location of VCB seeing that you need to point the Attix5 VMware Plug-in to this location as part of the configuration below.

To install the VMware plug-in on an existing SE Client, run the Plug-in Installer and select the appropriate VM bundle subset that applies to your environment and licence acquired.

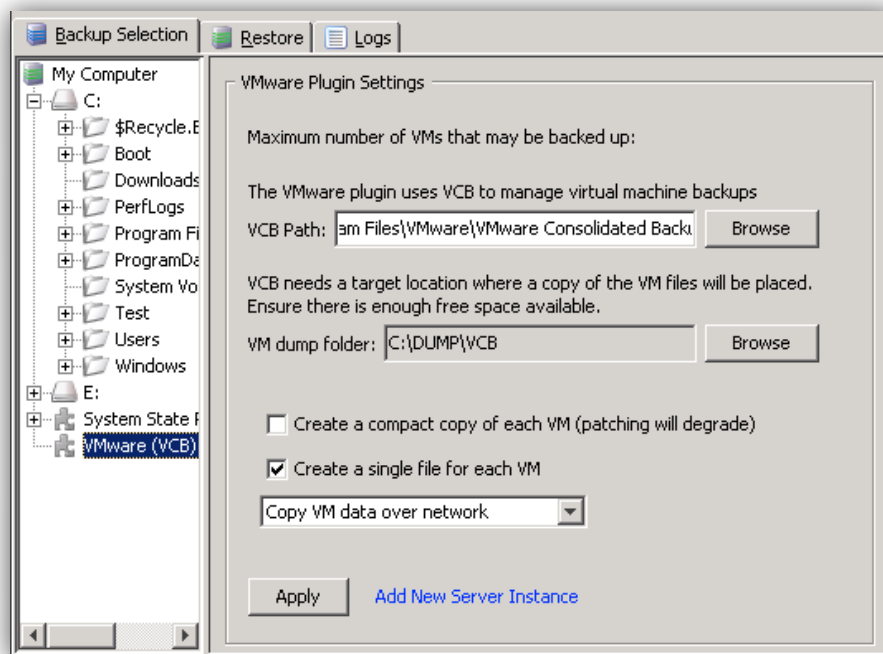
One of the following can be selected, providing that adequate licensing has been provisioned for:

- 5 VMs
- 20 VMs
- 50 VMs
- Plus (Unlimited VMs)

Configuration

The VMware Plug-in will be shown underneath the standard backup selection tree and forms part of the existing backup selection tree. All configuration needs to be done within this view.

Start by selecting the main **VMware (VCB)** node in the tree. All required VMware settings will be shown in the right-hand panel.

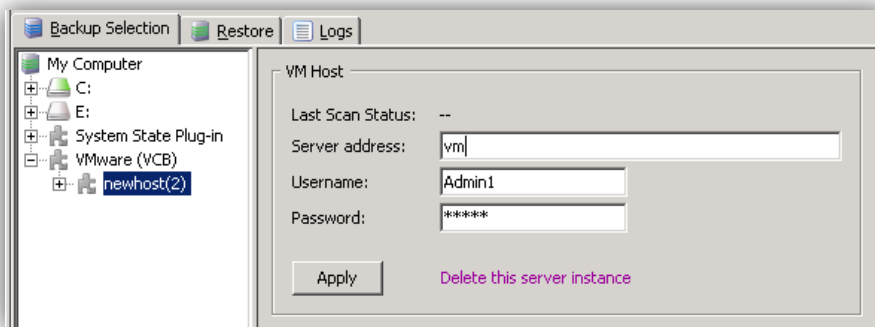


Verify the VCB Path and required Dump location. Each VM being backed up can be compacted to save space for the dumps being created with degradation in the patching to be performed during consecutive backups.

The default option to **Create a single file for each VM** can be switched off and method of transfer can be selected in the drop-down options.

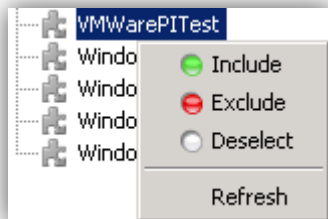
Click **Apply** and select the **Add New Server Instance** link next to the **Apply** button.

Select the **Newhost(x)** node in the tree that will allow for further configuration.



The default host name can be changed by replacing the current name and then entering the Username and Password to be used by the Attix5 SE Client when connecting to the VM server(s). Click the **Apply** button, and then select the new **VMware (VCB)** node in the tree view that will invoke a scan of the VMs that can be accessed through the provided settings.

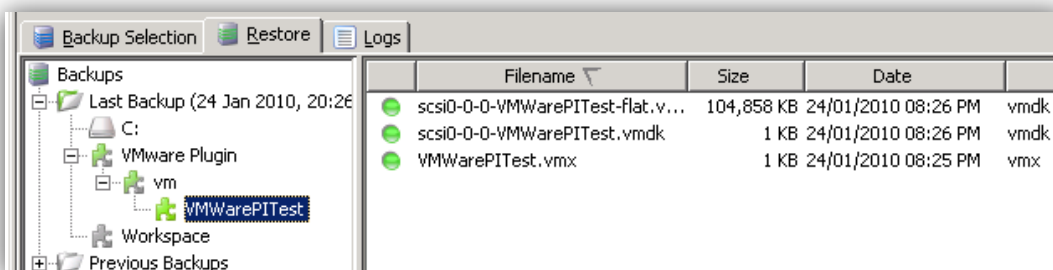
VMware Backup



All VMs selected will be included with the next backup to be performed by the SE Client by dumping the complete image first and then using patching on every consecutive backup.

VMware restore

For restores, the VM image that was backed up must first be restored by selecting the appropriate VM and then restoring it like any other item on the **Restore** tab and providing a Restore location.



The standard VMware Converter Tool, amongst various options for restoring VMware images, can be used after restoring the image to convert and import the VM image.

13. Exchange Single Item Recover (SIR)

The Attix5 SIR Exchange plug-in allows item-level backups to be done for Exchange versions 2000, 2003, 2007 and 2010. This includes mailbox folders, emails, mailbox local contacts, tasks, calendar items etc. Public folders and documents are also supported.

Installation

To install the SIR plug-in on an existing SE Client, run the Plug-in Installer, select the **Single Item Recover Plug-in** in the list and complete the installation.



Note:

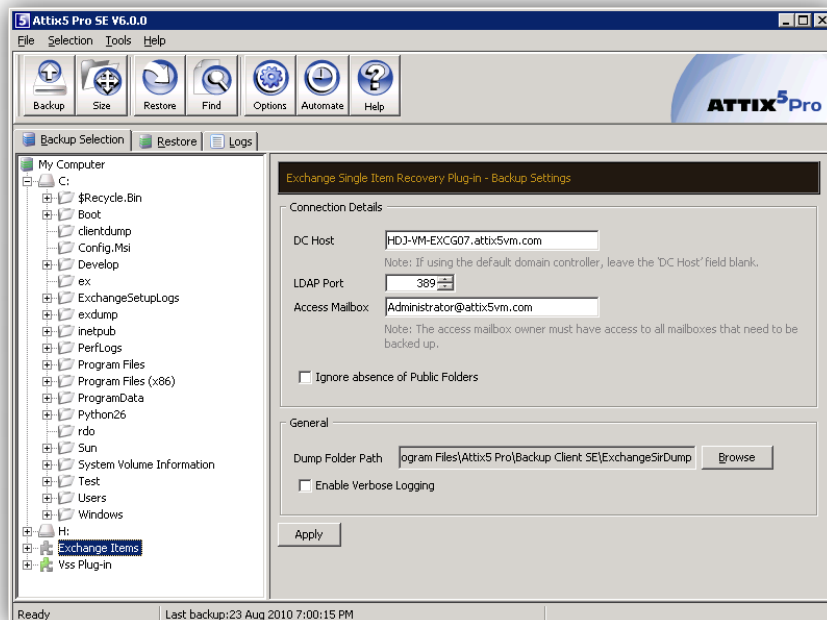
- The SE Client and Plug-in must be installed locally on the Exchange Server.
- The SE Client service must be configured to run as a user that has Full access to the individual mailboxes that must be included for backup. Refer to the following for further information:

<http://technet.microsoft.com/en-us/library/aa996343.aspx>

Configuration

The **SIR Plug-in** node will be shown underneath the standard backup selection tree and forms part of the existing backup selection. All configurations have to be done within this view.

Start by clicking the main **Exchange Items** node in the tree.

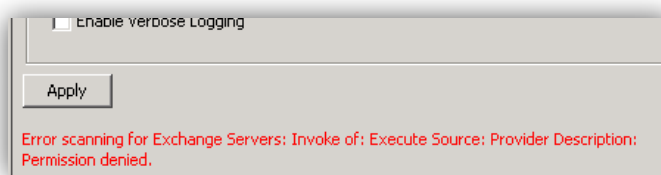


Note: All settings that could be retrieved from the Exchange server will be pre-populated and only dump location needs to be specified.

Ensure that the **DC Host**, **LDAP Port** and **Access Mailbox** fields are correctly populated and specify a dump folder location. Verbose logging can be enabled by selecting the **Enable Verbose logging** that will show more detail in the backup log files.

Click the **Apply** button before continuing. This will invoke a login onto the Exchange Server and show all items that can be backed up according to the access granted to the user being used by the Attix5 SE Client.

Note: Any errors will be shown at the bottom beneath the Apply button:

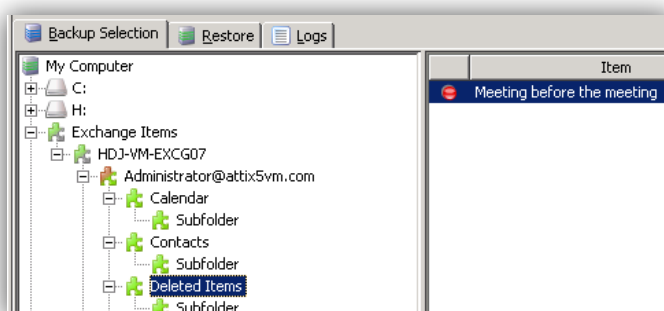


SIR Backup

All selected items or nodes will be included with the next backup to be performed by the Backup Client by using the dump folder as specified.

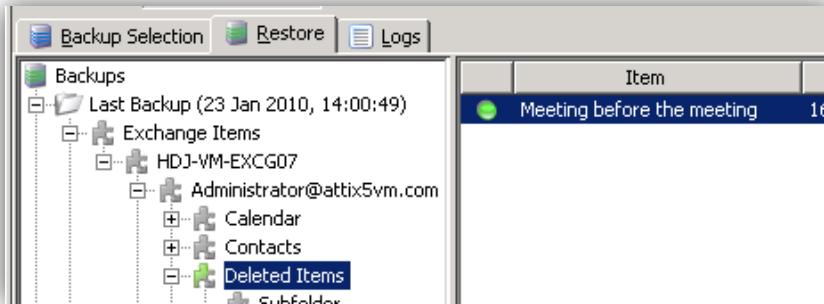
Note:

- Before attempting to back up mailbox items, please ensure the following:
 - MS Exchange is installed on the local system.
 - Outlook is NOT installed on the local system.
 - Microsoft Exchange Server MAPI Client and Collaboration Data Objects 1.2.1 are installed on the local machine. These can be downloaded from the Microsoft website at: <http://www.microsoft.com/downloads/details.aspx?FamilyID=E17E7F31-079A-43A9-BFF2-0A110307611E&displaylang=en>.
 - The login credentials for the primary access mailbox that is used to create a MAPI session is correct and that this user has full access to the mailboxes that you wish to back up items from.
 - The user that the service runs as owns the primary access mailbox.
- Items that have not been changed since the last backup will not be exported to the dump folder, as they do not need to be transmitted to the Storage Platform again.

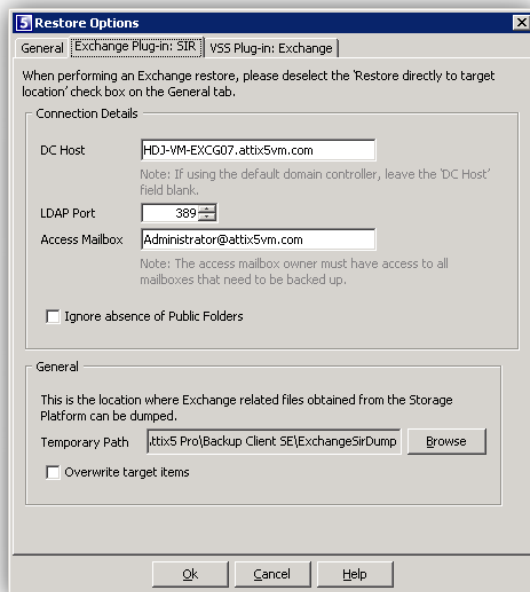


A Single Item Recovery/Restore

For restores the required complete parent node or specific item must be selected for restore.



- Note:** Before attempting to restore mailbox items, please ensure the following:
- MS Exchange is installed on the local system.
 - Outlook is NOT installed on the local system.
 - Microsoft Exchange Server MAPI Client and Collaboration Data Objects 1.2.1 are installed on the local machine. . These can be downloaded from the Microsoft website at: <http://www.microsoft.com/downloads/details.aspx?FamilyID=E17E7F31-079A-43A9-BFF2-0A110307611E&displaylang=en>
 - The login credentials for the primary access mailbox that is used to create a MAPI session (as specified in the restore dialog) is correct and that this user has full access to the mailboxes that you wish to restore to.
 - You are logged in as the domain user that owns the primary access mailbox.
 - The user that the service runs as owns the primary access mailbox.



Click the **Restore** button on the toolbar. In the **Restore Options** dialog box, select the **Exchange Plug-in: SIR** tab.

Verify the required settings for the **Domain Controller Host**, **LDAP Port**, **Access Mailbox** and **Temporary Path** location that will be used as part of the restore process.

- Note:** If experiencing problems connecting to an Exchange 2007 or 2010 server that has no public folders, select the **Ignore absence of Public Folders** check box.

The items selected for restore will be recovered directly to the live Exchange Server.

14. System State using Wbadmin plug-in

You can back up and restore the Windows System State using Windows Server 2008 Backup via the Wbadmin command-line tool.

i *Note:* On a new Windows Server 2008 R2 installation, Windows Server Backup Features are not installed by default. To install Windows Server backup and recovery tools, follow the instructions as specified by Microsoft: <http://technet.microsoft.com/en-us/library/cc732081.aspx>.

Installation

To install the Wbadmin plug-in, run the Plug-in Installer and follow the steps to completion.

i *Note:* The Attix5 Pro Server Edition Client must be installed on the computer before you can install any plug-ins. SE Plug-ins require working space for the cache and disk space for creating a data dump and patches.

Step 1: Specify backup client

1. Ensure that the correct Backup Client folder location is selected. If not, click the **Browse** button and select the correct folder.
2. Click **Next**.

Step 2: Modify plug-in selection

1. Select **System State (using Wbadmin)**.
2. Deselect **System State Backup**.
3. Click **Next**.

Step 3: Apply changes


On the Summary page, click the **Apply requested changes** button, and then click **Next**.

Step 4: Close Plug-in Installer

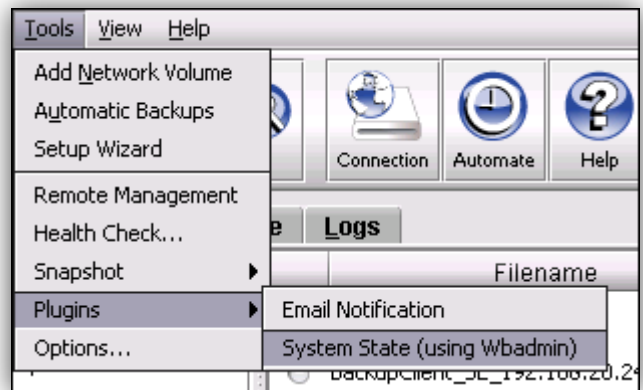
Click **Finish** to close the Plug-in Installer.

Enabling Wbadmin

1. On the **Tools** menu, point to **Plugins**, and then click **System State (using Wbadmin)**.
2. In the **System State (using Wbadmin) Settings** dialog box that appears, select the **Enabled** check box.
3. Select a target drive.


 **Note:** A System State Backup can be over 10 GB large. Ensure that you choose a drive with enough disk space.


4. Click **Ok**.



Backing up

Once the Wbadmin plug-in is enabled, you can select other data to back up, and then schedule backups or initiate one manually by clicking the **Backup** button on the toolbar.

 **Note:** If installed on a Windows 2008 server, the Wbadmin plug-in will also back up Remote Installation server images. These are included in the backup selection and can inflate the backup significantly.

 **Tip:** While the backup is in progress, it is useful to monitor its status in detail. To do this, open a Command Prompt window and run the following command:
`Wbadmin get status.`

Restoring the System State via Wbadmin

To restore the System State via Wbadmin, you need to restore the System State data to its original location and then launch the Windows Server Backup restore process via the command prompt.

How to restore System State data

1. In the Backup Client, click the **Restore** tab.
2. Under the System State Backup target drive node, navigate to the **WindowsImageBackup** folder.
3. Right click the folder name, and then click **Include**.
4. Click the **Restore** button on the toolbar.
5. In the **Save files in** area of the **Restore Options** dialog box, select **Original location**.

6. Click **Ok**.

Once the contents of the **WindowsImageBackup** files are restored to their original locations, you can invoke the Windows Server Backup tool to complete the restore process.

How to launch the Windows Server Backup restore process:

1. In Windows Explorer, navigate to:
<System State Backup target drive>\WindowsImageBackup\<Machine Name>\SystemStateBackup.
2. Open the **restore.txt** file and follow the instructions contained therein.



Please note that the restore process involves two steps:

1. Renaming the **RenamedFolder** as specified in the **restore.txt** file.
2. Executing the command specified in the **restore.txt** file. The syntax for the command is: `wbadmin start systemstaterecovery -version:{date} -backupTarget:{target}`.

{target} is the volume to which the backups were made.

{date} is the date on which the backup was performed.