

Quest® NetVault® Backup Plug-in *for SAP
Adaptive Server Enterprise 11.4.5*

User's Guide



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Legend

-  **WARNING:** A WARNING icon indicates a potential for property damage, personal injury, or death.

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

-  **IMPORTANT NOTE, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

NetVault Backup Plug-in for SAP Adaptive Server Enterprise User's Guide
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Introducing NetVault Backup Plug-in for SAP Adaptive Server Enterprise

- [NetVault Backup Plug-in for SAP Adaptive Server Enterprise: at a glance](#)
- [Target audience](#)
- [Recommended additional reading](#)

NetVault Backup Plug-in for SAP Adaptive Server Enterprise: at a glance

The NetVault Backup Plug-in for SAP Adaptive Server Enterprise (Plug-in for SAP ASE), formerly known as Quest® NetVault Backup® Plug-in for Sybase, provides a backup-and-restore solution for protecting corporate data. The plug-in increases application availability by providing fast, online backup of databases for Linux, UNIX, and Windows environments. The main features included in the plug-in are:

- **Hot Backup:** User databases remain online and fully accessible during backup operations, minimizing downtime.
- **Supports multiple database servers operating on one machine:** Allows backup or restore operations to be applied to any available SAP Adaptive Server Enterprise (ASE) servers.
- **Selectable database backup operations:** Through a web-based user interface (WebUI) and automated workflow process, the plug-in offers a centralized way to set up, configure, and define backup and restore policies for your SAP ASE servers.
- **Multiple backup modes:** Supports full backups and transaction log backups.
- **Logs SAP ASE error messages:** The SAP ASE software records all messages to private log files. During backup and recovery operations, NetVault Backup intercepts log messages related to the current job and sends a copy to the NetVault Backup log. These messages are then displayed with other NetVault Backup job messages.

Target audience

While advanced DBA skills are not required to create and run routine backup operations, they are required for defining an efficient backup-and-recovery strategy and performing advanced recovery scenarios.

Recommended additional reading

The following documentation is also available:

- *Quest NetVault Backup Installation Guide*: This guide provides details on installing the NetVault Backup Server and Client software.
- *Quest NetVault Backup Administrator's Guide*: This guide explains how to use NetVault Backup and describes the functionality common to all plug-ins.
- *Quest NetVault Backup CLI Reference Guide*: This guide provides a description of the command-line utilities.

You can download these guides from <https://support.quest.com/technical-documents>.

Deploying, installing, and removing the plug-in

- [Deploying the plug-in](#)
- [Installation prerequisites](#)
- [Installing or upgrading the plug-in](#)
- [Removing the plug-in](#)

Deploying the plug-in

Installed by using the Manage **Clients** page, an installation environment for the Plug-in *for SAP ASE*, formerly known as Quest® NetVault Backup® Plug-in *for Sybase*, can be set up in one of two ways. The setup you use depends on various factors, including hardware availability and each system's overall resources.

- **Server-only environment:** In this environment, the NetVault Backup Server and the SAP ASE database server software are installed on the same machine. This configuration allows the NetVault Backup Server to act as a client to itself and back up SAP ASE data locally.
 - **Benefit:** Less hardware is required. Only one server machine is required to house both pieces of software.
 - **Drawback:** Having both software items on the system might affect system resources. A high-end machine is required.
- **Client/server environment:** In this environment, the machine acting as the NetVault Backup Server is a different machine than the one acting as the SAP ASE Server.
 - **Benefit:** There is less impact on both machines in use, so more resources are available for other operations, or lower-end machines may be used for each purpose. Also, more SAP ASE Servers can be easily added as need arises.
 - **Drawback:** More hardware is required.

Installation prerequisites

Preinstallation requirements vary based on the applicable installation environment. The following topics offer details on these requirements.

Before installing the Plug-in *for SAP ASE* to the target machine, verify that the following software is installed and configured, and that the following hardware requirements are met:

- SAP ASE, installed on the NetVault Backup machine containing Plug-in *for SAP ASE*
- **Minimum of 2 GB of physical memory**

Server-only environment

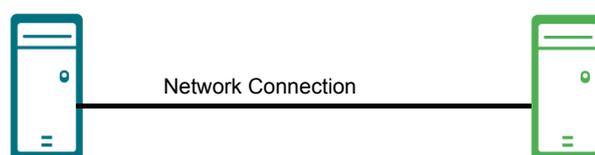
A server-only environment allows for one machine to serve as the NetVault Backup Server machine and SAP ASE machine. The following software must be successfully installed on the machine **before** the Plug-in for SAP ASE is installed:

- **SAP ASE Database Server software**
- **SAP ASE Backup Server software**
- **NetVault Backup Server software:** Ensure that the **Server** version of NetVault Backup is properly installed on the machine.

Client/server environment

A client/server environment is one in which the NetVault Backup Server and the SAP ASE Server are on separate machines, with the SAP ASE Server acting as a client to the NetVault Backup Server. The following table outlines the software and configuration requirements required to create this environment before you install the plug-in.

Table 1. Environment



SAP ASE machine	NetVault Backup Server machine
Software installed and configured <ul style="list-style-type: none"> • NetVault Backup Server or Client software installed • SAP ASE Backup Server software installed • SAP ASE Database Server software Installed • SAP ASE Open Client Runtime software installed 	Software installed and configured <ul style="list-style-type: none"> • NetVault Backup Server software installed • SAP ASE Server machine added as a Client through the Manage Clients page in the NetVault Backup WebUI

i **IMPORTANT:** Plug-in for SAP ASE cannot successfully back up data from a client machine whose NetVault Backup name contains a hyphen (“-”). To be a target of a Plug-in for SAP ASE backup, a NetVault Backup machine named this way must have NetVault Backup *reinstalled* and be given a new name that does not use a hyphen.

For details on adding clients to the NetVault Backup Server, see the *Quest NetVault Backup Administrator’s Guide*.

When many database servers and applications are running, more physical memory, and a higher shared memory setting, may be required.

Installing or upgrading the plug-in

- 1 Access the **NetVault Configuration Wizard** or **Manage Clients** page.

i **NOTE:** If the selected clients are all the same type, you can use the configuration wizard to install the plug-in on multiple clients at the same time. When you select multiple clients, verify that the plug-in binary file is compatible with the OS and platforms of the target clients. From the **Manage Clients** page, you can only select one client for plug-in installation.

- To access the **NetVault Configuration Wizard** page:
 - a In the Navigation pane, click **Guided Configuration**.
 - b On the **NetVault Configuration Wizard** page, click **Install Plugins**.
 - c On the next page, select the applicable clients.
- To access the **Manage Clients** page:
 - a In the Navigation pane, click **Manage Clients**.
 - b On the **Manage Clients** page, select the applicable machine, and click **Manage**.
 - c On the **View Client** page, click the **Install Plugin** button (🔍).

- 2 Click **Choose Plug-in File**, navigate to the location of the “.npx” installation file for the plug-in, for example, on the installation CD or the directory to which the file was downloaded from the website.

Based on the operating system (OS) in use, the path for this software may vary on the installation CD.

i **IMPORTANT:** To install this software on a remote client by using the NetVault Backup Server, the NetVault Backup Client must first be successfully added. For details on adding a NetVault Backup Client to the NetVault Backup Server, see the *Quest NetVault Backup Administrator's Guide*.

- 3 Select the file entitled “**syb-x-x-x-x.npx**,” where **xxxxx** represents the version number and platform, and click **Open**.
- 4 To begin installation, click **Install Plugin**.

After the plug-in is successfully installed, a message is displayed.
- 5 If you are using a UNIX/Linux-based OS, set the following environment variable to ensure that the Plug-in for SAP ASE can access the SAP ASE libraries:

```
LD_LIBRARY_PATH = <pathToSAPASEInstallation>/lib
```

Removing the plug-in

- 1 In the Navigation pane of the NetVault Backup WebUI on the NetVault Backup Server, click **Manage Clients**.
- 2 On the **Manage Clients** page, select the applicable client, and click **Manage**.
- 3 In the **Installed Software** table on the **View Client** page, select **Plug-in for SAP ASE**, and click the **Remove Plugin** button (🗑️).
- 4 In the **Confirm** dialog box, click **Remove**.

Configuring the plug-in

- [Configuration prerequisites](#)
- [Configuring default settings](#)

Configuration prerequisites

With the plug-in installed and before configuring the database environment through the NetVault Backup WebUI, ensure that the SAP ASE Server is up and running. Also verify that the SAP ASE administrator password is usable, not blank.

Checking the status of the SAP ASE Server on Linux or UNIX

- 1 Initiate a terminal session on the SAP ASE Server.
- 2 Navigate to the directory containing the SAP ASE “**showserver**” utility.

For example, in an environment running SAP ASE version 15.0, this utility resides in the following subdirectory of the SAP ASE installation directory, where “...” represents the path to the SAP ASE installation:

```
.../ASE-15_0/install/
```

- 3 From the command prompt, issue the command **showserver**.

In the following example, the database server is named **rlgsw14**.

```
rlgsw14# showserver
UIDPIDPPIDCSTIMETTYTIMECMD
sybase344343013:48:24pts/20:00/opt/sybase/bin/backupserver
-e/SSYB_BACKUP -e/opt/sybase/install
sybase338337013:48:08?0:03/opt/sybase/bin/dataserver
r -srlgsw14 -d/opt/sybase/master.datdataserver
```

- 4 After issuing the **showserver** command, note whether the “**-s**” argument for the data server is displayed at the beginning of the argument; for example, “**r -srlgsw14...**”, as shown in the last line of the example.
 - If the “**-s**” argument is displayed, the SAP ASE Server is ready for use with the Plug-in for SAP ASE.
 - If the “**-s**” argument for the data server does *not* appear at the beginning of the argument, NetVault Backup cannot look up the server name. In this case, perform the following steps:
 - a Locate the “**RUN_<server name>**” file, for example, **RUN_rlgsw14**, as shown in the following example, at:

```
$SYBASE/install/
```

- b Edit the content of the “**RUN_<serverName>**” file so that NetVault Backup can successfully locate the database server name from the [dataserver] command by adding the “**-s**” argument.

By doing so, the command outputs the “**-s**” argument information first.

```
#!/bin/sh
#
# Adaptive Server name: rlgsw14
# Master device path: /opt/sybase/master.dat
# Error log path: /opt/sybase/install/rlgsw14.log
# Directory for shared memory files: /opt/sybase
# /opt/sybase/bin/dataserver
-srlgsw14 <----- Note: This line was added here.
-d/opt/sybase/master.dat
-e/opt/sybase/install/rlgsw14.log
-M/opt/sybase
```

- c Restart the SAP ASE Server.

Setting the administrator’s password

The SAP ASE administrator’s password must *not* be set to a null value, that is, an actual value must exist. In the following example, syntax is used to create a password for the “**sa**” account, which currently has no password it is set to the null value. The password is changed to “**NetVault**”. You can select any password, that is, the password does not have to be “**NetVault**.”

The `sp_password` command is followed by the existing password, followed by the new password (NetVault), and finally the user.

```
#isql-Usa-P-Sbakbone
1>sp_password NULL,NetVault,sa
2>go
3>exit
#isql-Usa-PNetVault-Sbakbone
```

Configuring default settings

The plug-in lets you set default options for backup and restore jobs. You can override these options on a per-job basis.

- 1 In the Navigation pane of the NetVault Backup WebUI on the NetVault Backup Server, click **Create Backup Job**, and click **Create New** next to the **Selections** list.
- 2 In the selection tree, open the applicable client node, and select **Plug-in for SAP ASE**.
- 3 From the **Actions** list, select **Configure**.
- 4 On the **Configure** dialog box, complete the applicable fields:
 - **Sybase Installation Directory:** In this field, input the **exact** path to the local installation of the SAP ASE Server software.
 - **Sybase SYBASE_OCS:** Enter the name of the subdirectory in the SAP ASE installation directory that contains the SAP ASE **library** files, for example, files such as “**libinsck**” and “**libtli**.” For SAP ASE 15.0 or 15.5, enter **OCS-15_0**.
 - **Sybase SYBASE_ASE:** Enter the name of the subdirectory in the SAP ASE installation directory that contains the **scripts** used to run the SAP ASE service. For SAP ASE 15.0 or 15.5, enter **ASE-15_0**.

- **Default Account Name:** Enter the appropriate account name in this field. Obtain this information from your SAP ASE DBA.
 - **NOTE:** Starting with SAP ASE 15.0, SAP ASE Servers support password encryption and extended password encryption. The plug-in supports encryption and handles it automatically, depending on how you have configured passwords on the SAP ASE Client.

- **Sybase Severity to become a NetVault Error Message:** Set the severity level in this box to filter SAP ASE error messages. The higher the value, the more likely that NetVault Backup records these items in the logs. For example, if the severity level is a **9**, any SAP ASE errors with a severity level of **10 or higher** would *not* be displayed.
- **Sybase Timeout uses by the Client Library APIs:** Set the SAP ASE timeout period, in milliseconds in this box. The Client Library APIs will time out after the interval specified here.

If you do not want the plug-in to wait for the result of the operations—results are handled when they are available—and to time out if the connection with the SAP ASE Server does not occur, enter a **0**. Otherwise, use a value other than 0 to instruct the plug-in to wait for operations to finish.

- **IMPORTANT:** If the Plug-in *for SAP ASE* stops responding during a browse or backup operation, adjust or change the timeout value. The default value is 0. Different versions of SAP ASE might require the use of different values.

5 To save the settings, click **OK**.

Backing up data

- [Important considerations](#)
- [Selecting data for a backup](#)
- [Setting backup options](#)
- [Finalizing and submitting the job](#)
- [Using other backup procedures](#)

Important considerations

Because the plug-in backs up databases on the SAP ASE Server, which is constantly running, the plug-in does not back up the SAP ASE database **startup parameters** and **environmental settings**. Therefore, one of the following must take place to back up these necessary files:

- **Take the SAP ASE Database offline and perform a backup of the database:** With the database offline, these files are not active and are included in a standard backup of the database.
- **If a failure of the SAP ASE Database occurs, perform a backup of these files *before* attempting a recovery of the database:** In this case, back up the files located in: “.../opt/sybase”

Selecting data for a backup

You must use sets—Backup Selection Set, Backup Options Set, Schedule Set, Target Set, and Advanced Options Set—to create a backup job.

Backup Selection Sets are essential for Incremental and Differential Backups. Create the Backup Selection Set during a Full Backup, and use it for Full, Incremental, and Differential Backups. The backup job reports an error if you do not use a Selection Set for the Incremental or Differential Backup. For more information, see the *Quest NetVault Backup Administrator's Guide*.

TIP: To use an existing set, click **Create Backup Job**, and select the set from the **Selections** list.

- 1 In the Navigation pane, click **Create Backup Job**.

You can also start the wizard from the Guided Configuration link. In the Navigation pane, click **Guided Configuration**. On the **NetVault Configuration Wizard** page, click **Create backup jobs**.

- 2 In **Job Name**, specify a name for the job.

Assign a descriptive name that lets you easily identify the job when monitoring its progress or restoring data. The job name can contain alphanumeric and nonalphanumeric characters, but it cannot contain non-Latin characters. On Linux, the name can have a maximum of 200 characters. On Windows, there is no length restriction. However, a maximum of 40 characters is recommended on all platforms.

- 3 Next to the **Selections** list, click **Create New**.

- 4 In the list of plug-ins, open **Plug-in for SAP ASE** to display the SAP ASE Server.

- 5 Do one of the following:
 - If you want to back up the entire SAP ASE Server, select the displayed item, and skip to [Step 10](#).
 - If you want to perform a more detailed backup, that is, select individual SAP ASE databases for inclusion, proceed to [Step 6](#).
- 6 To open the SAP ASE Server, double-click it.
- 7 On the **Sybase Login** dialog box, enter the required login information so that you can browse the SAP ASE Server's individual database items:
 - **Account Name:** Enter the account name assigned to the SAP ASE Server during its creation; that is, the account name that allows access to the SAP ASE Server for the backup or restore of its database information. The value entered as the **Default Account Name** in the **Configure** dialog box is displayed by default.
 - **Password:** Enter the password that corresponds to the account name entered in the previous field.
- 8 Click **OK**.
- 9 In the list of individual database components that is displayed, select the applicable database items for inclusion in a backup.
- 10 Click **Save**, enter a name in the **Create New Set** dialog box, and click **Save**.

The name can contain alphanumeric and nonalphanumeric characters, but it cannot contain non-Latin characters. On Linux, the name can have a maximum of 200 characters. On Windows, there is no length restriction. However, a maximum of 40 characters is recommended on all platforms.

Setting backup options

The next step involves creating the Backup Options Set or selecting an existing one.

i | TIP: To use an existing set, in the **Plugin Options** list, select the set that you want to use.

- 1 Next to the **Plugin Options** list, click **Create New**.
- 2 In the **Sybase Backup Type** section of the **Options** tab, select the type of backup to perform:
 - **Full:** Performs a complete backup of selected data. This option is the equivalent to the following SAP ASE ISQL command: **DUMP DATABASE**
 - **Incremental:** Performs a backup of the transaction log for the selected items. After the backup, these logs are truncated. This option is the equivalent to the following SAP ASE ISQL command: **DUMP TRANSACTION**. For more information, see [Using Incremental Backups](#).
 - **Differential:** Performs a backup of the transaction log for the selected items. This option is the equivalent to the following SAP ASE ISQL command: **DUMP TRANSACTION WITH NO_TRUNCATE**. For more information, see [Using Differential Backups](#).

i | IMPORTANT: Before performing an **Incremental** or **Differential** Backup, a **Full** Backup of the same data *must* be performed.

For information about how an **Incremental** or **Differential** Backup sequence affects the way restores are performed, see [Restoring Incremental and Differential Backups](#).

An **Incremental** or **Differential** Backup of a database is only possible when the data and log are configured to reside on different devices. An error occurs if both data and log reside on the same device and an **Incremental** or **Differential** Backup is attempted. This error occurs because the NetVault Backup **Incremental** and **Differential** Backups are equivalent to the **Dump Transaction** command of SAP ASE that backs up the transaction log. SAP ASE Server only supports the **Dump Transaction** command if the transaction logs reside on a different device than the data resides on.

- 3 To save the set, click **Save**.

- 4 In the **Create New Set** dialog box, specify a name for the set, and click **Save**.

The name can contain alphanumeric and nonalphanumeric characters, but it cannot contain non-Latin characters. On Linux, the name can have a maximum of 200 characters. On Windows, there is no length restriction. However, a maximum of 40 characters is recommended on all platforms.

Finalizing and submitting the job

The final steps include setting additional options on the Schedule, Target Storage, and Advanced Options pages, submitting the job, and monitoring the progress through the Job Status and View Logs pages. These pages and options are common to all NetVault Backup Plug-ins. For more information, see the *Quest NetVault Backup Administrator's Guide*.

- 1 Use the **Schedule**, **Target Storage**, and **Advanced Options** lists to configure any additional required options.
- 2 Click **Save** or **Save & Submit**, whichever is applicable.

i | **TIP:** To run a job that you have already created and saved, select **Manage Job Definitions** in the Navigation pane, select the applicable job, and click **Run Now**.

You can monitor progress on the **Job Status** page and view the logs on the **View Logs** page. For more information, see the *Quest NetVault Backup Administrator's Guide*.

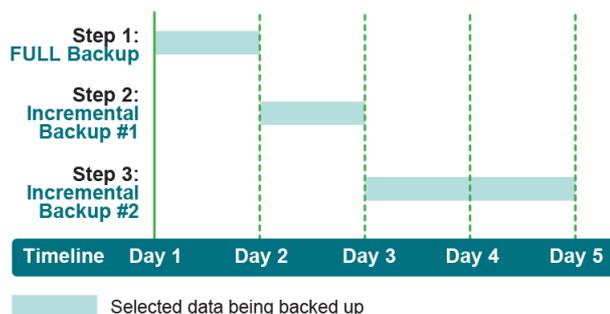
Using other backup procedures

The following topics offer instructions on performing other backup operations with this plug-in.

Using Incremental Backups

The following procedure outlines the steps necessary to perform a sequence of Incremental Backups.

- 1 **Run a Full Backup:** This step performs a complete backup of all data selected on the **NetVault Backup Selections** page and saved to an appropriately named Backup Selection Set. Follow this step by selecting **Full** in the **Sybase Backup Type** section of the **Options** tab.
- 2 **Run the initial Incremental Backup:** With the same data set selected through the saved Backup Selection Set in **Step 1**, select **Incremental** in the **Sybase Backup Type** section on the **Options** tab. Only the data that has **changed** since the original Full Backup is included in this job.
- 3 **Run additional Incremental Backups (as required):** With the same data set selected as in the previous two backups, start additional Incremental Backups. These backups create a backup saveset of *only* the data that has changed since the most recent backup, regardless of type. For example, using the cycle started in the previous two steps, the next Incremental Backup would only include data that is new or changed since the previous Incremental Backup.



- 4 **Restore the data as required:** Restoring from an Incremental Backup scenario requires that a specific set of steps be followed. For information about these required steps, see [Restoring Incremental and Differential Backups](#).

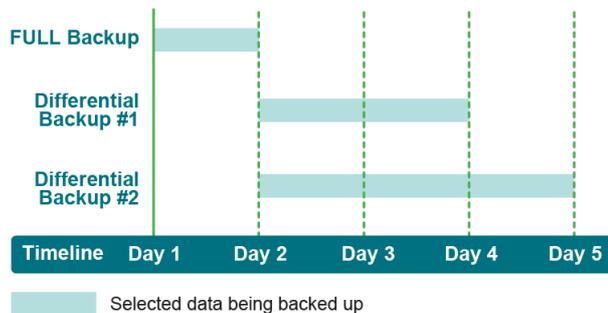
Synopsis: faster backup, slower restore

Incremental Backup scenarios offer the fastest form of backup strategy because only data that is new or changed since the last backup is included. However, restoring data from an Incremental Backup scenario tends to take longer because each specific backup in the sequence, from the original Full Backup through the applicable Incremental Backup, must be restored to bring a database back to a specific point. For example, the original Full Backup must be recovered first, followed by the individual restore of *each subsequent* Incremental Backup, up to the applicable point.

Using Differential Backups

The following procedure outlines the steps used to perform a Differential Backup scenario.

- 1 **Run a Full Backup:** This step performs a complete backup of all data selected on the **NetVault Backup Selections** page and saved to an appropriately named Backup Selection Set. Follow this step by selecting **Full** in the **Sybase Backup Type** section of the **Options** tab.



- 2 **Run an initial Differential Backup:** With the same data set selected through the saved Backup Selection Set in [Step 1](#), select **Differential** from the **Sybase Backup Type** section on the **Options** tab. Only the data that has *changed* since the original Full Backup is included in this job.
- 3 **Run additional Differential Backups (as required):** Each additional Differential Backup performed continues to include all data that is new or changed since the original Full Backup, *including* all data included in any previous Differential Backups.
- 4 **Restore the data as required:** Restoring from a Differential Backup scenario requires that a specific set of steps be followed. For information about these required steps, see [Restoring Incremental and Differential Backups](#).

Synopsis: slower backup, faster restore

Differential Backup scenarios offer a slower form of backup strategy because *all* data that is new or changed *since the original Full Backup* is included for *each* Differential Backup performed in a series. However, restoring data from this backup scenario is faster, as only the original Full Backup and the Differential Backup performed at the applicable point must be recovered. For example, if a Full Backup and a series of three Differential Backups have been performed, and you must restore a database to its most recently backed-up state, only the original Full Backup, followed by the last Differential Backup must be restored.

Restoring data

- [Selecting data for a restore](#)
- [Setting restore options](#)
- [Finalizing and submitting the job](#)
- [Completing post-restore requirements](#)
- [Using other restore procedures](#)

Selecting data for a restore

- 1 If you are performing an **Incremental** or **Differential** restore, take the database **offline** to prevent an error from occurring.

For more information, see [Restoring Incremental and Differential Backups](#).

- 2 If you are restoring a master database, see [Restoring the master database](#) for more information.
- 3 In the Navigation pane of the NetVault Backup WebUI on the NetVault Backup Server, click **Create Restore Job**.
- 4 On the **Create Restore Job—Choose Saveset** page, select **Plug-in for SAP ASE** from the **Plugin Type** list.
- 5 To filter the items displayed in the saveset table further, use the **Client**, **Date**, and **Job ID** lists.
The table displays the saveset name (job title and saveset ID), creation date and time, and size. By default, the list is sorted by creation date.

- 6 In the saveset table, select the applicable item.

When you select a saveset, the following details are displayed in the **Saveset Information** area: Job ID, job title, server name, client name, plug-in name, saveset date and time, retirement setting, Incremental Backup or not, Archive or not, saveset size, and snapshot-based backup or not.

- 7 Click **Next**.

- 8 On the **Create Selection Set** page, select the data that you want to restore.

You can select an entire SAP ASE Server item from this level of the tree. Selected in this manner, all items included in this particular backup are restored. For example, if an entire SAP ASE Server was backed up in this backup saveset, *all* this data is restored. Also, if only selected databases were included in the backup, *all* these individually selected databases are restored.

- 9 If you want to perform a more detailed restore, that is, you do not want to restore all backed-up data, open the SAP ASE Server, and select the applicable databases to restore.

Setting restore options

On the **Create Selection Set** page, click **Edit Plugin Options**, and configure the following parameters on the **Options** tab:

- **Account:** Enter the account name for the selected server that has the appropriate access for restore. By default, the value entered in the **Default Account Name** field of the **Configure** dialog box is displayed in this field.
- **Password:** Enter the password value associated with the specified account.
 - **IMPORTANT:** The **Account Name** used for the restore must have an associated SAP ASE password; that is, a password must have been set up for the account and this value must appear in the **Password** field of the **Options** tab. Using an Account Name that does not have an associated password causes the restore job to fail.
Entries in the **Password** field are case-sensitive.
- **Target Server:** If it is necessary to relocate a restore to a different SAP ASE Server instance, enter the name of the SAP ASE Server to which the restore should be sent. By default, the name of the SAP ASE Server from which this backup was initially taken is displayed in this field. For more information, see [Restoring a database to a new location \(relocation\)](#).
- **Backup Type:** This field shows the type of backup that was performed for the selected backup saveset, for example, **FULL**, **INCREMENTAL**, or **DIFFERENTIAL**.

Finalizing and submitting the job

The final steps include setting additional options on the **Schedule**, **Source Options**, and **Advanced Options** pages, submitting the job, and monitoring the progress through the **Job Status** and **View Logs** pages. These pages and options are common to all NetVault Backup Plug-ins. For more information, see the *Quest NetVault Backup Administrator's Guide*.

- 1 To save the settings, click **Ok**, and then click **Next**.
- 2 In **Job Name**, specify a name for the job if you do not want to use the default setting.

Assign a descriptive name that lets you easily identify the job when monitoring its progress. The job name can contain alphanumeric and nonalphanumeric characters, but it cannot contain non-Latin characters. On Linux, the name can have a maximum of 200 characters. On Windows, there is no length restriction. However, a maximum of 40 characters is recommended on all platforms.
- 3 In the **Target Client** list, select the machine on which you want to restore the data.
 - **TIP:** You can also click **Choose**, and then locate and select the applicable client in the **Choose the Target Client** dialog box.
- 4 Use the **Schedule**, **Source Options**, and **Advanced Options** lists to configure any additional required options.
- 5 Click **Save** or **Save & Submit**, whichever is applicable.

You can monitor progress on the **Job Status** page and view the logs on the **View Logs** page. For more information, see the *Quest NetVault Backup Administrator's Guide*.

Completing post-restore requirements

After the SAP ASE database has been successfully restored with NetVault Backup, bring each restored database online. By using the SAP ASE software on the target SAP ASE Server, you must bring *each* successfully restored database back online. For instructions on bringing a SAP ASE database online, see the SAP ASE documentation.

Using other restore procedures

This topic describes other restore operations that you can perform with the Plug-in *for SAP ASE*.

Restoring Incremental and Differential Backups

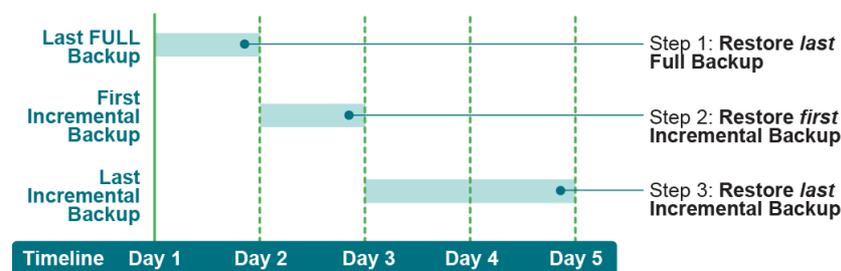
It is important to understand how Incremental and Differential Backups are performed to restore either of these types of backup properly. Therefore, Quest recommends that you review [Using Incremental Backups](#) and [Using Differential Backups](#) before attempting a restore of either type. The following topics outline the steps required to restore from Incremental and Differential Backups successfully.

Restoring from an Incremental Backup

IMPORTANT: To prevent an error from occurring, take the database **offline** *before* performing an **Incremental** restore.

Restore from an Incremental Backup: Last Full plus all relevant Incremental Backups: Using this strategy to restore a database to a specific point, first restore the **original Full Backup** and then **each individual Incremental Backup** in the order that they were created, up to the applicable point. The following example shows what would be required to restore a database to its most recently backed-up state, after the original Full Backup and two subsequent Incremental Backups had been performed.

Figure 1. Example of restore for Incremental Backup



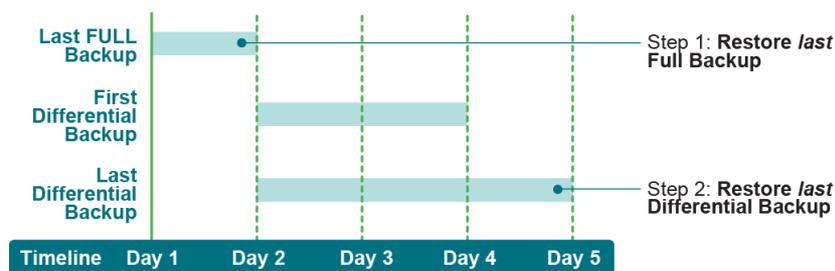
IMPORTANT: If Incremental Backups are restored in the incorrect order, an error message is displayed stating that the restore sequence is not correct, and the restore fails. Restart the recovery procedure, including the restore of the most recent Full Backup.

Restoring from a Differential Backup scenario

i | **IMPORTANT:** To prevent an error from occurring, take the database **offline** *before* performing a Differential Restore.

Restore from a Differential Backup: Last Full Backup plus last Differential Backup: Using this strategy, first restore the **original Full Backup** and then *only* the subsequent Differential Backup that was performed at the applicable point. Because a Differential Backup involves backing up all data that is new or has changed since the original Full Backup every time, you do not have to restore each individual Differential Backup in the order it was performed. The following example reveals that only the original Full Backup and the most recently performed Differential Backup must be restored to bring a database to its most recently backed-up state.

Figure 2. Example of restore for Differential Backup



Restoring the master database

SAP ASE requires the database server to be in single-user mode before restoring a **master** database.

- 1 Place the database server in single-user mode.

For instructions on this procedure, see the SAP ASE documentation.

- 2 Restore the **master** database backup following the steps in [Selecting data for a restore](#), [Setting restore options](#), [Finalizing and submitting the job](#), and [Completing post-restore requirements](#) to initiate the restore.

i | **IMPORTANT:** When you restore a **master** database, verify that the *only* item selected is the **master** database.

After the restore job is finished, the SAP ASE Server shuts down and restarts automatically.

Restoring a nonexistent database

You can restore a database to a SAP ASE Server that currently does not contain the specified database.

- 1 Re-create the missing database.

First create a database on the target SAP ASE Server that is the same as the one to be restored. Accomplish this step by using the **SAP ASE Software Tools** or through **SAP ASE ISQL**. Verify that the device allocations are the same as or larger than those allocations defined for the original database.

- 2 Using the steps in [Restoring Incremental and Differential Backups](#), restore the **most recent Full Backup** for the applicable database.

Renaming a database for a restore

You can rename a database item that is to be recovered during a restore. This process is useful when you must restore a backed-up database item without overwriting an existing one.

- 1 In the Navigation pane, click **Create Restore Job**, select **Plug-in for SAP ASE** from the **Plugin Type** list, select the applicable saveset, and click **Next**.

For more information, see [Selecting data for a restore](#).

- 2 Select the applicable database on the **Create Selection Set** page.
- 3 From the **Actions** list, select **Rename**.
- 4 In the **Rename/Relocate** dialog box, enter the new name in the **Rename** box, and click **Ok**.

The plug-in updates the database node to display the new name in parentheses.

- 5 Select the check box for the renamed database item to include it in the restore job.
- 6 Configure the applicable restore options.

For more information, see [Setting restore options](#).

- 7 Complete and submit the job.

For more information, see [Finalizing and submitting the job](#).

Upon completion of the job, the renamed item is restored to its original location, but is assigned the new name value.

i | **IMPORTANT:** Although you can select the actual SAP ASE Server client item to perform a restore of an entire SAP ASE Server backup, you cannot use the **Rename** functionality at this level of the selection tree.

- 8 Complete the post-restore requirements.

For more information, see [Completing post-restore requirements](#).

Restoring a database to a new location (relocation)

Restoring a database to a new location lets you restore a database with its original name and configuration, but to a new location. Verify that the following requirements are met:

- To restore a database to a new location, both machines, (the machine that the original data was backed up from and the machine to which the restore is to be relocated), must contain the same **SAP ASE Home** directory setup, that is, regarding location on the system.
- To relocate a SAP ASE database to a different SAP ASE Server, the intended target machine must meet the following NetVault Backup-related requirements:

- **NetVault Backup installed:** At a minimum, the Client version of NetVault Backup must be installed on the target machine. Also, the Plug-in for SAP ASE must be installed and licensed for use.
- **Added as a Client to the NetVault Backup Server:** The new SAP ASE Server target machine must be added to the NetVault Backup Server as a NetVault Backup Client. This requirement is controlled from the Manage **Clients** page. For details on this procedure, see the *Quest NetVault Backup Administrator's Guide*.

- 1 On the target SAP ASE Server, create a database that has the **same name and configuration** as the original.

For details on creating a database in a SAP ASE environment, see the SAP ASE documentation.

- 2 In the Navigation pane, click **Create Restore Job**, select **Plug-in for SAP ASE** from the **Plugin Type** list, select the applicable saveset, click **Next**, and select the database that you want to restore.

For more information, see [Selecting data for a restore](#).

- 3 On the **Create Selection Set** page, click **Edit Plugin Options**, and configure the following parameters on the **Options** tab:
 - In the **Default Target Server** field, enter the name of the new SAP ASE Server.
 - In the **Account** field, enter the account name that corresponds to newly set SAP ASE Server, that is, an account name that allows access to the installation of SAP ASE on the target machine.
 - In the **Password** field, enter the password associated with this account.

i **IMPORTANT:** Entries in the **Password** field are case-sensitive.

The **Account** and **Password** values given must be associated with the new target SAP ASE Server for this operation to function properly. Verify that the values entered for these two fields correspond to the applicable target SAP ASE Server.

- 4 To save the settings, click **Ok**, and then click **Next**.
- 5 In **Job Name**, specify a name for the job if you do not want to use the default setting.

Assign a descriptive name that lets you easily identify the job when monitoring its progress. The job name can contain alphanumeric and nonalphanumeric characters, but it cannot contain non-Latin characters. On Linux, the name can have a maximum of 200 characters. On Windows, there is no length restriction. However, a maximum of 40 characters is recommended on all platforms.
- 6 In the **Target Client** list, select the applicable target SAP ASE Server.

Ensure that the applicable SAP ASE Server is the machine that is selected. Only machines that are added to the NetVault Backup Server as clients are displayed in this list. If the applicable machine is not listed, it must be added as an NetVault Backup Client.
- 7 Use the **Schedule**, **Source Options**, and **Advanced Options** lists to configure any additional required options.
- 8 Click **Save** or **Save & Submit**, whichever is applicable.
- 9 If you are recovering an Incremental or Differential Backup, use the instructions in [Restoring Incremental and Differential Backups](#) in addition to these instructions to recover each phase of the backup.
- 10 Complete the post-restore requirements.

For more information, see [Completing post-restore requirements](#).

Troubleshooting

This topic describes some common errors and their solutions. In those cases where an error occurs and is not described in this table, obtain the SAP ASE error number from the NetVault Backup Logs, and then see the relevant SAP ASE documentation for the resolution.

Table 2. Troubleshooting

Symptom	Log message	Solution
NetVault Backup 10.x service (netvault-pgsql) does not start on Windows	Check the Windows Event Viewer for the following message: PDT FATAL: lock file "postmaster.pid" already exists.	NetVault Backup 10.x uses a PostgreSQL database. If the PostgreSQL database does not start, NetVault Backup cannot start. To correct this issue, delete the "postmaster.pid" file from the location referenced in the log and restart the NetVault Backup Server. For more information, see https://support.quest.com/netvault-backup/kb/122475 .
Backup failed	Unable to open API library for device.	Verify that the "libsybhook" file has been copied from the "NetVault\lib" directory to the appropriate SAP ASE directory. For more information, see Backing up data .
Backup failed (Linux/UNIX-based SAP ASE Server)	Either of the following: <ul style="list-style-type: none"> Warning <DateAndTime> Data Plug-in AS3SMP Did not receive message back from libsybhook before grace time expired Error <DateAndTime> Data Plug-in AS3SMP Sybase Message: 'Error encountered by Backup Server. Please refer to Backup Server messages for details.' 	The first time that the plug-in is used, NetVault Backup automatically generates a necessary symbolic link between the instance of SAP ASE and the NetVault Backup Server, that is, "\$SYBASE/ASE-<version#>/lib/libsybhook.<so/a/sl>" to "\$NV_HOME/lib//libsybhook.<so/a/sl>." If one of these errors is displayed, it indicates that this symbolic link has been modified or removed. This link should be left alone and not modified. However, it can be re-established by issuing the following command from a terminal session prompt on the SAP ASE Server: <pre>ln -s / &lt; netvault_home &gt; / lib / libsybhook. < so / sl > \$SYBASE_HOME / ASE - < version # > / lib / libsybhook. < so / sl ></pre> Ensure that the proper version is used to call out the installation directory for SAP ASE, for example, "15_0" for 15.0 or 15.5. Also ensure that the proper file extension is used for your OS, for example, ".so" or ".sl."
Backup failed	...The attempt to connect to the server failed.	Verify that the password for the database server has not been changed between the time that the backup job was scheduled and the time that the job ran. To resolve this issue, redefine the job.

Table 2. Troubleshooting

Symptom	Log message	Solution
Backup Completed with warnings	<p>After this status is displayed for a backup, check the NetVault Backup log entries for the job to see if they display one or both of the following messages:</p> <ul style="list-style-type: none"> “Failed to add backup record” “Failed to write index of backup to the database” <p>These messages indicate that the selected data was backed up, but the job’s index information was not properly added by NetVault Backup to its database. Without this index information, the data cannot be properly restored.</p>	<p>Method 1:</p> <p>Access the Manage Devices page in the NetVault Backup WebUI and scan the media targeted by the job. NetVault Backup stores index information for backup jobs in two locations: in the NetVault Database and on the media targeted by the backup. Performing this scan adds the index information to the NetVault Database. To verify that the information was added, open the Create Restore Job—Choose Saveset page and locate the specific job. If you can browse it and set up a restore job, the scan process has corrected the problem.</p> <p>Method 2:</p> <p>If the previous method failed, run the backup job again.</p>
An incremental or differential backup of a database failed.	<p>Syslogs does not exist in its own segment in database <database> with segmap <x> with logical start page number of '0'. You cannot use DUMP TRANSACTION in this case. Use DUMP DATABASE instead.</p>	<p>The database device was configured so that the data and logs reside together and must be backed up as a unit. For more information, see the SAP ASE documentation.</p>
Restore “Completed with Warnings”	<p>...The attempt to connect to the server failed.</p>	<p>A password was not specified on the Options tab of the Create Restore Job—Choose Saveset page. Enter the correct password for the account and resubmit the job.</p> <p>For more information, see Restoring data.</p>
Restore “Completed with Warnings”	<p>...Net-Lib protocol driver call to connect two endpoints failed.</p>	<p>The database server selected for restore was offline. Ensure that the database server is online.</p> <p>For more information, see Restoring data.</p>
Database restore “Completed with Warnings”	<p>Attempt to locate entry in sysdatabases for database <name> by name failed – no entry found under that name. Make sure that name is entered properly.</p> <p>NOTE: When viewing the job log in the View Logs page, set the Filter Options to Information to view the complete message.</p>	<p>The database selected for restore does not exist on the target SAP ASE Server. Using SAP ASE-native utilities, re-create the database with specifications that are the same as or greater than the original, before attempting the restore. For instructions on re-creating a database, see the SAP ASE documentation.</p>
Incremental restore “Completed with Warnings”	<p>Specified ‘dump device’ is out of sequence.</p>	<p>An Incremental Backup sequence is being recovered out of order. Previous Incremental Backups must be recovered in order before attempting to recover the selected Incremental.</p> <p>For more information, see Restoring Incremental and Differential Backups.</p>

Table 2. Troubleshooting

Symptom	Log message	Solution
Master Database restore "Completed with Warnings"	<p>Any of the following:</p> <ul style="list-style-type: none"> • ...Net-Library operation terminated due to disconnect. • ...The connection has been marked dead. • ...There is a usage error. This routine has been called at an illegal time. 	<p>You can ignore these messages. This result is expected behavior and the restore has completed successfully. These messages only indicate that the connection between the plug-in and the SAP ASE Server was dropped due to the successful restore of the master database; that is, any client connections to the SAP ASE Server are still valid.</p>
Cannot open the database server to display the databases within it.	<p>Failed to get list of databases – check login information. Also check that the locales.dat SAP ASE file contains a matching entry for the environment</p>	<p>Method 1: Verify that the database server is online and that the correct password was entered on the NetVault Backup Selections page.</p> <p>Method 2:</p> <ol style="list-style-type: none"> 1 On the SAP ASE Server machine, run: <code>export LANG=C</code> 2 To verify that all locale environment variables have been changed, run: <code>locale</code> 3 If not, set the variables manually. For example: <code>export LC_MESSAGES=C</code> 4 On the SAP ASE Server, stop and restart the NetVault Backup Service.

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