

# Configuring the Vizioncore™ vRanger Pro™ 4.1 DPP Sweep-to-Tape Feature

---

(December 2, 2009)

## Table of Contents

Overview .....	3
Required Components .....	3
Scenario 1 – vRanger Pro & 3 <sup>rd</sup> -party tape software on the same server .....	3
Scenario 2 – vRanger Pro & 3 <sup>rd</sup> -party tape software on different servers .....	4
Configuration Steps.....	4
Install and Configure vRanger Pro to do an On-Demand Job .....	4
Install and Configure PowerShell on the vRanger Pro server .....	6
Install and Configure Backup Exec on the vRanger Pro server .....	10
Run Sweep-to-Tape.....	13
Restore From Backup Exec.....	13
Troubleshooting Sweep-to-Tape .....	14

## Overview

This document provides instructions for configuring vRanger Pro 4.1 DPP to work with 3<sup>rd</sup>-party tape software. A 60-day trial of Symantec™ Backup Exec™ 12.5 for Windows Servers (32-bit) is used as an example but other 3<sup>rd</sup>-party tape software should also work.

There is an accompanying video that demonstrates the sweep-to-tape feature once the necessary components have been installed and configured.

To configure the vRanger Pro 4.1 DPP sweep-to-tape feature, both vRanger Pro 4.1 DPP and Backup Exec must point to a common vRanger Pro repository folder located locally on the vRanger Pro 4.1 DPP server.

The vRanger Pro backup administrator creates an on-demand (not scheduled), incremental job with a specific name, appending **-Tape** as a case-sensitive suffix (e.g., *any-jobname-Tape*). The **-Tape** suffix can be changed by editing the PowerShell script if you prefer something else. There should be a dedicated repository for each on-demand job.

The Backup Exec administrator schedules a recurring incremental backup job whose PRE field calls a .cmd file containing the PowerShell script that searches for and then starts the vRanger Pro on-demand job(s) with the **-Tape** suffix.

The vRanger Pro on-demand job performs the incremental backup, placing the savepoint files in the repository and updating the repository's global manifest file.

After the vRanger Pro job completes (e.g., the job status equals either success or failure), the PowerShell script exits, thus completing the Backup Exec PRE command.

With the Backup Exec PRE command completed, Backup Exec, which is also pointing to the vRanger Pro repository folder, runs its scheduled incremental job, backing up the vRanger Pro savepoints and global manifest file to tape or whatever media server type is configured.

## Required Components

### Scenario 1 – vRanger Pro & 3<sup>rd</sup>-party tape software on the same server

1. Backup Exec (or similar) on a Windows 2003 server .  
Note: a physical server will provide better performance than a VM.
2. vRanger Pro 4.1 DPP resides on the Backup Exec server.
3. A local repository shared by vRanger Pro and Backup Exec.
4. PowerShell (PowerShell and vRanger Pro must always be installed on the same server).
5. A PowerShell script that finds and launches the vRanger Pro on-demand job.
6. A CMD file that contains the PowerShell script.

## Scenario 2 – vRanger Pro & 3<sup>rd</sup>-party tape software on different servers

Backup Exec is on its own server. All other components, including a remote tape backup agent, reside on the vRanger Pro server. Note: Scenario 2 is not discussed in this document.

### Server 1-Backup Exec:

1. Backup Exec (or similar) on a Windows 2003 server

### Server 2-vRanger Pro/PowerShell:

1. Backup Exec remote tape backup agent that can run a Backup Exec PRE command. The agent runs the PowerShell script contained in the .CMD file called via the PRE command
2. vRanger Pro 4.1 DPP resides on its own server
3. A local repository located on the vRanger Pro server and shared by vRanger Pro and Backup Exec
4. PowerShell (PowerShell and vRanger Pro must always be installed on the same server)
5. A PowerShell script that finds and launches the vRanger Pro on-demand job
6. A CMD file that contains the PowerShell script

## Configuration Steps

Scenario 1 only: All components reside on the Backup Exec server.

Assumptions;

1. The customer already will have a Backup Exec physical server and vRanger Pro will be installed on that server.
2. SEs doing demos will already have a vRanger Pro server on a VM and will install Backup Exec on that VM. The steps below use this assumption in presenting the order of the configuration steps.  
Note: Performance using a VM will be slow.

Steps:

### Install and Configure vRanger Pro to do an On-Demand Job

1. Install vRanger Pro 4.1 DPP with SP1 onto a dual core CPU (if possible) 32-bit Windows 2003 server with 2GB of RAM. Adjust your VM resources as needed, especially since Backup Exec will also be running on this server. Consider placing the local CIFS repository on the vRanger Pro server D: drive.

vRanger Pro 4.1 DPP download: <http://downloads.vizioncore.com/>

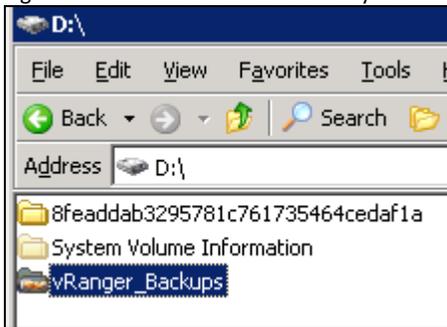
vRanger Pro 4.1 SP1 download: <http://downloads.vizioncore.com/>

For the VM used in the demo, I used these settings:

- Windows 2003, 32-bit
- Memory: 512 MB
- CPU: 1
- Hard Disk 1: 10GB (C:)
- Hard Disk 2: 20GB (D:)

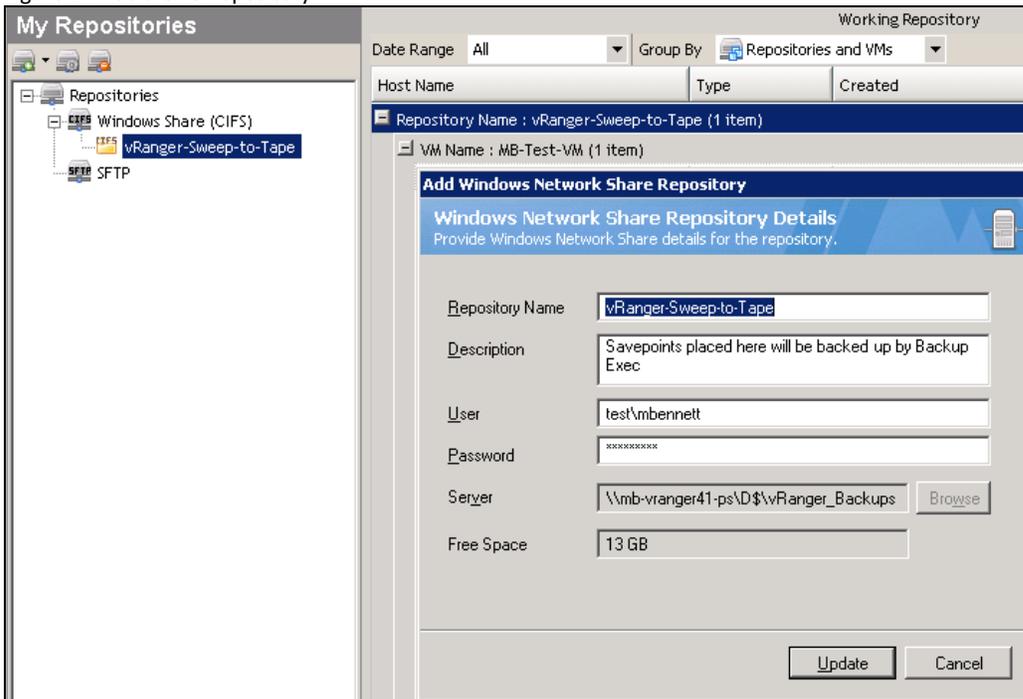
2. Create the local share **D:\vranger\_backups** (or similar).
  - a. Assign the group Everyone (or similar) Full Control for the Share.
  - b. The user credentials specified in the next step when adding the repository should have Full Control NTFS security. This folder will become the CIFS repository that contains the incremental job savepoints and global manifest file. The folder should have enough disk space to hold a full backup and several incremental backups.

Figure 1 - Shared Folder to be used by both vRanger Pro and Backup Exec



3. Add a local CIFS repository on the vRanger Pro server that points to the **vranger\_backups** share. Click **My Repositories > Add >** specify the necessary repository details, pointing to the share.

Figure 2 - Add a CIFS Repository



4. Create an on-demand, daily, incremental backup job that backs up your environment. In this paper, we will backup a single server for simplicity. Click:
  - a. **My Inventory > Add > Backup Job > Advanced > Job Name = vRanger-Sweep-to-Tape > Next.**
  - b. Select VMs to exclude > **Next.**
  - c. Select hard disks to include > **Next.**
  - d. Select your Options > **Next.**
  - e. For Retention Policy, select Savepoint Count=7, Space Saving Technology=Incremental, Threshold Count=6 > **Next.**

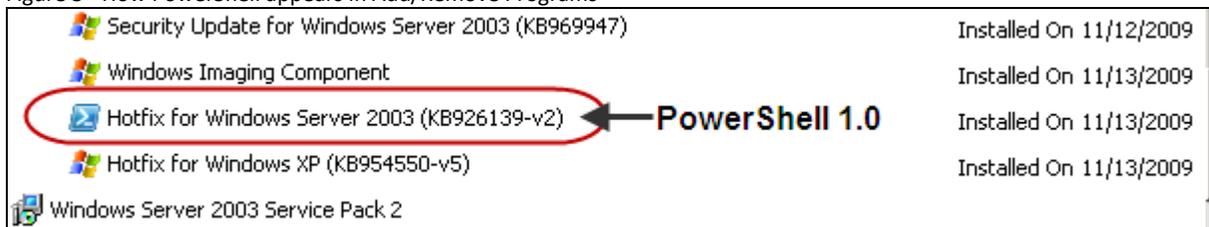
If Backup Exec calls this on-demand job daily, there will be a full backup performed the first day and an incremental backup performed each of the remaining days of the week.

- f. Select the **This will be an on demand job and does not require a recurrence schedule** checkbox > **Next.**
- g. Click the **vRanger-Sweep-to-Tape** CIFS repository to select it > **Next.**
- h. Select the email address(es) that should be notified when the job has completed running. The **Email a report after the job has finished running** checkbox should remain checked > **Next**
- i. Review your settings and click **Finish.**

## Install and Configure PowerShell on the vRanger Pro server

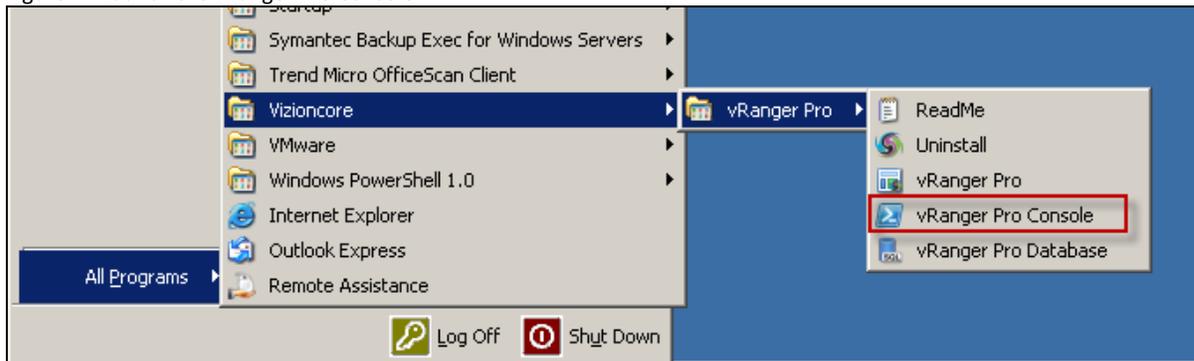
5. From <http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=10ee29af-7c3a-4057-8367-c9c1dab6e2bf>, download PowerShell 1.0 for Windows Server 2003 to the vRanger Pro 4.1 DPP server.
6. Install PowerShell. PowerShell appears in Add/Remove Programs as a hotfix:

Figure 3 - How PowerShell appears in Add/Remove Programs



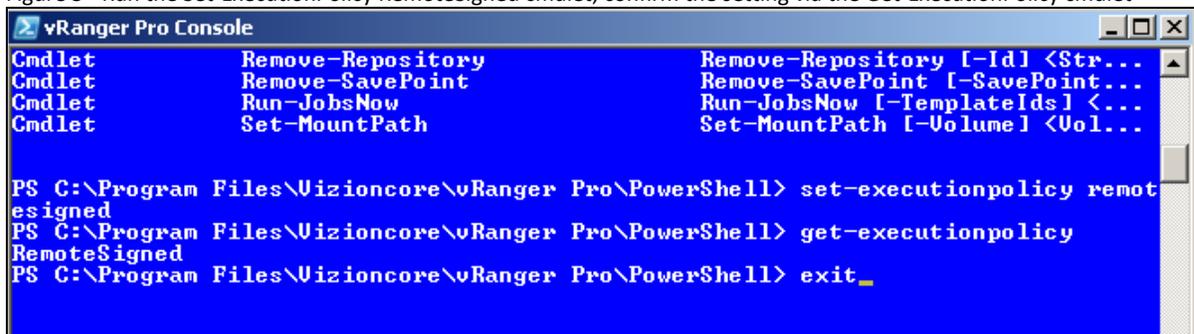
7. Click **Start > All Programs > Vizioncore > vRanger Pro > vRanger Pro Console** to launch the vRanger Pro Console.

Figure 4 - Launch the vRanger Pro Console



8. Set the PowerShell Script Execution Policy to **RemoteSigned** (see Figure 5).
  - a. Set the PowerShell Script Execution Policy to **RemoteSigned** by running the cmdlet: **Set-ExecutionPolicy RemoteSigned**.
  - b. Confirm the policy setting by running the **Get-ExecutionPolicy** cmdlet.
  - c. Exit PowerShell by running the **Exit** cmdlet.

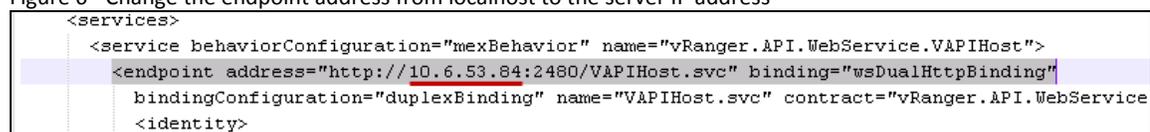
Figure 5 - Run the Set-ExecutionPolicy RemoteSigned cmdlet; confirm the setting via the Get-ExecutionPolicy cmdlet



See <http://www.microsoft.com/technet/scriptcenter/topics/msh/cmdlets/set-executionpolicy.msp> for an explanation of the available PowerShell Execution Policies.

9. Edit the vRanger Pro 4.1 DPP config files with Notepad (or similar) to use the vRanger Pro server's local IP address instead of localhost.
  - a. Edit the **vRanger.API.exe.config** file.
    - i. **Edit:** \Program Files\Vizioncore\vRanger Pro\PowerShell \vRanger.API.exe.config.
    - ii. **Change:** <endpoint address="http://localhost:2480/VAPIHost.svc" binding="wsDualHttpBinding"
    - iii. **To:** <endpoint address="http://<Server-IP>:2480/VAPIHost.svc" binding="wsDualHttpBinding"

Figure 6 - Change the endpoint address from localhost to the server IP address





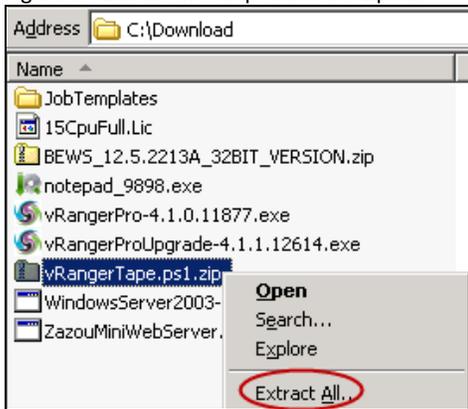
- b. Edit the **vRanger.API.PowerShell.dll.config** file.
  - i. **Edit:**     \Program Files\Vizioncore\vRanger Pro\PowerShell \vRanger.API.PowerShell.dll.config.
  - ii. **Change:** <endpoint address="http://localhost:2480/VAPIHost.svc" binding="wsDualHttpBinding"
  - iii. **To:**     <endpoint address="http://<Server-IP>:2480/VAPIHost.svc" binding="wsDualHttpBinding"

Figure 7 - Change the endpoint address from localhost to the server IP address

```
<client>
  <endpoint address="http://10.6.53.84:2480/VAPIHost.svc" binding="wsDualHttpBinding"
    bindingConfiguration="VAPIHost.svc" contract="vAPIService.IVAPIHost"
    name="VAPIHost.svc">
  <identity>
```

- 10. Download the PowerShell script that will launch the vRanger Pro 4.1 DPP on-demand job.
  - a. Go to the URL and save the zip file to any folder (e.g., c:\download) on the vRanger Pro 4.1 DPP server: <http://www.vizioncore.com/downloads/vRangerPro/PowerShellScripts/vRangerTape.ps1.zip>.
  - b. Extract the script from the zip file by right-clicking the file and clicking **Extract All**.

Figure 8 - Extract the script from the zip file



- c. While you do not need to edit the script, you can open it with Notepad to understand why your vRanger Pro 4.1 DPP job name has to have the suffix **-Tape** (case sensitive).

The PowerShell **\$JobString = "\*-Tape"** must match the suffix used in your vRanger Pro 4.1 DPP job name. As long as they match, you can change the \$JobString and vRanger Pro 4.1 DPP job name suffix to something other than -Tape.

Figure 9 - PowerShell \$JobString must match the vRanger Pro 4.1 DPP job name suffix

```
# Modify the JobString below to execute specific jobs. * is a wildcard character. For Example,
#   "-Tape" will list all jobs that END in "-Tape". By default, all On-Demand Jobs will be passed
#   to the vRanger Service.
$JobString = "*-Tape"
```

- d. Close the file.
- e. Using Notepad, create a CMD file in the C:\Download\vRangerTape.ps1 folder titled **vRangerTape.cmd**. Its contents are:

```
@echo off
c:\windows\system32\windowspowershell\v1.0\powershell.exe c:\download\vRangerTape.ps1\vRangerTape.ps1
```

Note: Make sure that the **vRangerTape.cmd** file has .CMD extension, not a .TXT extension.

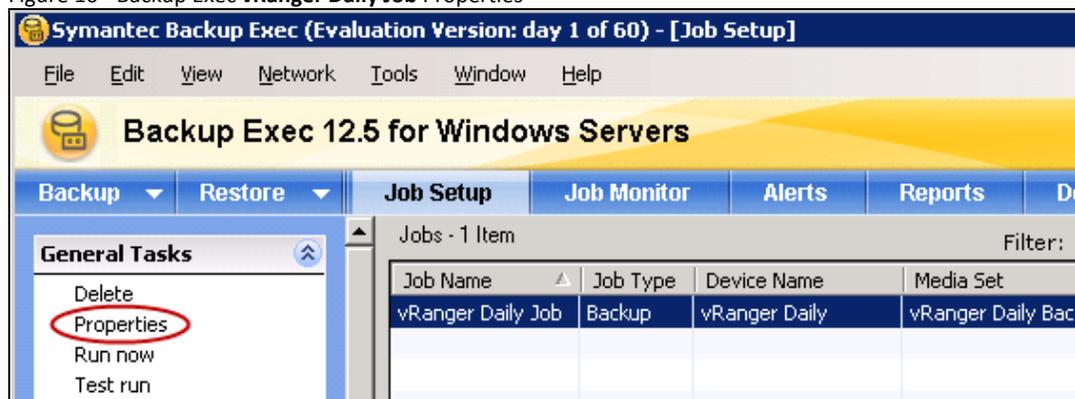
## Install and Configure Backup Exec on the vRanger Pro server

11. Download, install, and configure Backup Exec.
  - a. Download a Backup Exec for Windows Servers 60-day trial from:  
[https://www4.symantec.com/Vrt/offer?a\\_id=51792](https://www4.symantec.com/Vrt/offer?a_id=51792)
  - b. From c:\download, extract **BEWS\_12.5.2213A\_32BIT\_VERSION.zip**.
  - c. From C:\download\BEWS\_12.5.2213A\_32BIT\_VERSION\WINNT\INSTALL\BE, run **setup.exe**.
    - i. At the Welcome page, click **Next**.
    - ii. Accept the license agreement and click **Next**.
    - iii. Accept the Local Install and click **Next**.
    - iv. Accept the Environment Check output path and click **Next**.
    - v. If you have one, enter a license key. Otherwise, leave the field blank to start a 60-day evaluation and click **Next**.
    - vi. At the This evaluation copy of Symantec Backup Exec... message, click **OK**.
    - vii. At the Symantec Backup Exec Options page, no other selections are needed. Review the settings and click **Next**.
    - viii. Enter credentials (a Username, Password, and Domain) that have local administrative privileges and click **Next**.
    - ix. At the account rights confirmation popup, click **OK**.
    - x. At the Symantec Backup Exec database page, click the first radio button: **Create a local Backup Exec SQL Express instance to store the database on** and click **Next**.
    - xi. At the Symantec Backup Exec Tape Device Drivers page, click the first radio button: **Use Symantec device drivers for all tape devices (recommended)** and click **Next**.
    - xii. After reviewing your selections, click **Install**.
    - xiii. After the installation completes, allow LiveUpdate to install any updates (e.g., SP2). You may or may not see the reboot request but you should reboot the server after the update has completed.
  - d. Configure Backup Exec (from the "Getting Started with Backup Exec" page)
    - i. Click on **Step 1 - Create Logon Accounts**. This launches a wizard.  
Note: The local administrator account is already a user. Unless you are adding other users, you can skip this step.
    - ii. Click on **Step 2 - Configure Devices**. This launches a wizard.
      1. Click **Next**.
      2. Click **Next**.
      3. For SE demos: Click the **Create a new backup-to-disk** radio button and click **Next**.  
For Customers: Click either **Configure robotic library drives** or **Install tape device drivers** and click **Next**.

4. For the Backup-to-disk folder type, click either **Backup-to-disk folder** or **Removable backup-to-disk folder**. In this document, we have clicked the first radio button: **Backup-to-disk folder** and click **Next**.
  5. At the Enter a name for the backup-to-disk-folder prompt, type **vRanger Daily** and click **Next**.
  6. At the Enter a path for the backup-to-disk-folder prompt, type or browse to **D:\Backup\_Exec Backups** and click **Next**.
  7. At the Enter the maximum size for a backup-to-disk file prompt, type a number of GBs (default=4). Note: You can later change this number from within Backup Exec.
  8. At the Allocate the Maximum Size for Backup-to-Disk Files prompt, click the **Yes** radio button and click **Next**. Pre-allocating the space improves performance.
  9. At the Enter the maximum number of concurrent jobs prompt, type **1** (the default) and click **Next**.
  10. At the Enter the size for the low disk space threshold prompt, type **0** (the default) and click **Next**.
  11. Review your Device Configuration Wizard settings and click **Next**.
  12. Click **Finish**.
- iii. Click on **Step 3 - Create Media Sets**. This launches a wizard.
1. At the Welcome to the Media Set Wizard page, click **Next**.
  2. At the Create or Edit a Media Set page, click the **Create a new Media Set** radio button and click **Next**.
  3. At the Name the Media Set page, type **vRanger Daily Backup** and click **Next**.
  4. Set the Overwrite Protection Period to **4 Weeks** and click **Next**.
  5. Set the Append Period to **4 Weeks** and click **Next**.
  6. Review the Media Set Summary and click **Next**.
  7. Click **Finish**.
- iv. Click on **Create a backup job**. This launches a wizard.
1. At the Welcome to the Backup Wizard page, click the **Create a backup job with custom settings** and click **Next**.
  2. At the Backup Selections page, drill down to and select the vRanger Pro repository e.g., **D:\vRanger\_Backups**, and select **Next**.
  3. At the Select Volume Credentials page, click **Test All**. When the results are successful, click **Next**.
  4. At the Select Volume Order page, click **Next**.
  5. At the Backup Names page, title the backup job **vRanger Daily Job**, title the backup set **vRanger Daily Backup**, and click **Next**.
  6. At the Backup Device and Media page, at the Which device would you use to backup your data drop-down box, select **vRanger Daily**. At the Which media set would like to use to back your data drop-down box, select **vRanger Daily Backup**. When finished making your selections, click **Next**.
  7. At the Backup Overwrite Method page, accept the default **Append to media, overwrite if no appendable media is available** radio button. Click **Next**.

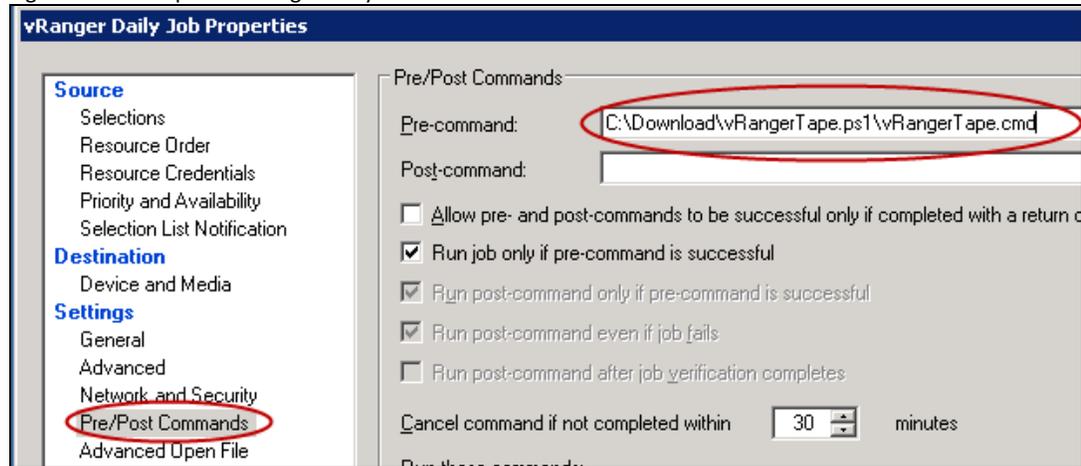
8. At the Backup Options page, click the **Incremental – Changed Files – Reset Archive Bit** method from the drop-down list and click the **No, do not verify files after backup** radio button. Click **Next**.  
Note: Production environments typically do verify their backup data but for the purpose of speeding up a demo, verification is turned off.
9. At the Completing the Backup Wizard page, click the **No, schedule the job to run later** radio button and click **Finish**.
10. At the Schedule Options page, click the **Run according to schedule** radio button and click the **Edit Schedule Details** button.
  - a. At the Edit Calendar schedule by box, click the **Recurring Days of the Month** option and then click the **Select All** button.
  - b. At the Edit Calendar schedule by box, click the **Effective Date option** and confirm that today's date is placed in the Make the schedule go into effect on drop-down box.
  - c. At the Edit Calendar schedule by box, click the **Time Window** option and accept the defaults: Start no earlier than **11:00:00 PMB** and no later than **10:59:59 PM** the following day.
  - d. Click **Submit**.
11. At the Completing the Backup Wizard page, click the **No, schedule the job to run later** radio button and click **OK**.
12. Click **Close** to close the Getting Started with Backup Exec page.
- v. Specify the **vRangerTape.cmd** file in the Backup Exec job's PRE field.
  1. Close the Backup Exec Assistant window.
  2. Click on the **vRanger Daily Job** and click **Properties** (see Figure 10).

Figure 10 - Backup Exec vRanger Daily Job Properties



3. In the vRanger Daily Job Properties column, click **Pre/Post Commands** and type the PowerShell script *path\command* (e.g., C:\Download\vRangerTape.ps1\vRangerTape.ps1).

Figure 11 - Backup Exec vRanger Daily Job Pre-command

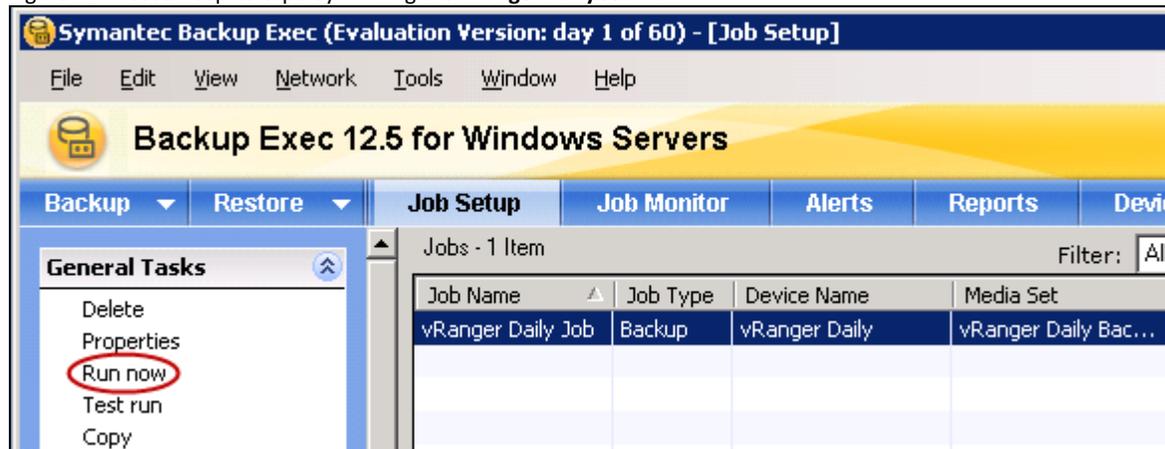


4. Click **Submit**.
5. At the Job Summary page, click **OK**.

## Run Sweep-to-Tape

1. In Backup Exec, highlight the **vRanger Daily Job** and click **Run Now**. Click **Yes** to confirm.

Figure 12 - Test Sweep-to-tape by running the vRanger Daily Job now



2. Click the **Job Monitor** tab and double-click the Active job.

## Restore From Backup Exec

Restoring from Backup Exec is the reverse procedure of doing backups.

1. From within Backup Exec, restore from tape or disk to the vRanger Pro repository.
2. From within vRanger Pro, restore from savepoints, using the global manifest file or savepoint manifest files.

## Troubleshooting Sweep-to-Tape

Sweep-to-tape has three main components. Each component should be tested individually.

- The vRanger Pro 4.1 DPP on-demand, incremental backup job.
  - The PowerShell script contained in the .CMD file.
  - The Backup Exec scheduled, incremental backup job.
1. From with vRanger Pro 4.1 DPP, manually run the vRanger Pro on-demand job and confirm that it works.
  2. Run the PowerShell script from a CMD prompt. Manually cut and paste the executable statement into the CMD prompt and check for errors to troubleshoot further:  
`c:\windows\system32\windowspowershell\v1.0\powershell.exe c:\download\vRangerTape.ps1\vRangerTape.ps1`
  3. Launch PowerShell
    - a. Run the **Get-PSSnapin** command. vRanger.API.PowerShell should be registered.
    - b. Run the **Get-Executionpolicy** command. The execution policy should be set to **RemoteSigned**.
  4. From Backup Exec, confirm that its job runs. If the job fails quickly, confirm that the Backup Exec services are using credentials with local administrator rights. If so, then the PRE command is probably failing due to a PowerShell issue.