

Microsoft Exchange 5.5 APM

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About the Microsoft Exchange 5.5 Application Plugin Module

Electronic collaboration, such as e-mail, has become a central means of communication for many organizations. The Microsoft® Exchange™ server has been widely adopted as the premier groupware application. With the increasing number of e-mail's and the corresponding database growth comes the need to protect this critical corporate asset. It is essential for administrators to be able to backup and restore an Exchange server with little or no impact on users.

The Microsoft Exchange Application Plugin Module (APM™) for NetVault increases application availability by providing fast, on line backup of Exchange databases.

The main features included in the application module are described in the following list:

- **Multiple Backup Modes:** The Microsoft Exchange APM supports full and transaction log backups.
- **Supports Data Moves Between Exchange Servers:** The NetVault Microsoft Exchange APM allows re-targeted restorations of the information store on one Exchange server to another Exchange server. This allows you to either replace an Exchange server or create a new Exchange server.
- **Automatic Windows NT Service Control:** Exchange restore operations take place offline, requiring services to be stopped before a restore job can begin and restarted before the database can be made available. During a recovery operation, the Microsoft Exchange APM can automatically stop relevant Exchange services and restart them after a restore job is complete. Note that backups of Exchange are always performed while online, and that at no point during the backup are the Exchange services stopped. This ensures there are no disruptions to your messaging system.

Target Audience

Microsoft Exchange administration skills are not generally required for routine backup operations. However, initial configuration and recovery operations may require administrator experience. For more details on Microsoft Exchange Documentation, please visit Microsoft's Exchange Web Site at <http://www.microsoft.com/exchange>.

Installing the Microsoft Exchange 5.5 APM

This APM is installed from the NetVault Client Management window. To add the software, follow the installation instructions detailed below.

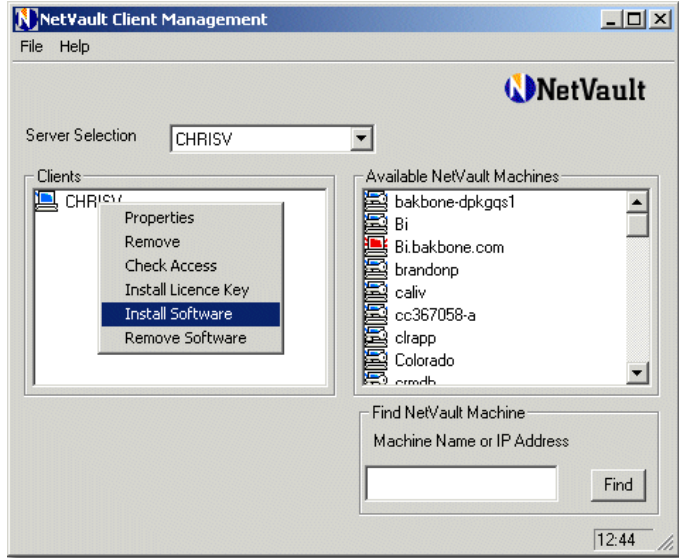
Pre-Installation Requirements

Before installing the Microsoft Exchange APM make sure the following software is installed and configured on one of the machines in the domain:

- NetVault server/client software.
- Microsoft Exchange Server 5.0 or later.

Installation Procedure

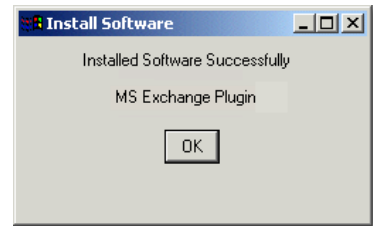
1. Open the NetVault Client Management window by clicking the **Client Management** button on the NetVault GUI (or select **Client Management** from the **Administration** pull-down menu).
2. Right-click on the NetVault server in the **Clients** list.
3. Choose **Install Software** from the pop-up menu, as shown in the following figure:
4. Navigate to the NetVault APM Installation CD.



Open the directory for the appropriate Operating System and locate the directory entitled **exchange**. Open this folder and choose the **exgxxxx.npk** plugin file.

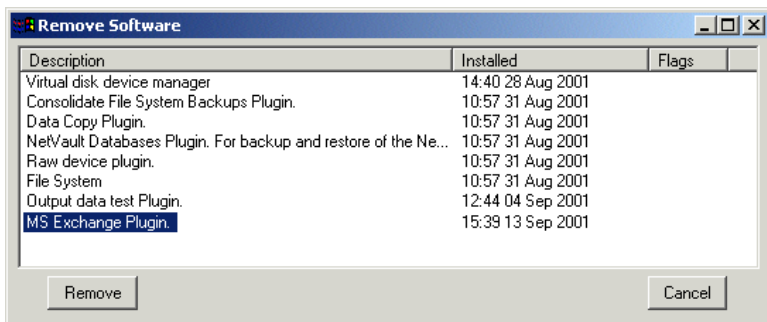
NOTE: Based on the operating system being used, the directory path for this software may vary, but the file required for installation of this APM should be entitled “**exgxxxx.npk**” (where “xxxx” represents various software platforms and version numbers).

5. Click **Open** and the software installation process will begin.
6. When the installation has completed, a successful installation message will appear in the **Install Software** dialog box, shown at right:
7. Close NetVault (and any other open applications) and reboot the machine.

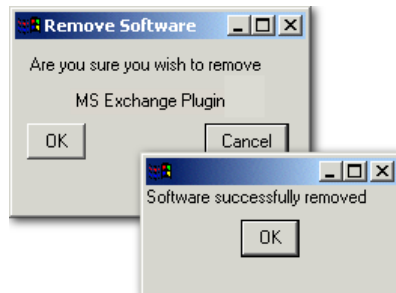


Removing the Microsoft Exchange 5.5 APM

1. Access the Client Management window as described in the installation procedure above.
2. Right-click on the NetVault server in the **Clients** list to reveal the pop-up menu and select **Remove Software**.



3. Select the **MS Exchange Plugin** item from the displayed list and click the **Remove** button.
4. A dialog box will appear asking for confirmation of the remove command. Click on **OK** to proceed (or **Cancel** to abort). Clicking **OK** results in the removal of the software and a confirmation message will appear. Click **OK** to close this dialog box and return to the **Client Management** window.



Backing Up Data with the Microsoft Exchange 5.5 APM

Microsoft Exchange server is designed so that you do not have to take it offline to perform backups. The entire information store, directory store, Message Transfer Agent (MTA) and system attendant are running during online backup.

To perform a backup using the Microsoft Exchange APM, follow these steps:

1. Open the NetVault Backup window by clicking the **Backup** button on the command toolbar or by choosing the **Operations Backup** command. The NetVault Backup window displays the list of clients in the Selections tab.
2. Select the desired client, right-click and choose **Open** from the pop-up menu or double-click the client to display the list of installed APM's.
3. Double click the Microsoft Exchange APM to display the Information Store and the Directory Store. NetVault does not access the Microsoft Exchange server to view

the contents of these stores. To view a store's contents before selecting it for backup, use the Microsoft Exchange Administrator application.

4. Select the information store or directory store for backup by selecting the relevant check box. You can select an individual store or both stores.
5. Click the **Backup Options** tab to set the job options. tab will appear, revealing the options shown in the figure at right:
6. In the **Exchange Backup Type** frame, select the type of backup to be performed:

The screenshot shows the 'Microsoft Exchange Backup Options' dialog box with the following details:

- Exchange Backup Type:**
 - Full
 - Copy
 - Incremental
 - Differential
- Exchange Server Selection and Logon:**
 - Exchange Server: EXCHG1
 - Domain: BAKBONE_CS
 - Account: Administrator
 - Password: (empty)

- **Full:** Backs up all the data in the selected stores.

- **Copy:** Backs up all the data in the selected stores, just like the full backup type, except that it doesn't truncate the log files nor update the backup context in the database files. A copy backup does not alter what data

may be backed up by a future incremental or differential backup, unlike the full backup type. Copy is best used to take a snapshot of the Microsoft Exchange data, without interfering with the normal scheduled backups.

- **Incremental:** An incremental backup copies the transaction log which includes all activity in the database since the last backup was performed. Once copied, the transaction log is truncated. This type of backup saves time and disk space, as the transaction logs are truncated when the incremental backup completes (for information on restoring incremental backups, see the section *Using Incremental Backups* on page 94).

- **Differential:** A differential backup copies the transaction log which includes all activity in the database since the last full backup was performed. The transaction log is not truncated after a differential backup. Each differential backup job backs up all previous data back to the point of the last full backup. Using differential backups offers the advantage of simpler restores as only the media containing the full backup and the last differential backup will be required. A differential backup uses a larger amount of tape as you are effectively backing up the same data each time the backup is performed until the next full backup (for information on restoring differential backups, see the section *Using Differential Backups* on page 93).

WARNING: By default, circular logging is turned on and must be turned off before an incremental or differential backup is performed or the backup will fail. Refer to the Microsoft documentation for instructions on how to turn off circular logging. Transaction logs are truncated upon the completion of a full or incremental backup.

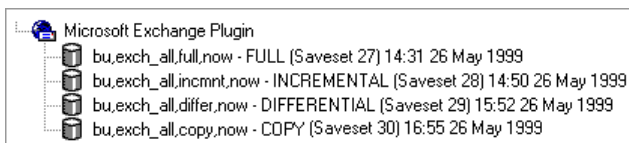
7. In the **Exchange Server Selection and Logon** frame, set the following options:
 - **Exchange Server:** The machine name of the MS Exchange server appears in this box. To change the machine whose data is backed up, modify the name of the target machine.
 - **Domain: (version 1.2 and later of this APM ONLY)** - Input the desired domain that the target system exists in, in this field (if applicable).
 - **Account:** The administrator account appears by default in the **Account** box. This account must have the proper backup and restore permissions.
 - **Password:** Enter the correct password for the **Account** or the job will fail.
8. Enter a suitable name for the job in the **Job Title** box.
9. Submit the backup job by clicking the **Submit** button on the command toolbar. See the *NetVault Administrator's Guide* for information on viewing the job status, progress and log.

Restoring Data with the Microsoft Exchange APM

This section describes the basic steps involved in restoring Exchange data. There are many reasons why an Exchange server may need to be recovered. For more information, please visit Microsoft's Exchange web site at <http://www.microsoft.com/exchange>. To conduct a restore of Exchange data with NetVault, follow these steps:

NOTE: Services may be either up or down before submitting a restore job. However, the System Attendant must **always** be running; it should **never** be stopped.

1. Open the NetVault Restore window by clicking the **Restore** button on the command toolbar or by choosing the **Operations Restore** command. The NetVault Restore window displays the list of clients in the Selections tab.
2. Select the client to be restored, right-click and choose **Open** from the pop-up menu or double-click the client to display the list of installed APM's.
3. Open the Microsoft **Exchange APM** to display the backup savesets contained within (as shown in the figure at right).



- **Type of Backup Performed** - Each **Backup Saveset** shows the type of backup performed just before the saveset number.
4. Select the desired backup saveset and choose **Open** from the pop-up menu or double-click the saveset to display the stores in the saveset. To view the data within the store, select it and choose **Open** from the pop-up menu.
 5. To restore one or more stores (directory store, information store or both) select the check box(es) next to the desired items.
 6. Click the **Restore Options** tab to access these options (see the image on the following page for an example of these options).
 7. In the **Exchange Server Selection** frame, the following options must be specified with the correct privileges in order to perform the restore:

- **Directory Store Server Name:** The machine name of the Microsoft Exchange server from which the directory store data in the selected backup saveset was backed up. Microsoft does not allow you to restore a directory store to an Exchange server different than the one originally backed up, therefore this information is display only and cannot be changed.

- **Information Store Server Name:** The machine name of the Microsoft Exchange server from which the information store data in the selected backup saveset came from. An information store can be restored to a different Exchange server

NOTE: In order to restore an **Information Store** to a different Exchange Server, change the **Information Store** server name. Only do this when restoring an **Information Store** on its own.

- **Account:** The name of the account. This account must have the proper backup and restore permissions.
 - **Password:** The correct password for the **Account**.
8. In the **Information Store Options** frame, select one of the following options:
 - **Restore Private and Public data:** Restores both types of information store data if contained in the selected backup saveset.

- **Don't restore Private data:** Restores only the public data from the selected backup saveset.
 - **Don't restore Public data:** Restores only the private data from the selected backup saveset.
9. In the **Miscellaneous Options** frame select the **Delete existing log files** check box in order to remove the current log files on the Microsoft Exchange server that is to be restored.
- **Select this option** - When restoring from a **Full** or **Copy** backup to a new build of the Microsoft Exchange server.
 - **De-select this option** - when restoring to the same build, in order to retain the existing transaction logs.

IMPORTANT NOTES:

1. This checkbox is normally cleared when restoring an incremental or differential backup
2. Keeping the existing log files may result in Microsoft Exchange rolling activities back to an undesired location in the log. Be mindful of the data on the existing log files before deciding whether they should be kept or replaced with the files from a copied server or a new server. It may be necessary to delete log files in order to remove all operations performed since the backup; if log files are not deleted, database deletions and changes stored in the log will be re-applied.

10. Supply the required parameters for the Schedule, Target Client and Advanced Options tabs as appropriate. These parameters are not unique to the Microsoft Exchange APM. See your *NetVault Administrator's Guide* for complete details on the options available in these tabs.
11. Enter the name of the job in the **Job Title** box.
12. Submit the restore job by clicking the **Submit** button on the command toolbar.
13. See the *NetVault Administrator's Guide* for information on viewing the job status, progress and log.

NOTE: Whenever you are doing a series of restores, make sure you complete the entire series before bringing Exchange back online.

Using Differential Backups

1. Perform a full backup. This copies all the data in the selected databases.

2. Perform a differential backup. This copies the transaction log recording all activities which have taken place since the full backup was performed. These transaction logs are retained.
3. Perform another differential backup. This, once again, records all activities since the full backup, including those backed up in the previous step.
4. To restore your data, you will need to restore the full backup and the differential backup performed in step number 3.

Using Incremental Backups

1. Perform a full backup. This copies all the data in the selected database.
2. Perform an incremental backup. This copies the transaction log recording all activities which have taken place since the full backup was performed. The transaction log is truncated.
3. Perform another incremental backup. This copies the transaction log recording all activities which have taken place since the last incremental backup was performed. The transaction log is truncated.
4. To restore data, it is necessary to restore the full backup and each of the incremental backups in the order in which they were backed up.

NOTE: If you restore the incremental backup from step 3 before restoring the backup from step 2, an error message informs you that the restore sequence is not correct and the restore will fail. The recovery procedure will need to be restarted, including the restore of the most recent full backup.

Restarting Exchange Services

When the restore job is complete, ensure that the Exchange services are restarted. Microsoft recommends that the Exchange services be restarted manually, following these steps:

1. Make sure that the Microsoft Exchange System Attendant is still running.
2. Restart the Microsoft Exchange Directory Service.
3. Restart the Microsoft Exchange Information Store.
4. Restart the Microsoft Exchange Transfer Agent.
5. Restart any remaining services as required.

Ensuring that Data is Restored Correctly

When all services are running, check with a mail client connected to the Exchange server to make sure that all data has been restored correctly. If the desired directories (mailboxes) are present, but there is no data held in them, follow the steps below.

1. Start the Microsoft Exchange Administrator.
2. Navigate to and select the appropriate Exchange server.
3. Select **Properties** from the **File** pull-down menu.
4. Once in the **Properties** window, select the **Advanced** tab.
5. Click the **Consistency Adjuster** button.
6. Select all 4 check boxes and **All Consistencies**, rather than the defaults.
7. Click **OK**.
8. When the update has finished, start the mail client and make sure that all data is now present.

NOTE: For further information as well as complete details on either of the processes mentioned above, please see the relevant Microsoft documentation.

Recovering Exchange Mailboxes

The following method of recovering Exchange Mailboxes is recommended by Microsoft and is broken down into two sections that must be performed sequentially (for more information on recovering mailboxes, please refer to the relevant Microsoft documentation).

Setting up an Exchange Recovery Server

It is first necessary to establish a machine as the Recovery Server that the Exchange Mailboxes are to be recovered to. To accomplish this, perform the following:

1. Ensure that the machine that is acting as the Recovery Server is running the same version of Windows NT, installed with the identical service pack level as the Exchange Server.
2. Install the Exchange Server software (as well as the same level of Service Pack running on the existing Exchange Server).
3. During the install, select the **Create New Site** option. When prompted, input the same name for the organization and site names as was configured on the original Exchange server.
4. Once the **Recovery Server** has been built, it is possible to continue with restore operations..

IMPORTANT NOTES:

1. If any differences exist between software versions, the restore will fail.
2. The Server name **MUST** be different between the live and recovery servers.
3. Do **NOT** select **Join Existing Site** as this could lead to problems with existing Exchange sites.

Restoring Mailboxes

1. From the **NetVault Restore Selection** window, open the desired Backup Saveset and select only the **Information Store** for a restore.
2. Select the **Restore Options** tab. In the **Information Store** field of the **Exchange Server Selection** frame, input the name of the machine acting as the Recovery Server. Input the corresponding **Account Name** and **Password** in these fields as well.
3. Select the **Delete Existing Log Files** option.

NOTE: In order for this process to work correctly this option *must* be de-selected.

4. Select the **Target Client** tab. From the list of machines represented, click to check the machine acting as the Recovery Server.
5. Launch the **NetVault Configurator** and access the **Plugin Options** tab. Click to **de-select** the **Attempt to restart services after restore** check box so that services will not be automatically restarted once the restore has completed.
6. Close the **Configurator** and return to NetVault in order to submit the restore job.
7. Once the restore has completed, follow the steps detailed in the section *Restarting Exchange Services* on page 94 in order to restart the services.
8. Start the **Exchange Administrator** program.
9. Open down to and right-click on the desired server name. From the pop-up menu that appears, select the **Properties** option.
10. With the **Properties** window open, select the **Advanced** tab and then click the **Consistency Adjuster** button.
11. Select **all four** option checkboxes as well as the **All Consistencies** checkbox. The directory structure for all mailboxes will be restored and appear in the Microsoft Administration program. Individual mailboxes are now available for recovery using one of the following options:
 - **Log onto the Recovery Server** - This is accomplished by using Outlook (or another Exchange-aware mail client) and exporting all mail into a *.pst file which can then be given to the user to import into the desired mail client.
 - **Log the client into the Recovery Server** - This is accomplished by using a new mail profile and dragging and dropping the desired items from the mailbox on the Recovery Server into a personal folder.

Troubleshooting

The following table describes commonly encountered problems and possible solutions.

Problem	Solution
Mailboxes exist but have no data	Check with a mail client connected to the Exchange server to make sure all data has been properly restored. To do so, see the section <i>Ensuring that Data is Restored Correctly</i> on page 94.
Backup or restore fails with a Failed to connect message.	The Exchange System Attendant Service needs to be running before any Exchange backup or restore operations can be performed. This service is never shut down by either NetVault or Exchange itself.
Error in logs: Failed to log on as user xxxxx	Check to make sure you are entering the correct user in the Backup Options tab. Only use the user that originally installed Exchange; any other will cause this error. Also make sure the password is correct.
Backup fails with message Failed to connect.	Make sure all relevant Exchange services are started before backing up, including Exchange Directory, Event Service, Information Store, Exchange system attendant and Message transfer agent.
Restore fails with message Failed to connect.	Make sure the Exchange system attendant is started before attempting a restore.

There are additional issues involved in restoring Exchange servers. Refer to the relevant Microsoft Exchange Disaster Recovery documentation for further details.

