

# vRanger Pro<sup>™</sup>





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vRanger Pro User Manual 01/07/09 Version 3.2.8

# **Document Revision History**

Document Version Number	Issue Date	Description of Change	
3.2.3a	06/12/08	Chapter 1	
		• Updated the VSS section to include information on integration with VCB.	
		• In the vRanger Pro Overview and Benefits section, added information on encryption.	
		Chapter 2	
		• In the Installing vRanger Pro section, added instructions for uninstalling a previous version of the software and upgrading to a new version.	
3.2.4a	07/15/08	Chapter 1	
		• Updated the vRanger Pro Overview and Benefits section to include information on FIPS support. Added a VCB Differentials section.	
		• Added a FIPS and Licensing section.	
		Chapter 5	
		• Updated the Options Tab section to include VCB differentials.	
		• In the vRanger Backup Options and VCB Backup Options sections, included information on enabling VCB differentials.	
3.2.4b	7/18/08	Chapter 2	
		• Added Guest VSS Support table.	
3.2.8	01/07/09	• Updated entire document to reflect support for VMware ESXi 3.5 and minor GUI changes.	
		• Updated Requirements section of Chapter 2.	
		• Added Terms and Acronyms table and Appendix.	

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# **1** Introduction

vRanger Pro<sup>™</sup> is a powerful tool that performs automated backups of VMware<sup>®</sup> ESXtype virtual machines (VMs) as well as P2V enabled backups of physical machines. vRanger Pro also manages the catalog of backup archives, and gives you the ability to quickly restore any VM from its backup.

# Virtualization and VMware Overview

As companies and industries grow, their technology needs change. These changes are often implemented within complex systems running business-critical applications. Usually there is an increased demand for shared hardware and software resources. To manage this demand, many companies establish virtual environments. Doing so can increase an organization's agility and efficiency while lowering its costs.

Most companies have a number of specialized physical servers and workstations that are underutilized. Virtualizing such an environment increases and balances utilization by consolidating the physical machines into a single physical host that runs multiple VMs. The VMs share the resources—processor, memory, network cards, and disks—of the physical host. The work that the physical machines did previously continues, but with greater efficiency. The host runs a layer of virtualization software that manages the environment. Each VM's OS—usually Windows or Linux—functions as if the hardware were physical. Guest software can see only *x* processor, *y* memory, and so forth.



The transition from physical to virtual is seamless. A virtual infrastructure affords maximum flexibility, allowing you to treat VMs as if they were physical hardware and software. VMs can be moved easily between hosts. They can be run in isolation or in groups. Their workloads can be reconfigured as demand requires. This flexibility is supported by management tools.

VMware VirtualCenter (VC) and ESX Server are, respectively, the management server and software components that lend order in a virtual environment. VC orchestrates the configuring and provisioning. VC's database stores all of the information shared between the physical hosts and the VMs. Without compromising security, VC makes it possible to connect to a host remotely from a standard Windows computer.

As its own host OS, ESX Server allows you to establish VMs, configure and manage their shared resources, and make ongoing adjustments to increase performance. Each VM is configured with its own virtual hardware—for example, central processing unit (CPU), random access memory (RAM), and universal serial bus (USB) ports. The work of the VM's physical counterpart is run in its native OS. Because VMs require neither redundant hardware nor physical space, virtualization can mean significant cost savings.

# vRanger Pro Overview

vRanger Pro is a Windows-based software tool that allows you to perform automated backups of VMs. It can also restore backed up VMs if there is a disk failure or if you want to revert to a previous version of a particular VM. vRanger Pro's unique features give you additional flexibility and improve the performance of the backup and restore processes.

# Support for VMware ESXi 3.5

vRanger Pro offers full support for ESXi 3.5. This allows for additional functionality, platform security, a smaller footprint, and no scripting requirement. You can back up over fiber or a network. Currently, vRanger Pro only supports the licensed version of ESXi 3.5. For additional information, see the Chapter 2, *Installation*.

# Perform Hot Backups

vRanger Pro can perform backups of VMs on-the-fly while they are running, without interrupting performance. Many other tools require you to shut down a VM to back it up.

# Automatic Backup Scheduling

You can use vRanger Pro to make a single backup of a VM, or schedule a VM to be backed up periodically (e.g., every day, week, or month). These backups will be performed automatically at the scheduled time. You can also specify how long backups should be retained. Old backups will be removed automatically.

# VSS and VCB

vRanger Pro includes a driver that utilizes Microsoft's Volume Shadow Copy Service (VSS) to alternately freeze and thaw application writes. VSS enables quiescing—or pausing—of supported databases to provide a transactionally consistent backup image. VSS works with VMware Consolidated Backup (VCB).

## Improved Performance

Using core .NET technologies, vRanger Pro improves application performance. A proprietary driver that increases write speed to VMFS means dramatically improved restore speeds. NoZip restores allow full integration with data deduplication solutions such as Data Domain. This can greatly reduce the amount of storage space required for backups.

## **Backup of Physical Servers**

Using a proven P2V engine, vRanger Pro allows you to schedule protection of all physical servers. In spite of the capabilities of VMware ESX, there are reasons to not virtualize certain servers in an otherwise virtual enterprise. vRanger Pro now extends the DR benefits of a virtualized environment to these physical machines.

## **Group Backups**

If you have VC, you can use vRanger Pro to schedule backups for a single VM, or for groups of them, based on VC attributes. (Custom attributes are only available when VC 1 is configured.) vRanger Pro supports the selection of separate datastores when restoring VMs with multiple Virtual Machine Disk Formats (VMDKs), allowing you to maintain best practices in the event a recovery is needed.

# Flexible Backup Destination

You can back up VMs to Windows or Linux machines, or even to other ESX Servers.

# **Differential Backups**

You can configure vRanger Pro to perform differential backups to record only the changes since the last full backup. This saves both time and disk space that otherwise would be required to copy an entire VM.

## VCB Differentials

vRanger Pro's differential backup capability has been extended to include the VCB framework. vRanger Pro can now access Virtual Machine File System (VMFS) data stores on the Storage Area Network (SAN). As with differentials done through the IP network, VCB differential files include only data blocks that have changed since the last full backup.

# File-Level Restore

vRanger Pro lets you recover and restore an individual file from a backup rather than having to revert to a previous version.

# Encryption

vRanger Pro uses an encryption technology called Triple DES to provide security for VM hosts, physical machines, user names, passwords, and email settings. Triple DES is Federal Information Policy Standard (FIPS) compliant. You enable FIPS encryption through Control Panel→Local Security Settings. All configuration settings are encrypted automatically. The archive file is not encrypted. The Encrypt Data Transfer option on the Backup Options screen uses Secure Shell Access (SSH) encryption. If you select this option, vRanger Pro will use secure data transfer with encryption.

# vRanger Pro and vReplicator

Through the use of an intelligent file locking mechanism, vRanger Pro and vReplicator work together error-free.

# System Architecture

There are many different ways to set up your ESX Server. This section contains a sample system architecture. Some of the options in vRanger Pro apply only to certain situations. This example covers the majority of those situations.



# On the LAN

Contains three workstations and five ESX Servers:

- Machine 1 runs MS Windows. vRanger Pro is running on this machine.
- Machine 2 runs MSWindows. This is used as a backup location.
- Machine 3 runs Linux. This is used as a backup location.
- ESX Servers A and B are ESX Servers. They may be used as sources and backup locations.

• ESX Servers C, D, and E are ESX Servers with local hard drives from which ESX Server is running. They are attached to a SAN via fiber-optic cable, with five VMFS volumes. They may be used as sources and backup locations.

## **Offsite Machines**

Contains two workstations and one ESX Server; connected to the Local Area Network (LAN) via VPN tunnels.

Machine 4 runs MS Windows. This is used as a remote backup location.

Machine 5 runs Linux. This is used as a remote backup location.

**ESX Server F** is an ESX Server. It may be used as a remote source and remote backup location.

# Storage Area Network

A SAN is sometimes used to consolidate data from multiple physical server machines into one location. When used with ESX Servers, the individual server machines do not contain hard drives but are connected (usually by fiber-optic cable) to an array of hard disks. This gives each server access to all of the data on a SAN, facilitating fast data transfers between machines that are connected to the SAN.

When used with vRanger Pro, SANs also make it possible to perform faster backups (LAN-free) by confining the scope of the data transfer to the fiber-optic network.



# Virtual Machine File System

VMware VMFS is a storage system for VM files on physical hard disks and partitions. VMFS has several features that lend themselves to clustering—with SANs, for example.

# **Using this Manual**

### Terms and Acronyms

This is a list of terms and acronyms that are used in this manual.

Term or	Definition
Acronym	
API	Application Programming Interface
CLI	Command Line Interface
COS	Console Operating System
CPU	Central Processing Unit
DR	Disaster Recovery
ESX 2.x	Version 2.x of ESX Server
FIPS	Federal Information Policy Standard
FQDN	Fully Qualified Domain Name
GB	Gigabyte
Guest	A VM that runs on an ESX Server.
Host	A physical ESX Server that runs VMs.
iSCSI	Small Computer System Interface
Ю	Input/Output
IP address	Internet Protocol (address)
LAN	Local Area Network
LUN	Logical Unit Number
MB	Megabyte
Mb	Megabit
MS VSS	Microsoft Volume Shadow Copy Service makes remote API call communication possible. Works to freeze and thaw application writes during conversions.
NIC	Network Interface Card
OS	Operating System
P2V	Physical to Virtual

Term or	Definition
Acronym	
RAM	Random Access Memory
SAN	Storage Area Network
SMTP	Simple Mail Transfer Protocol
SSH	Secure Shell Access; a network protocol used to exchange data between CPUs across a secure channel.
su	switch user
TFTP	Trivial File Transfer Protocol
V2V	Virtual to Virtual
VC	VMware VirtualCenter; a management server within a virtualized environment.
VCB	VMware Consolidated Backup
VDD	Virtual Disk Driver
VHD	Virtual Hard Disk
VIC	Virtual Infrastructure Client
VI3	VMware Infrastructure 3 (including ESX Server v3.x)
VM	Virtual Machine
VMDK	Virtual Machine Disk Format; a disk file that stores a VM's hard drive contents.
VMFS	Virtual Machine File System; VMware's cluster file system, which stores VM disk images.
VMX	VMware Virtual Machine Configuration
VMXNET	A driver that increases networking performance.
vzBoost	An optional driver installed on the target ESX host; improves write speeds to the VMFS. This module will only manage traffic within the Service Console and will not impact IO operations for running VMs.
WAN	Wide Area Network

**Notes:** Within the application, click this icon O to access additional information about the adjacent topic. Click the  $\textcircled{Navigation} \twoheadrightarrow$  icon to move between tabs in Backup and Restore mode. You can also click directly on the tabs.

# vRanger Pro Licensing

A license for vRanger Pro controls the number of source CPUs you can configure to be backed up. For instance, if you purchase a 50-CPU license, you can back up VMs running on a list of ESX Servers, so long as the total number of CPUs in those servers does not exceed 50. For licensing purposes, vRanger Pro counts dual-core processors as a single CPU—so one ESX Server with two dual-core processors would use two CPUs of your license.

If you do not have a permanent license, an evaluation license is automatically generated for you. Every time you use vRanger Pro to perform a backup using the evaluation license, your internet browser will open to the Vizioncore website. After you install a permanent license, the evaluation message will no longer display.

# FIPS and Licensing

For FIPS encryption to work properly in vRanger Pro, you will need a FIPS registry key compliance license file. When you request a license, make certain that you secure a license file as well. If you already have a license for vRanger Pro, you can exchange it for one that allows you to enable the FIPS registry key.

# P2V DR Licensing

P2V backups are licensed differently than conventional backups. Rather than the typical per CPU license, a physical machine backup is licensed by configured server. For example, to protect three physical servers with vRanger Pro's P2V DR functionality, the enterprise will require three P2V licenses, regardless of the number of CPUs on those physical servers.

See the Vizioncore website for general information on licensing. Contact Customer Support for instructions on purchasing or upgrading a vRanger Pro license.

# **Contacting Dell**

**Note:** If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

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City Code: 69	Preferred Accounts Customer Service	069 9792-7320
-,,	Large Accounts Customer Service	069 9792-7320
	Public Accounts Customer Service	069 9792-7320
		069 9792-7320

Greece         Web Address         Support auro.dell.com           International Access         Technical Support         00800-44 14 08 51           Code: 00         Gold Service Technical Support         00800-44 14 00 83           Country Code: 49         Switchboard         2108129810           Gald Service Switchboard         2108129810         2108129810           Fax         2108129812         2108129812           Grenada         Web Address         www.dell.com/gd           E-Mail Address         www.dell.com/gd           E-Mail Address         www.dell.com/gd           E-Mail Address         support.dell.com           Technical Support, Customer Service, Sales         1a+techsupport.dell.com           International Access         www.dell.com/gd           International Access         support.apr.dell.com           Technical Support - Dimension and Inspiron         00852-2469 3188           Country Code: 852         Technical Support - Dimension and Inspiron         00852-2469 3188           Country Code: 852         Technical Support - Dimension and Inspiron         00852-3416 0908           Code: 001         Technical Support - Dimension and Inspiron         00852-3416 0908           Code: 001         Technical Support Pr.pojectors, PDAs, Switches, Routers, Co0852-3416 0908         00852-3		Switchboard	069 9792-7000
International Access Code: 00 Cold: Service Technical Support Country Code: 49 Country Code	Greece	Web Address	Support.euro.dell.com
Code: 00 Gold Service Technical Support 00800-44 14 00 83 Country Code: 49 Switchboard 2108129810 Gold Service Switchboard 2108129810 Sales 2108129812 Grenada Web Address 2018129812 Grenada Web Address 20181299071 Guyana E-Mail Address 20181299071 Guyana E-Mail Address 2018129071 Grenaid Support, Customer Service, Sales 1800-999-0136 Guyana Technical Support Customer Service, Sales 1800-999-0136 Guyana Technical Support Customer Service, Sales 1800-999-0136 Guyana Technical Support - Dimension and Inspiron 00852-2969 3196 Technical Support - Dimension and Inspiron 00852-2969 3196 Technical Support - Dimension and Inspiron 00852-2969 3196 Technical Support - Projectors, PDAs, Switches, Routers, 00852-3416 0906 Customer Service 00852-3416 0907 Global Customer Programs 00852-3416 0907 Global Customer Programs 00852-3416 0907 Global Customer Programs 00852-3416 0907 Home and Small Business Division 00852-3416 0907 Desktop Support E-mail Address 100852-2969 3196 Protable and Desktop Support Desktop Support E-mail Address 100852-2969 3196 Protable Support E-mail Address 100852-3416 0907 Global Customer Programs 00852-3416 0907 Global Customer Programs 00852-3416 0907 OR052-25068032 or 080-25068032 or 080-25068032 or toll-free: 1-800-425-8045 Gold Support Only 10082-25068032 or 080-25068032 or 080-25	International Access	Technical Support	00800-44 14 95 18
Country Code: 49 Switchboard 11 2108129810 Gold Service Switchboard 2108129810 Sales 2108129800 Fax 2108129800 Fax 2108129802 Grenada Web Address www.dell.com/gd E-Mail Address 101-Free: 1-800-425-8045 Guatemala Web Address 101-Free: 1-800-425-8045 Guatemala Web Address 101-Free: 1-800-425-8045 Guatemala E-Mail Address 101-Free: 1-800-425-8045 Guatemala E-Mail Address 101-Free: 1-800-425-8045 Guatemala Country Customer Service, Sales 101-Free: 1-800-425-8045 Guatemala Address 102000 Fermion Technical Support, Customer Service, Sales 101-Free: 1-800-425-8045 Guatemala Address 102000 Fermion Technical Support, Customer Service, Sales 102000 International Access 102000	Code: 00	Gold Service Technical Support	00800-44 14 00 83
Gold Service Switchboard 2108129810 Sales 2108129800 Fax 2108129812 Grenada Web Address www.dell.com/gd E-Mail Address Ia-techsupport@dell.com Technical Support, Customer Service, Sales Ia-techsupport@dell.com Technical Support. Customer Service, Sales Ia-techsupport@dell.com Technical Support - Dimension and Inspiron 00852-2969 3181 Precision Technical Support - OptiPlex, Latitude, and Dell 00852-2969 3181 Technical Support - Projectors, PDAs, Switches, Routers, etc. Customer Service 00852-3416 0906 etc. Customer Service 00852-3416 0906 Global Customer Programs 00852-3416 0908 Medium Business Division 00862-3068032 or 080-25068032 or 080-25	Country Code: 49	Switchboard	2108129810
Sales     2108129800       Fax     2108129800       Grenada     Web Address     www.dcll.com/gdl       Technical Support, Customer Service, Sales     Ia-techsuppo/@dcll.com       Technical Support, Customer Service, Sales     Ia-techsupport/@dcll.com       Guatemala     Web Address     www.dcll.com/gdl       Guatemala     E-Mail Address     Ia-techsupport/@dcll.com       Technical Support, Customer Service, Sales     Ia-techsupport/@dcll.com       Technical Support, Customer Service, Sales     toll.free: 1-877-270-4609       Hong Kong     Web Address     support.ap.dell.com       International Acces     Technical Support - Dimension and Inspiron     00852-2969 3188       Could: 001     Technical Support - OptiPlex, Latitude, and Dell     00852-2969 3191       Precision     Technical Support - Projectors, PDAs, Switches, Routers, etc.     00852-3416 0906       Customer Service     00852-3416 0907     00852-3416 0907       Global Customer Programs     00852-3416 0907     00852-3416 0907       India     Dell Support Hermail Address     support_ap.dell.com       Portable and Desktop Support     00852-3416 0907     00852-3416 0907       India     Dell Support Mebsite     support_ap.dell.com       Portable and Desktop Support     00852-3416 0907     00852-3416 0907       India     Dell Suport Websit	5	Gold Service Switchboard	2108129811
Fax     2108129812       Grenada     Web Address     www.dell.com/gd       E-Mail Address     1a-techsupport@ddell.com       Technical Support, Customer Service, Sales     www.dell.com/gt       Guatemala     Web Address     www.dell.com/gt       E-Mail Address     1a-techsupport@ddell.com       Technical Support, Customer Service, Sales     1a-techsupport@ddell.com       Guyana     E-Mail Address     support.pdll.com       Technical Support, Customer Service, Sales     1a-techsupport@ddell.com       International Access     Technical Support E-mail Address     support.pdlell.com       Code: 001     Technical Support - OptPlex, Latitude, and Dell     00852-2969 3191       Precision     Technical Support - Projectors, PDAs, Switches, Routers, etc.     00852-2969 3196       Country Code: 852     Technical Support - Projectors, PDAs, Switches, Routers, etc.     00852-3416 0900       Customer Service     00852-3416 0910     00852-3416 0910       Large Corporate Accounts     00852-3416 0910     00852-3416 0910       Iarge Corporate Accounts     00852-3416 0910     00852-3416 0910       Idmim Business Division     00852-3416 0910     00852-3416 0910       Idmim Business Division     00852-3416 0910     00852-3416 0910       Idmim Business Division     00852-3416 0910     00852-3416 0910       Idmim Business D		Sales	2108129800
Grenada       Web Address       www.dell.com/gd         E-Mail Address       address       address         Guatemala       Web Address       address         B-Mail Address       address       address         Technical Support, Customer Service, Sales       latechsupport@dell.com         Guyana       E-Mail Address       latechsupport@dell.com         Technical Support, Customer Service, Sales       latechsupport@dell.com         International Access       rechnical Support - Drimension and Inspiron       support.dell.com.cn/email         Code: 001       Technical Support - OptiPlex, Latitude, and Dell       00852-2969 3180         Technical Support - Projectors, PDAs, Switches, Routers,       00852-23416 0906       etc.         Code: 001       Customer Service       00852-3416 0907       Global Customer Programs       00852-3416 0907         Customer Service       00852-3416 0907       Global Customer Programs       00852-3416 0907       Global Customer Programs       00852-3416 0907         India       Dell Support E-mail Address       support_ap.dell.com       00852-3416 0907         India       Dell Support E-mail Address       outport       00852-3416 0907         India       Dell Support E-mail Address       outport       outport         Protable support E-mail Address		Fax	2108129812
E-Mail Address E-Mail Address Guatemala Web Address E-Mail Address Guatemala Web Address E-Mail Address E-Mail Address Guatemala Web Address E-Mail Address E-Mail Address E-Mail Address E-Mail Address B-Definical Support, Customer Service, Sales Technical Support, Customer Service, Sales I a-techsupport@defil.com Technical Support Customer Service, Sales I a-techsupport@defil.com Technical Support - Customer Service, Sales I a-techsupport@defil.com Technical Support - Dimension and Inspiron Od852-2969 3188 Country Code: 852 Technical Support - OptiPlex, Latitude, and Dell Oversion Technical Support - Servers and Storage Technical Support - Projectors, PDAs, Switches, Routers, etc. Customer Service Home and Small Business India Support Website Portable and Desktop Support Desktop Support E-mail Address Support.ap.dell.com Support.ap.de	Grenada	Web Address	www.dell.com/gd
Definition     Technical Support, Customer Service, Sales     Interesting 100,000,000,000,000,000,000,000,000,000	STOTIKAK	F-Mail Address	la tachaurna@dall.com
Guatemala     Web Address     www.dell.com/gt       Guatemala     E-Mail Address     la-techsupport@dell.com       Technical Support, Customer Service, Sales     la-techsupport@dell.com       Guyana     E-Mail Address     la-techsupport@dell.com       Technical Support, Customer Service, Sales     la-techsupport@dell.com       Hong Kong     Web Address     support.ap.dell.com       International Access     rechnical Support F-mail Address     support.ap.dell.com       Code: 001     Technical Support - Dimension and Inspiron     00852-2969 3188       Country Code: 852     Technical Support - OptiPlex, Latitude, and Dell     00852-2969 3196       Technical Support - Servers and Storage     00852-2416 0910       Customer Service     00852-3416 0907       Customer Service     00852-3416 0907       Global Customer Programs     00852-3416 0908       Medium Business Division     00852-3416 0908       Medium Business Division     00852-3416 0907       Global Customer Programs     00852-3416 0907       Medium Business Division     00852-3416 0907       Home and Small Business Division     00852-3416 0908       Medium Business Division     00852-3416 0908       Medium Business Division     00852-3416 0907       Desktop Support E-mail Address     india_support_desktop@del       Portable Support E-mail Add		Technical Support Customer Service Sales	
Culternala     Web Address     Ia-techsupport/(aldell.com Technical Support, Customer Service, Sales     Ia-techsupport/(aldell.com Technical Support, Customer Service, Sales       Guyana     E-Mail Address     Ia-techsupport/(aldell.com Technical Support, Customer Service, Sales     Ia-techsupport/(aldell.com toll-free: 1-877-270-4609       Hong Kong     Web Address     support.adell.com     support.adell.com       Code: 001     Technical Support - Dimension and Inspiron     00852-2969 3198       Country Code: 852     Technical Support - OptiPlex, Latitude, and Dell     00852-2969 3196       Technical Support - OptiPlex, Latitude, and Dell     00852-2969 3196       Technical Support - Projectors, PDAs, Switches, Routers,     00852-3416 0910       Large Corporate Accounts     00852-3416 0910       Large Corporate Accounts     00852-3416 0907       Global Customer Programs     00852-3416 0907       Global Customer Programs     00852-3416 0907       Home and Small Business Division     00852-3416 0907       Desktop Support E-mail Address     support.adell.com       Portable and Desktop Support     support.adell.com       Portable and Desktop Support     or       Your city STD code + 60003355     or       Phone Numbers     or       Vour city STD code + 60003355     or       Phone Numbers     080-25068032 or 080-25068034       Phone Numbers	0 1 1		toll-free: 1-866-540-3355
E-Mail Address     1=4ecbsupport/(didell.com       Technical Support, Customer Service, Sales     1=800-999-0136       Guyana     E-Mail Address     1a-techsupport/(didell.com       Technical Support, Customer Service, Sales     toll-free: 1-877-270-4609       Hong Kong     Web Address     support.ap.dell.com       International Access     rechnical Support E-mail Address     support.ap.dell.com       Code: 001     Technical Support - OptiPlex, Latitude, and Dell     00852-2969 3191       Precision     Technical Support - Servers and Storage     00852-2969 3191       Technical Support - Projectors, PDAs, Switches, Routers,     00852-2416 0906       etc.     Customer Service     00852-3416 0910       Large Corporate Accounts     00852-3416 0910     00852-3416 0910       Large Corporate Accounts     00852-3416 0910     00852-3416 0910       Medium Business Division     00852-3416 0910     00852-3416 0910       Large Corporate Accounts     00852-3416 0910     00852-3416 0910       Medium Business Division     00852-3416 0910     00852-3416 0910       Home and Small Business Division     00852-3416 0910     00852-3416 0910       India     Dell Support Hemail Address     india_support_desktop/@del       Portable and Desktop Support     support_desktop/@del     or       Portable Support E-mail Address     india_support_S	Guatemala	Web Address	www.dell.com/gt
Idechnical Support, Customer Service, Sales     1-800-999-0136       Guyana     E-Mail Address     la-techsupport@dell.com       Technical Support, Customer Service, Sales     toll-free: 1-877-270-4609       Hong Kong     Web Address     support.ep.dell.com       International Access     Technical Support - Dimension and Inspiron     outport@dell.com.cn/email       Code: 001     Technical Support - OptiPlex, Latitude, and Dell     00852-2969 3189       Precision     Technical Support - Servers and Storage     00852-2969 3196       Technical Support - Projectors, PDAs, Switches, Routers, edt.     00852-3416 0906       Customer Service     00852-3416 0907       Clobal Customer Programs     00852-3416 0907       Global Customer Programs     00852-3416 0907       Medium Business Division     00852-3416 0907       Medium Business Division     00852-3416 0908       Medium Business Division     00852-3416 0908       India     Dell Support E-mail Address     support.ap.dell.com       Portable and Desktop Support     Bupport.ap.dell.com       Portable and Desktop Support     support.ap.dell.com       Phone Numbers     india_support_ap.dell.com       Phone Numbers     or       India_support_customer     or       Phone Numbers     india_support_ap.dell.com       Phone Numbers     or		E-Mail Address	<u>la-techsupport@dell.com</u>
Guyana       E-Mail Address Technical Support, Customer Service, Sales       la-techsupport@dell.com         Hong Kong       Web Address       support.addell.com.cn/email         International Access       Technical Support Dimension and Inspiron       00852-2969 3188         Code: 001       Technical Support - OptiPlex, Latitude, and Dell       00852-2969 3191         Precision       Technical Support - OptiPlex, Latitude, and Dell       00852-2969 3191         Precision       Technical Support - Servers and Storage       00852-2969 3196         Technical Support - Projectors, PDAs, Switches, Routers, edt.       00852-3416 0906         edt.       Customer Service       00852-3416 0906         Global Customer Programs       00852-3416 0907       00852-3416 0907         Global Customer Programs       00852-3416 0907       00852-3416 0907         Medium Business Division       00852-3416 0907       00852-3416 0907         India       Dell Support Website       support.adell.com       00852-3416 0907         India       Dell Support E-mail Address       india_support_dell.com       100852-2969 3105         India       Dell Support E-mail Address       india_support_dell.com       00852-3416 0908         Vertable and Desktop Support       00852-3416 0908       00852-3968 3105       00852-3968 3105       100852-3968 3105		Technical Support, Customer Service, Sales	1-800-999-0136
Technical Support, Customer Service, Salestoll-free: 1-877-270-4609Hong KongWeb Addresssupport.ap.dell.comInternational AccessTechnical Support - Dimension and Inspiron00852-2969 3188Code: 001Technical Support - OptiPlex, Latitude, and Dell00852-2969 3191Country Code: 852Technical Support - Projectors, PDAs, Switches, Routers, etc.00852-2969 3196Technical Support - Projectors, PDAs, Switches, Routers, etc.00852-3416 0906Customer Service00852-3416 0907Global Customer Programs00852-3416 0907Global Customer Programs00852-3416 0907Global Customer Programs00852-3416 0907Home and Small Business Division00852-3416 0907Dell Support Websitesupport.ap.dell.comPortable and Desktop Supportsupport.ap.dell.comPhone Numbersindia_support_desktop/ddelPhone Numbersindia_support_desktop/ddelPhone Numbersortoll-free: 1-800-425-8045orVour city STD code + 60003355orPhone Numbers080-25068032 or 080-25068034OrorToll-free: 1-800-425-8045orVour city STD code + 60003355orOrorToll-free: 1-800-425-8045Home and Small BusinessorVour city STD code + 60003255Customer ServiceorVour city STD code + 60003255Home and Small BusinessorVour city STD code + 60003255OrorVour city STD code + 60003255 <td>Guyana</td> <td>E-Mail Address</td> <td>la-techsupport@dell.com</td>	Guyana	E-Mail Address	la-techsupport@dell.com
Hong Kong International Access       Web Address       support.ap.dell.com         International Access       Technical Support E-mail Address       support.dell.com.cn/email         Code: 001       Technical Support - Dimension and Inspiron       00852-2969 318         Country Code: 852       Technical Support - OptiPlex, Latitude, and Dell       00852-2969 319         Precision       Technical Support - Projectors, PDAs, Switches, Routers, etc.       00852-3416 0906         Customer Service       00852-3416 0907       00852-3416 0907         Global Customer Programs       00852-3416 0907         Medium Business Division       00852-3416 0908         Medium Business Division       00852-3416 0907         Home and Small Business Division       00852-3416 0907         Dell Support Website       support.ap.dell.com         Portable And Desktop Support       mail Address         Portable Support E-mail Address       india_support_desktop@del         Portable Support E-mail Address       your city STD code + 60003355         Or       or       or         Bold Support Only       india_support_Server@dell.com         E-mail Address       com         Phone Numbers       080-25068032 or 080-25068034         Or       or       or         Ustorer Service		Technical Support, Customer Service, Sales	toll-free: 1-877-270-4609
International Access Technical Support E-mail Address Code: 001 Technical Support - Dimension and Inspiron Country Code: 852 Technical Support - OptiPlex, Latitude, and Dell O0852-2969 3188 Country Code: 852 Technical Support - Projectors, PDAs, Switches, Routers, etc. Customer Service O0852-3416 0910 Large Corporate Accounts O0852-3416 0910 Large Corporate Accounts O0852-3416 0910 Customer Programs O0852-3416 0910 Dell Support Website Portable Customer Service Desktop Support E-mail Address Phone Numbers Technical Support - E-mail Address Phone Numbers Technical Support Only E-mail Address Phone Numbers O080-25068032 or 080-25068034 Technical Support Only E-mail Address Phone Numbers Customer Service Customer Service Home and Small Business	Hong Kong	Web Address	support.ap.dell.com
Code: 001       Technical Support - Dimension and Inspiron       00852-2969 3188         Country Code: 852       Technical Support - OptiPlex, Latitude, and Dell       00852-2969 3191         Precision       Technical Support - Servers and Storage       00852-2969 3196         Technical Support - Projectors, PDAs, Switches, Routers, etc.       00852-3416 0906         Customer Service       00852-3416 0907         Global Customer Programs       00852-3416 0907         Medium Business Division       00852-3416 0907         Home and Small Business Division       00852-3416 0907         Dell Support Website       00852-3416 0907         Portable and Desktop Support       00852-2969 3105         India       Dell Support Vebsite       support.ap.dell.com         Portable and Desktop Support       00852-3416 0910         Desktop Support E-mail Address       india_support_desktop@dell         Portable Support E-mail Address       india_support_notebook@d         Or       vour city STD code + 60003355       or         Or       vour city STD code + 60003355       or         Oble Support Only       india_support_Server@dell.       or         E-mail Address       008-25068032 or 080-25068032 or 08	International Access	Technical Support E-mail Address	support.dell.com.cn/email
Country Code: 852 Technical Support - OptiPlex, Latitude, and Dell Precision Technical Support - OptiPlex, Latitude, and Dell Precision Technical Support - Projectors, PDAs, Switches, Routers, etc. Customer Service Customer Service O0852-3416 0900 Large Corporate Accounts Global Customer Programs Medium Business Division Portable and Desktop Support Desktop Support E-mail Address Phone Numbers Server Support E-mail Address Phone Numbers Cold Support Only E-mail Address Phone Numbers Context Server@dell, E-mail Address Phone Numbers Context Server@dell, E-mail Address Phone Numbers Customer Service Customer Service Customer Service Home and Small Business	Code: 001	Technical Support - Dimension and Inspiron	00852-2969.3188
Costney Section       Precision       0002 200 013         Technical Support - Servers and Storage       00852-2969 3196         Technical Support - Projectors, PDAs, Switches, Routers,       00852-3416 0900         etc.       00852-3416 0900         Large Corporate Accounts       00852-3416 0907         Global Customer Programs       00852-3416 0907         Medium Business Division       00852-3416 0907         Home and Small Business Division       00852-3416 0907         Home and Small Business Division       00852-3416 0907         Dell Support Programs       00852-3416 0907         Medium Business Division       00852-3416 0907         Dell Support Website       support.ap.dell.com         Portable and Desktop Support       00852-2969 3105         India       Dell Support E-mail Address       india support_desktop@dell         Portable Support E-mail Address       india_support_notebook@d         Phone Numbers       or       your city STD code + 60003355         Phone Numbers       or       or         Phone Numbers       080-25068032 or 080-25068034         Ord Support Only       india support_Server@dell.         E-mail Address       con         Phone Numbers       080-25068032 or 080-25068034         Or <td< td=""><td>Country Code: 852</td><td>Technical Support - OptiPlex Latitude and Dell</td><td>00852-2969 3191</td></td<>	Country Code: 852	Technical Support - OptiPlex Latitude and Dell	00852-2969 3191
Technical Support - Servers and Storage       00852-2969 3196         Technical Support - Projectors, PDAs, Switches, Routers, etc.       00852-3416 0906         Customer Service       00852-3416 0907         Global Customer Programs       00852-3416 0907         Global Customer Programs       00852-3416 0908         Medium Business Division       00852-3416 0907         Home and Small Business Division       00852-3416 0907         Dell Support Website       support.ap.dell.com         Portable and Desktop Support       0852-3416 0907         Desktop Support E-mail Address       india_support_desktop@del         Portable Support E-mail Address       india_support_notebook@del         Portable Support E-mail Address       or         Vour city STD code + 60003355       or         Phone Numbers       080-25068032 or 080-25068034         Phone Numbers       or         Vour city STD code + 60003355       or         Vour city STD code + 60003355       or         Phone Numbers       080-25068032 or 080-25068034         OB-25068032 or 080-25068034       or         Vour city STD code + 60003355       or         Vour city STD code + 60003355       or         Phone Numbers       080-25068032 or 080-25068034         Phone Numbers	country couction	Precision	00002 2000 0101
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Large Corporate Accounts 00852-3416 0907 Global Customer Programs 00852-3416 0908 Medium Business Division 00852-3416 0902 Home and Small Business Division 00852-3416 0902 00852-2969 3105 India Dell Support Website support		Customer Service	00852-3416 0910
Global Customer Programs 00852-3416 0908 Medium Business Division 00852-3416 0912 Home and Small Business Division 00852-2969 3105 India Dell Support Website support. Desktop Support E-mail Address india_support_desktop@del Portable Support E-mail Address l.com Phone Numbers india_support_notebook@d ell.com Server Support E-mail Address your city STD code + 60003355 Phone Numbers 080-25068032 or 080-25068034 Server Support Only india_support_Server@dell. E-mail Address 080-25068032 or 080-25068034 Gold Support Only india_support_Server@dell. E-mail Address 080-25068032 or 080-25068034 Or toll-free: 1-800-425-8045 Or your city STD code + 60003355 Or your city STD code + 60003355		Large Corporate Accounts	00852-3416 0907
Address       00052-9410 0912         Home and Small Business Division       00852-2969 3105         India       Dell Support Website       support.ap.dell.com         Portable and Desktop Support       india_support_desktop@del         Portable Support E-mail Address       india_support_desktop@del         Phone Numbers       india_support_notebook@d         Bestrop Support       ell.com         080-25068032 or 080-25068032 or 080-25068032       or         Phone Numbers       or         Phone Numbers       or         Bestrop Support Only       india_support_Server@dell.com         Cold Support Only       india_support_Server@dell.com         Phone Numbers       080-25068032 or 080-25068034         Or       or         Phone Numbers       or         Bestrop Support Only       india_support_Server@dell.com         E-mail Address       080-25068032 or 080-25068034         Phone Numbers       080-25068032 or 080-25068034         Or       or         Your city STD code + 60003355       or         Output       or         Your city STD code + 60003355       or         Or       your city STD code + 60003355         Or       or         Your city STD code + 6		Global Customer Programs	00852-3416 0908
Home and Small Business Division       00852-2969 3105         India       Dell Support Website       support.ap.dell.com         Portable and Desktop Support       india_support_desktop@del         Portable Support E-mail Address       india_support_desktop@del         Portable Support E-mail Address       india_support_desktop@del         Phone Numbers       india_support_notebook@d         Berver Support       or         E-mail Address       your city STD code + 60003355         Phone Numbers       or         toll-free: 1-800-425-8045       or         Gold Support Only       india_support_Server@dell.         E-mail Address       080-25068032 or 080-25068034         Phone Numbers       or         toll-free: 1-800-425-8045       or         going Phone Numbers       080-25068032 or 080-25068034         OBM       or         Vour city STD code + 60003355       or         toll-free: 1-800-425-8045       or         Vour city STD code + 60003355		Modium Business Division	00852-3416 0908
India       Dell Support Website       support.ap.dell.com         Portable and Desktop Support       Desktop Support E-mail Address       india_support_desktop@del         Portable Support E-mail Address       india_support_notebook@d       ell.com         Phone Numbers       india_support_notebook@d       ell.com         Server Support       or       your city STD code + 60003355         Phone Numbers       or       toll-free: 1-800-425-8045         Gold Support Only       india_support_Server@dell.         E-mail Address       com         Phone Numbers       080-25068032 or 080-25068034         Or       or         toll-free: 1-800-425-8045       or         toll-free: 1-800-425-8045       or         Vour city STD code + 60003355       or         vour city		Home and Small Business Division	00852-3410 0912
India       Den Support Website       Support.ap.deff.com         Portable and Desktop Support       Desktop Support E-mail Address       india_support_desktop@del         Portable Support E-mail Address       i.com         Phone Numbers       india_support_notebook@d         ell.com       080-25068032 or 080-25068032         Server Support       or         E-mail Address       your city STD code + 60003355         Phone Numbers       or         toll-free:       1-800-425-8045         Gold Support Only       india_support_Server@dell.         E-mail Address       080-25068032 or 080-25068034         Phone Numbers       080-25068032 or 080-25068034         Or       your city STD code + 60003555         Or       or         Vour city STD code + 60003355       or         Vour city STD code + 60003445	India	Dell Support Website	00832-2909 3103
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Portable Support E-mail Address       l.com         Phone Numbers       india_support_notebook@d         ell.com       080-25068032 or 080-25068034         Server Support       or         E-mail Address       your city STD code + 60003355         Phone Numbers       or         toll-free: 1-800-425-8045       or         Gold Support Only       india_support_Server@dell.         E-mail Address       com         Phone Numbers       080-25068032 or 080-25068034         OB       or         toll-free: 1-800-425-8045       or         Vour city STD code + 60003355       or         your city STD code + 60003355       or         Home and Small Business       toll-free: 1-800-425-8045		Desktop Support E-mail Address	<u>india_support_desktop@del</u>
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2	At Home Support	1850 543 543
	Sales	1850 543 543
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	Small Business	
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	Lence Business	1850 664 656
	Large business	1850 200 646
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	Home and Small Business	Den_IKL_Outlet@den.co
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Macao	Technical Support	toll-free: 0800 105
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	Transaction Sales	6)
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	Health	01344 373 199
	Technical Support	01344 373 194
	Corporate/Preferred Accounts/PCA (1000+ employees)	
	Other Dell Products	0870 908 0500
	General	0870 353 0800
	Home and Small Business Fax	
		0870 907 4006
Uruguay	Web Address	www.dell.com/uy
	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	toll-free: 000-413-598-2521
U.S.A. (Austin,	Automated Order-Status Service	toll-free: 1-800-433-9014
Texas)	AutoTech (portable and desktop computers)	toll-free: 1-800-247-9362
International	Hardware and Warranty Support (Dell TV, Printers, and	toll-free: 1-877-459-7298
Access Code: 011	Projectors ) for Relationship customers	
Country Code: 1	Consumer (Home and Home Office) Support for Dell	toll-free: 1-800-624-9896
	products	
	Customer Service	toll-free: 1-800-624-9897
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Financial Services Web Address	www.dellfinancialservices.co
	Financial Services (lease/loans)	m
	Financial Services (Dell Preferred Accounts [DPA])	toll-free: 1-877-577-3355
	Business	toll-free: 1-800-283-2210
	Customer Service	
	Employee Purchase Program (EPP)	toll-free: 1-800-624-9897
	Customer s Support for printers, projectors, PDAs, and	toll-free: 1-800-695-8133
	MP3 players	toll-free: 1-877-459-7298
	Public (government, education, and healthcare)	

	Customer Service and Support	
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-456-3355
	Dell Sales	toll-free: 1-800-695-8133
		toll-free: 1-800-289-3355 or
	Dell Outlet Store (Dell refurbished computers)	toll-free: 1-800-879-3355
	Software and Peripherals Sales	toll-free: 1-888-798-7561
	Spare Parts Sales	toll-free: 1-800-671-3355
	Extended Service and Warranty Sales	toll-free: 1-800-357-3355
	Fax	toll-free: 1-800-247-4618
	Dell Services for the Deaf, Hard-of-Hearing, or Speech-	toll-free: 1-800-727-8320
	Impaired	toll-free: 1-877-DELLTTY
		(1-877-335-5889)
U.S. Virgin Islands	Web Address	www.dell.com/vi
	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	toll-free: 1-877-702-4360
Venezuela	Web Address	www.dell.com/ve
	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	0800-100-4752

# **2** Installation

# **System Requirements**

This section describes the hardware and software requirements for vRanger Pro.

## Location Requirements

You can install the software on a local administrator's workstation or a centrally accessible (via RDP) server or workstation with a gigabit network card (preferred). vRanger Pro requires Windows 2000 SP4 or greater and the .NET Framework version 2.0 or later.

You can confirm that you have .NET Framework 2.0 installed by accessing Start $\rightarrow$ Add or Remove Programs. You can install it through Internet Explorer $\rightarrow$ Tools $\rightarrow$ Windows Update. Alternately, you can download it from the Microsoft website.

The client machine must also meet the following criteria:

- Pentium III class CPU or greater
- 256MB RAM (512MB recommended)
- 2GB free hard disk space (4GB or greater recommended)
- 1024x768 video resolution (1280x1024 or greater recommended)
- 100Mb/sec or greater network adapter
- Windows Installer 3.1 is needed for installation.

## ESX Server Requirements

VMware ESX Server version 2.5.4 or greater. No installation on the ESX Server is necessary.

## VM Guest Requirements

For standard operation, there are no guest OS requirements.

### **Guest VSS Support**

The following are supported:

08	Service Pack	Bit Level
Windows 2003	SP1 and SP2	32

TT1 C 11	•				. 1
The toll	$\Delta W n \sigma$	are	not	cum	norted.
THE ION	JWIIIg	arc	not	sup	porteu.
	<u> </u>				

OS Service Pack		Bit Level
Windows 2000	SP4 and SP5	32

08	Service Pack	Bit Level
Windows 2003 R2	SP1 and SP2	64
Windows XP Pro	SP1 and SP2	32 and 64
Windows Vista	N/A	N/A
Windows 2008	N/A	N/A

### **Backup Destination Requirements**

You can use any of the following OSs:

- Windows Server 2000 SP1 or greater
- ESX Server version 2.5.4 or greater
- Linux

## ESXi 3.5 and Licensing

There are two versions of ESXi 3.5—free and licensed. The free version allows you to virtualize on a limited basis. The licensed version of ESXi 3.5 provides a gateway to additional functionality, such as VCB and vMotion. vRanger Pro only supports the licensed version of ESXi 3.5.

vRanger Pro supports VCB versions 1.0.2 through 1.5. VCB must be installed to back up a licensed ESXi 3.5 host over fiber or a network. If you are backing up over a network, you will need an IP address from the VCB/vRanger Pro host to all ESX hosts. When you install VCB, it will be set through fiber by default unless you select the network option.

You can restore a VCB backup of ESX 3.x to ESXi 3.5. You cannot restore a network backup of ESX 3.x to ESXi 3.5.

### **User Accounts and Passwords**

#### ESXi 3.5 and Root

ESXi 3.5 allows you to communicate with the API only through a root account. When you add a host, you can create one account at a time. This account must have local rights over the relevant VMs.

#### Password Security Setting Policy

Weak passwords compromise system security. When you create and update passwords in vRanger Pro, follow as many of these guidelines as your environment allows:

A password should not include a significant portion of a user or account name.

Each password should be at least six characters long.

Passwords should contain characters from several of these categories:

-Uppercase letters in English (A-Z)

-Lowercase letters in English (a-z)

-Digits 0-9

-Non-alphabetic characters (for example, \$, !, #, %)

# **Vizioncore Support Policy**

Vizioncore attempts to support all .dot versions of ESX Server within 60-90 days of release. However, changes to the platform can create unforeseen circumstances, causing an unexpected delay in providing support.

Support for all major versions of ESX Server is to be determined. Vizioncore has the right to change this policy without prior notice or notification.

# Installing vRanger Pro

This chapter will guide you through installing vRanger Pro on a workstation or server. There are also instructions for uninstalling a previous version of the software and upgrading to a new version. Since network latency can compromise performance, the software should not be installed on a network drive.

Pre-requisites:

- You must have administrator privileges on the workstation or server on which you install the software.
- You must have access to the installer file.
- 1. From the desktop, double-click the installer file. The Security Warning dialog displays.



#### 2. Click Run.

The vRanger Pro Setup Wizard dialog displays.



3. If a software publisher message displays, click **Run.** 



4. Click Next.

The License Agreement dialog displays.

🛱 vRanger Professional			
License Agreement			
Please take a moment to read the licen Agree", then "Next". Otherwise click "(	ise agreement now. If Cancel".	you accept the terms	below, click ''l
Flexible License Agreeme for Vizioncore Inc vRanger IMPORTANT-READ CAREFU This Vizioncore Inc End-User AGREEMENT between you a software product identified ab and may include associated	nt CLI&vRanger ILLY! License Agreema nd Vizioncore Inc ove, which produc media, printed ma	GUI ant ("EULA") is a la for the Vizioncore t includes comput terials, and "online	egal e Inc er software e" or
electronic documentation (S Joonving, or otherwise using th ⊙ I Do Not Agree	OFTWARE PROL 16 SOFTWARE F OTAgree	RODUCT you and	ng, reeto he 💌
	Cancel	< Back	Next >

5. Read the license agreement. If you agree to its terms, click **I Agree** and then click **Next**.

The vRanger Professional Setup Wizard dialog displays.



6. Click Next.

🛃 vRanger Professional
Select Installation Folder
The installer will install vRanger Professional to the following folder. To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Eolder: CNProgram Files/Witioncore/VRanger Ptolessional Browse Disk Cost
Install vRanger Professional for yourself, or for anyone who uses this computer:
Everyone
O Just me
Cancel Cancel Next >

In the Folder field, specify the location where vRanger Pro should be installed or leave the default as is. Select a radio button—**Everyone** or **Just me**—and then click **Next.** 

🗒 vRanger Professional	
Confirm Installation	
The installer is ready to install vRanger Professional on your computer.	
Click "Next" to start the installation.	
Cancel < Back	Next >

7. Click **Next** to start the installation process. This dialog will remain displayed during the process.

🛃 vRanger Professional	
Installing vRanger Professional	
vRanger Professional is being installed.	
Please wait	
Cancel	Next >

8. When installation is complete, a confirmation dialog displays.



9. Click Close.

Two vRanger Pro desktop icons display-one for the CLI and one for the GUI.



If you double-click the CLI icon, this window displays.



If you double-click the GUI icon, the vRanger Pro screen displays.
Edit View Action	n Settings Help				
GUI Modes	🕜 1. Source 🛛 😿 2. 0	Destination 3. Options			
	Select an item from the t	ree on the left.			
Backup	- 🔀 Working, Please Wait.	Backup List			
outrop		Display Name Host	Status	Backup Drives	VC Path
•					
Restore					
1					
>1					
Reports					
•.•					
Configure					
		<			>
	Refresh Tree			Navig	ation 🔶

If this error message displays along with the vRanger Pro screen, confirm the settings on the VirtualCenter Configuration screen.

vRanger	r PRO::Backup 🛛 🔀
♪	An error has occurred getting VirtualCenter items. Unable to connect to the remote server
	ок

a. To do this, click **OK** to close the message. In the GUI Mode Menu pane of the vRanger Pro screen, click **Configure.** Then, click **VirtualCenter.** 

onfiguration Types		
VMware Hosts	VirtualCenter Configuration	
Prysical Machines Prysical Machines VersalCenter VersalCenter Instal VSS Instal VSS SMTP (E-Mai)	VisuaContex Server Version (OVC) (OVC) VisuaContex Server Vervelve2 VisuaContex Post Una Contex Dist, Mage / Nev ex-v2/visk. User Keen Personal Versity Passinoid	ec. ny-vo-server ec. Administrator Off MyConserVedimentator
(VC) Host Dests		

b. On the VirtualCenter Configuration screen, confirm that the values in all of the fields are correct. The VirtualCenter Port field should be populated only if a port other than the VC1 or VC2 defaults has been configured.

c. To confirm credentials and the VC connection, click Test.

A confirmation message displays, indicating that the settings work. Click **OK**. If a message displays indicating an error when retrieving information using the settings, this could be due to a login failure. Confirm the settings.

d. On the VirtualCenter Configuration screen, click **OK**. The vRanger Pro screen refreshes and data loads to form a tree in the GUI Mode Menu pane.

GUI Modes	1. Source 😿 2	. Destination	3. Options				
	Select an item from the	tree on the left.					
Backup	Datacenters	Backup List Otsplay Name	Host	Status	Backup Drives	WC Path Driv	e Count
0							
Restore							
3							
Reports							
Configure							
	Refreih Tree					Navi	igation -

(Optional) Follow the instructions later in this chapter to install the VCB plug-in.

## Using the Startup Wizard

This section explains how to use the Startup Wizard to configure vRanger Pro for your environment. You will need the location and login credentials for VC. If you do not have VC implemented in your environment, or you do not want to configure it at this time, you may skip that portion of the setup.

#### Configure VC Dialog

VirtualCenter	Select a version of VC—VC1 or VC2.
Version	Note: If you are using ESX Server v2 on some ESX Servers and ESX Server v3 on other ones, consider the following when selecting a version of VC:
	• If the majority of your servers use ESX Server v2, select VC1.
	• If the majority of your servers use ESX Server v3, select VC2.
VirtualCenter Server	The server address.
VirtualCenter Port	The port used by VC for remote communication. This generally depends upon what you select for VirtualCenter Version and will be populated automatically when VirtualCenter Version is set.
	• For VC2, the port is sdk.
	• For VC1, the port is 8443.
VirtualCenter URL	The full address used by VC. This field is generated automatically, using the values of VirtualCenter Version, VirtualCenter Server, and VirtualCenter Port.
User	The username used to log into VC. vRanger Pro can only back up machines that this username can see.
Password	The password for the login account entered in the User field.
Verify Password	The password for the login account entered in the User field.

Host Information Dialog

Name	The IP address or fully qualified domain name (FQDN) of the ESX Server.
	Note: If you are using VC, this must be identical to the VC name. For instance, if you entered the FQDN in VC, you should not enter the IP address here. This should be populated by the Startup Wizard.
User	The username that vRanger Pro will use to log onto the ESX Server.
	vRanger Pro must have root-level permissions to perform a backup. For servers running ESX Server version 3 (and in some other situations), the security policy of the host server does not allow direct root access over a SSH connection. You can enter a different username to log onto the host server. vRanger Pro will then su (switch user) to root to perform the backup.
	If you do not use root, you should use rangeruser.
Password	The password for the login account entered in the User field.
ReType Password	The password for the login account entered in the User field.
'root'	The password for the root account on the ESX Server.
Password	Note: If you enter root in the User field, this field will be disabled.
ReType 'root' Password	The password for the root account on the ESX Server.
Description	Use this field to enter a description of the server. This will display on the Configured Hosts list and in other locations in the software. It can be used to identify servers more easily than by IP address or FQDN.

1. Double-click the vRanger Pro GUI icon. The Startup Wizard dialog displays.

anger 9	etun)	Vizard					
This wiz	ard will	guide yo	u through se	etting up v	Ranger to ru	in for the first time	э.
		Click ne	ext to begin.				
					Next	Exit Setup	1
				L			_

2. Click Next.

The License File dialog displays.

Rang	er PRO::Setup			
stall Li Click E have a	<b>cense File</b> prowse to search for the li a key, click on the Evalua	cense file provided to j tion button to use vRa	vou by vizioncore. nger in evaluation	If you do not mode.
	Where is the license file	located?		
	C:\Program Files\vizion	core\esxRanger Profes	sional	
		1	Bro <u>w</u> se E	<u>v</u> aluation
		Back	Next	Exit Setup
				1-00002002

 Browse to the location of the license file. If it is an evaluation copy, click Evaluation. Then, click Next. The Configure VC dialog displays.

*Note:* If you skip the VC configuration at this point, you can set it up later by completing the steps in Chapter 4, *Configuration*.

VirtualCenter Version	C VICI 6	1.1/02	1
Manuference Course		T Sola	ex: my-yc-server
virtualizenter Server.			- <u>-</u>
VirtualCenter Port			
VirtualCenter URL	https:///sdk		
User			ex: Administrator OR MyDomain\Administrator
Password			
Verify Password			

4. Populate the fields on the Configure VC dialog. Click **Test.** vRanger Pro attempts to connect to VC using the current configuration. A window displays, confirming that the attempt was successful.

*Note:* If the connection was not successful, confirm that the setting was entered correctly and that VC is visible to the computer on which vRanger Pro is installed.

5. Click **Next.** The Hosts dialog displays.

vailable Hosts:	Confi	gured Hosts	10 CPUs Licens	ed, 10 CPUs remaining
vc-esx31ab02 vizioncore int vc-esx31ab03 vizioncore int	Name	Description	User	CPU Count

6. Select the available hosts and click **Add Host(s).** The Host Information dialog displays.

SvRanger PRO::Setup		×
Host Information		
Name	<multiple hosts=""></multiple>	
User		
Password		
ReType Password		
'root' Password		0
ReType 'root' Password		
Ensure user exists?	<ul> <li>(Only applies to VI3 hosts)</li> </ul>	
Description	None Given	
	<u>O</u> K <u>Canc</u>	el

7. Populate the fields on the Host Information dialog. Click **OK.** The Download VCB Plug in Wizard opens.

#### VCB Integration Plug In

To enable vRanger Pro to take advantage of VMware's VCB proxy for LAN-free backups and restores, you must install an additional plug-in after vRanger Pro is installed.

#### **Install VCB Plug In**

1. When the Enable VCB window displays, click Download VCB Plug In.



2. When the download is complete, double-click the installer to run it.

The Setup Wizard window displays.



3. Click Next.

The Select Installation Folder screen displays.

ត្រី esxRanger Pro VCB Plugin	
Select Installation Folder	
The installer will install essRanger Pro VCB Plugin to the following folder. To install in this folder, click "Next". To install to a different folder, enter it bold Folder	w or click "Browse".
Ctprogram flestvizioncoretesxRanger Professional	Browse Disk Cost
Install esuRanger Pro VCB Plugin for yourselt, or for anyone who uses this DEveryone (e) Just me	computer:
Cancel	Next >

- 4. Specify the location where vRanger Pro is installed. The default is c:\Program Files\vizioncore\vRanger Pro\.
- 5. If you want to change the install location, edit the path directly or click **Browse** to select a path.

Note: vRanger Pro cannot be installed on a network drive.

6. Click **Disk Cost** to view how much free space is on each available hard drive.

√olume	Disk Size	Available	Required	Difference	
9C.	25GB	14G8	3073KB	14GB	
■D:	63GB	4074MB	0KB	4074MB	
2R:	305GB	38GB	0KB	38GB	
₽S:	305GB	38GB	0KB	38GB	
2T:	305GB	38GB	0KB	38GB	
2U:	37GB	20GB	0KB	20GB	

7. Select users for vRanger Pro—either all users of the workstation or only the user installing the program.

*Note:* If you select the latter, other users will not be provided with a shortcut to vRanger Pro, but will still be able to run or remove the program.

- 8. Click Next.
- 9. Click **Next.** Wait while the plug in is installed.
- 10. Click **Close.** The plug in is installed.

# Upgrade to New Version

To upgrade to a new version of vRanger Pro, you must first uninstall any previous version of the software. When you do this, no configuration files are overwritten. These files must be removed manually:

- vRanger Pro License (esxrangerpro.lic)
- Database (esxranger.mdb)
- VC Settings (vcenter.dat)
- ESX Host Settings (servers.dat)
- Added P2V Machines (PhysicalMachines.dat)
- Configured Host Destinations (hostpaths.dat)
- Email Settings (smtp.dat)

#### Uninstall vRanger Pro

1. Access Windows Control Panel $\rightarrow$ Add or Remove Programs.

	Currently installed programs:	🛄 Show upgates	Sort by: Name		¥
Change or Remove	SonicWALL SSL-VPN NetExtender		Size	2.26MB	1
Programe	Frend Micro OfficeScan Client		Ste	142.00MB	
-	19 URL Assistant				
Lotd News	2 vConverter		See	280.00MB	
rograms	🚽 vConverter PitE Boot Image		528	203.00MB	
12	🚱 Weere Infrastructure Client 2.5		Sat	56.0548	
9	(2) VMware Infrastructure Update		Size	3.2948	
gRemove Endows	@ Weware Witual Drivastructure Client 2.0		See	45.1526	
mponents	S Weare Workstation		See	457.00MB	
	🚰 vRanger Professional-3.2.6.5		Sa	104.0085	Ē
Elegran	Och here for support information.				
ccess and Defaults					l
	To change this program or remove it from your computer, click	Change or Remove.	Change	Remove	ŀ
	twindows Driver Package - Dell Inc. PBADRY System (09/25/20	06 6.0.0.0)			1
	18 Windows Driver Package - 02Micro (guardian2) SmartCardRea	der (02/06/2007 1.1.3.7)			
	19 Windows Installer 3.1 (KB093803)				
	E Windows Internet Explorer 7		Size	2.63MB	
	X XerCenter		Size	6.20MB	4

2. Click to highlight the version of vRanger Pro that you want to uninstall. Then, click **Remove.** 



3. Click Yes.

Wait as the software is uninstalled.

vRanger Pro will no longer display in the Add or Remove Programs window.

1	Currently installed programs:	Show upgates	Sort by: Name	
bange or	Scalborchapemon 11		501	128.00MB
Programs	🖞 SearchAssid		50	0.01MB
2	🗊 SignaTel Audio		50	16.7346
39 - I	🥌 Snagit 0		50	27.2040
dd New rograms	Sone/WALL SSL-VPN NetExtender		50	2.2646
	19 Trend Moro OfficeScan Client		52	142.00MB
0	1 URL Assistant			
Remove	Gr vConverter		Ser	280.0046
reponents	W vConverter P/E Boot Image		50	203.00MB
	Ø Where Infrastructure Client 2.5		50	56.0940
	1 Whware Infrastructure Update		Sa	3.2946
cess and	Where Vitual Infrastructure Client 2.0		Ser	40.1596
refaults	O Where Workstation		Size	457.00MB
	🐲 Windows Driver Package - Dell Inc. PBADRY Syst	em (09/25/2006 6.0.0.0)	Ω.	1
	Click here for support information.			
	To change this program or remove it from your computer	, dd. Change/Remove.	Cha	ige/Remove
	Windows Driver Fackage - 02Mcro (guardian2) SmartCa	GReader (02/05/2007 1.1.3.	7)	

#### Upgrade to New Version of vRanger Pro

- 1. Using the instructions above, uninstall any previous version of the software.
- 2. From the desktop, double-click the installer file. The Security Warning dialog displays.



3. Click Run.

The vRanger Pro Setup Wizard dialog displays.



4. If a software publisher message displays, click Run.



5. Click Next.

The License Agreement dialog displays.

🛱 vRanger Professional	
License Agreement	
Please take a moment to read the license agreement now. If you accept Agree", then "Next". Otherwise click "Cancel".	the terms below, click "I
Fiexible License Agreement for Vizioncore Inc vRanger CLI & vRanger GUI IMPORTANT.READ CAREFULLY: This Vizioncore Inc End-User License Agreement ("EUL AGREEMENT between you and Vizioncore Inc for the V software product identified above, which product includes and may include associated media, printed materials, ar electronic documentation ("SOFTWARE PRODUCT"). B convino	A") is a legal izioncore Inc computer software d "online" or y installing, y un agree to he
⊙ I Do Not Agree O I Agree	
Cancel	ick Next>

6. Read the license agreement. If you agree to its terms, click **I** Agree and then click **Next.** 

The vRanger Professional Setup Wizard dialog displays.



7. Click Next.

🛃 vRanger Professional	
Select Installation Folder	
The installer will install vRanger Professional to the following folder.	
To install in this folder, click "Next". To install to a different folder, enter it be	low or click "Browse".
Eolder: SA Program Filestverionsore/VRanger Filefestions/	Browse Disk Cost
Install vRanger Professional for yourself, or for anyone who uses this com	puter:
<ul> <li>Everyone</li> </ul>	
◯ Just me	
Cancel < Back	Next >

In the Folder field, specify the location where vRanger Pro should be installed or leave the default as is. Select a radio button—**Everyone** or **Just me**—and then click **Next**.

🙀 vRanger Professional	
Confirm Installation	
The installer is ready to install vRanger Professional on your computer.	
Click "Next" to start the installation.	
Cancel < Back	Next >

8. Click **Next** to start the installation process. This dialog will remain displayed during the process.

🛃 vRanger Professional	
Installing vRanger Professional	
vRanger Professional is being installed.	
Please wait	
Cancel	< Back Next >

9. When installation is complete, a confirmation dialog displays.

记 vRanger Professional	
Installation Complete	
vRanger Professional has been successfully installed.	
Click "Close" to exit.	
Please use Windows Update to check for any critical updates to the .NET Framew	ork.
Cancel < Back	Close

#### 10. Click Close.

Two vRanger Pro desktop icons display—one for the CLI and one for the GUI.



# **3 Configuration**

# Using vRanger Pro for the First Time

You can set up the machines on your network to work with it. Start by setting up vRanger Pro logins and passwords on backup sources and destinations. Then, configure the software to identify and access files.

You can launch vRanger Pro by double-clicking the desktop icon or by accessing it through the Start menu. The software requires a number of application and environment configurations to ensure that it functions properly. They are described in detail below.

## **Backup Sources and Destination Requirements**

In order to gain access to read existing VMs, create backups of those VMs, and restore them, vRanger Pro must be assigned a login with the appropriate permissions on each relevant machine.

Note: Make sure that all passwords are set so they will not expire.

## **Backup Sources**

ESX Servers

vRanger Pro requires root-level permissions on each ESX Server to perform backups and restores. Vizioncore recommends that you restrict the root login. By doing this, vRanger Pro will be unable to log in directly as root – it needs to log in as a regular user and then su to root. To do this, Vizioncore recommends creating a new user account with shell access, called rangeruser.

VC

vRanger Pro requires a VC administrator level username.

#### **Backup Destinations**

On all destination machines, you should have a user account that has full permissions to read/write to the disk where the archives will be stored.

#### **Port Requirements**

If you are using a firewall or anything else that might restrict communications between the computers involved in the backup process, you need to ensure that the following ports are available:

Port	Direction	Function
22 TCP	vRanger Pro: outgoing	Used for backup traffic when using the encrypted backup traffic option. Also

	Host servers: incoming and outgoing	used for basic SSH communications
443 TCP, 902 TCP	vRanger Pro: outgoing	Used for VC communications and ESX host communications
6342 TCP 51000 - 51000x TCP	vRanger Pro: incoming Host servers: outgoing	Used for backup and restore traffic. Without using the encrypted backup traffic option, each job* requires an additional port extending upwards from 51000.
49152-4915x TCP	vRanger Pro: incoming Host servers: outgoing	Used for differential backups. Each job* requires an additional port extending upwards from 49152.
* - each execution o instance.	f vRangerProCLI.exe cou	unts as one (1) backup or restore job

# **Port Configuration**

You now have the ability to change the communication ports to suit your environment. Changes can be made at the CLI level only, or for both the GUI and CLI.

## Changing Port Settings for the CLI

Edit the following values in the *vRangerProCli.exe.config* file located in the vRanger Pro installation directory.

Port Name	Description
ListenPorts	Data transfer port for non-encrypted backups
PassivePorts	Data transfer port for non-encrypted backups
SSHPort	SSH Client Port
RangerSshServerPort	Encrypted Traffic Port
DiffEnginesPortRangeStart	Diff Engine Port - Start of the Range to pick from

# Changing Port Settings in the GUI

1. Launch the vRanger Pro GUI.

GUI Modes	🚱 1. Saurce  👩 2. De	stinution 🔒 3. Options			
-	Select a VirtualCenter object from the tree on the left.				
19	# 💋 Hosts B Clusters	Backup List			
Backup VM(t)		Display Name Host	Status Backup Dri.	. Total Dea Siz VC P I	
<b>G</b>					
-					
Factore VM					
-2					
>					
Reports					
-					
11					
•••	)				
Configure					
		3			
	Entruch Tone			Navigation -	
	Ebreate ride				

2. Click Configure.

The Configuration screen displays.

Ranger PRD: Configuration	R	المار.
VMeans Houts		
Physicial Machines		
<b>@</b>		
Endal V55		
SMTP E Mail		
MC) Huat Deets		
Shp Server		
	0K	L Cent

#### 3. Click VirtualCenter.

The VirtualCenter Configuration screen displays.



4. For VC 2: The VirtualCenter Port value cannot be changed from SDK; instead, simply append the desired port as shown below. This will direct traffic to the VC through the selected port.

anfiguration Types			
VM-use Hosts	VirtualCenter Configuration		1
2			
Physical Machines	AntualCenter Server vo vm-vo2teb01 vbancora v 445	ex: my-upo-server	
VisualCenter	Vinual-Canter Port adk		
	VirtualCenter URL https://vc-vm-vc24eb01.vizioncove in 445/sdk		
Instal VSS	User Domain'User	ex: Administrator OR MyDomain/Administrator	
100	Password		
SMTP (E-Mail)	Verify Password		
MC Host Deats	Quinte Text		
m			
Skip Servers			

5. For VC 1: The VirtualCenter Port value can be changed directly.

Ranger PRO::Configurati	an	D:	
Configuration Types			
VMease Hosts	VirtualCenter Configuration		
Physicial Machines	intualCenser Version: @ VC1 C VC2		
2	AnualCenter Server, volvm vo24ab01 vizioncore int	ex my-spe-server	
VirtualCenter	Virtual Center Pers 8443		
	VirtualCenter URL: https://wowm-vc2/ab01.vizoncore.im(8443)		
Instal VSS	User: Domain/User	ex Administrator OR MyDomain/Administrator	
100	Password		
SMTP (E-Mail	Verily Password		
Ð			
(MC) Host Dests	Delote		
Skip Serven			
		ex L i	Cancel

## Configure vRanger Pro

Make sure that you have access to all of the usernames, their passwords, and root passwords for the ESX Servers.

1. Click Configure.

GUI Modes	🚱 1. Source 🛛 😿 2. De	stinution 🔒 2. Options				1
-	Select a VirtualCenter o	bject from the tree on the	left.			
19	# 💋 Hosts & Clusters	Backup List				
Backup VM(i)		Display Name Host	Status B	ickup Dri	Total Disk Str	VCP S
~						
æ						
Rectore VM						
3						
es.						
Reports						
Reports						
NG Report						
Reports	>					
Reports	>	×				

2. On the Configuration screen, select an icon from the left pane that corresponds to the GUI area you want to configure.

Hanger Hitt-Conligeration	P	101
Configue alson 1 gans		3
Videogra Hugers		
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C .		
-		
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		C Devel

3. Populate the appropriate fields and click **OK**.

#### **Basic Configurations**

- Hosts: Define individual ESX Servers as sources of VMs to back up.
- **Physical Machines:** Define the physical Windows servers for which you wish to configure P2V backups.
- VirtualCenter: Enter the login information for VC (if available).
- **Install VSS:** Use this to select the machines on which you wish to install the VSS service. This is only needed for machines hosting VSS enabled databases.
- **SMTP (E-Mail):** Configure your SMTP server settings so vRanger Pro can email you logs of backup activity.
- **(VC) Host Dests:** Use this to set up LAN-free backup and restore sources to communicate directly with destinations on the same SAN without having to pass through the network.
- Skip Servers: When backing up groups of VMs with VC Backup mode, select individual VMs that should not be backed up.

*Note:* When you are finished configuring the subsections, you must click OK on the main Configuration screen for the changes to be saved.



# Hosts

The Servers section of the Configuration dialog contains a list of individual ESX Servers that are defined in vRanger Pro, as well as licensing information. Each server in the Configured Hosts list can be used as a backup source. This information is initially provided during the Startup Wizard, but can be modified here.



Name	The IP address or FQDN of the ESX Server.
Description	User-defined description of the ESX Server
User	The username used to log onto the ESX Server.
CPU Count	The number of CPUs on the ESX Server.
	Note: vRanger Pro counts dual-core processors as a single CPU.
CPUs Licensed	The number of CPUs allowed for by the vRanger Pro license.
	Note: If you do not have a permanent license, an evaluation license is automatically generated for you.
CPUs Remaining	The number of licensed CPUs that are not being used. Any CPU that appears in the Configured Hosts list counts as being used.

Add Server	Click this button to configure a new server.
Modify Server	Click this button to configure the server selected in the Configured Hosts list.
Remove Server	Click this button to remove the server selected in the Configured Hosts list.
	Note: This removes all login information for the selected server as well as related backup information. Jobs scheduled to use the removed server for backups will fail.

#### Add Host Dialog

Through this dialog you can begin the process of adding a new host server. The fields on the Modify Host dialog are identical to those of the Add Host dialog.

🚱 vRanger PRO::Add VMware	Host	X
VMware Host Information		
Name		
User		
Password		
ReType Password		
'root' Password		0
ReType 'root' Password		
Ensure user exists?	<ul> <li>(Only applies to VI3 hosts)</li> </ul>	
Description	None Given	
	<u> </u>	el

Name	The IP address or FQDN of the ESX Server.
	<i>Note</i> : If you are using VC, this must be identical to the name as entered in VC. For instance, if you entered the FQDN in VC, you should not enter the IP address here.
User	The username that vRanger Pro will use to log onto the ESX Server.
	vRanger Pro must have root-level permissions to perform a backup, so it is preferable for it to log on as root. For servers running ESX Server version 3 (and in some other situations), the security policy of the host server does not allow direct root access over a SSH connection. In this situation, you can enter a different username that vRanger Pro will use to log onto the host server. vRanger Pro will then su to root to perform the backup.
	If you are not going to use root here, Vizioncore recommends that you use rangeruser.
Password	The password for the login account entered in the User field.
Retype Password	The password for the login account entered in the User field.
'root'	The password for the root account on the ESX Server.
Password	Note: If you enter root in the User field, this field will be disabled.
Retype 'root' Password	The password for the root account on the ESX Server.
Description	Enter a description of the server. It will display on the Configured Hosts list and in other locations in vRanger Pro, and can be used to identify servers more easily than by IP addresses or FQDNs.

#### **Configure New Host Server**

- 1. Click **Add Server.** The Add Host dialog displays.
- 2. Populate each field. Click OK.

The connection to the new server is tested, confirming the username and passwords. If the connection succeeds, the new server is added to the **Configured Hosts** list.

🚱 vRanger PRO::Add ¥Mware	e Host	×
VMware Host Information		
Name	10.0.17.25	
User	rangeruser	
Password	имнениями	
ReType Password	миникимини	
'root' Password	NKREIGEN	0
ReType 'root' Password	XMDROKKKK	
Ensure user exists?	(Only applies to VI3 hosts)	
Description	Development server	
	<u>D</u> K <u>C</u> a	ancel

#### Modify Existing Host Server

- 1. From the Configured Hosts list, select a server.
- 2. Click **Modify Host.** The Modify Host dialog displays.
- 3. Edit the fields. Click **OK**.

#### **Delete Host Server**

- 1. From the Configured Hosts list, select a server.
- 2. Click **Remove Host.** A confirmation dialog displays.
- 3. Click Yes.



## **Physical Machines**

vRanger Pro offers the ability to perform an image level backup of a physical machine using a proven P2V engine. These backups are identical to a standard vRanger Pro archive, and can be restored to a VM with just a few mouse clicks. This functionality brings the DR benefits of virtualization to servers that organizations are unwilling or unable to convert.

Add Physical Machine Dialog

🚱 vRanger PRO::Add Phy	rsical Machine	×
Physical Machine Info	mation	
Name	Enter Machine Name or IP	
User	User ID with Admin rights	
Password	жжжжжж	
ReType Password	жжжжжж	
Description	Machine Description	
	<u>D</u> K	<u>C</u> ancel

Name	The FQDN or IP address of the machine to be backed up.
User	A user account with administrator rights on the machine
Password/Retype Password	The password for the above user account.
Description	A brief description of the machine.
Test	This buttons displays at the bottom of the dialog. It allows you to test a connection that you configured.

#### Configure vRanger Pro for P2V Backups

1. In the left pane, click **Physical Machine.** The Physical Machine pane displays.

🔄 🛛 🧧 Physica	al Machines	3 Physical Machine(s) Licensed 2 Renainin
Name 10.05.72	Description	User
	NO.	10.06794804949490
cial Machines		
2		
tudCenter		
1		
22/14/2		
-		
TP (E Mad)		
<b>(</b>		
Host Dests		
in l		
		Additional Month Munice   Research Munice

2. Click **Add Machine** to enable a machine for P2V backups. The Add Physical Machine window displays.

🚳 vRanger PRO::Add Physical 1	Machine	×
Physical Machine Information		
Name	Enter Machine Name or IP	
User	User ID with Admin rights	
Password	XEXEMEN	
ReType Password	NEXEMENT	
Description	Machine Description	
	<u>D</u> K <u>C</u> ancel	

3. Populate the fields on the window. Click OK.

Note: You can click Modify Machine to change values previously configured.

# 🕝 VirtualCenter

VMware's VC acts as a single management interface for dispersed ESX Servers. If you use VC, vRanger Pro can take advantage of its management and communication functions, allowing you to schedule and perform backups of multiple VMs or ESX Servers at a time. The VirtualCenter section of the Configuration dialog allows you to set up the communications and login information required for VC. This information is initially provided via the Startup Wizard. If you skipped this previously, you can follow the instructions below to complete the VirtualCenter configuration.

Ranger FRO:Configuratio	NO CONTRACTOR OF CONT	
Configuration Types	VirtualCenter Configuration	
Prysicial Machines VetasCenter	VisuaCenter Server         GE V_C2           VisuaCenter Server         BBBBBB           VisuaCenter Bell	ex. sp-vc-server ex. Administrator DR MyConserVAdministrator
	Vely Passed	
(VC) Host Dests Skip Servers		
		or court

VirtualCenter Version	Select the version of VC that you are using. The available options are VC1 or VC2.
	<i>Note</i> : If you are using ESX Server v2 on some ESX Servers and ESX Server v3 on other ESX Servers, you should consider the following when choosing your version of VC:
	• If the majority of your servers use ESX Server v3, you should choose VC2.
	• If the majority of your servers use ESX Server v2, you should choose VC1.
VirtualCenter Server	The address of the server.
VirtualCenter Port	The port used by VC for remote communication. This generally depends upon what you chose for VirtualCenter Version and will be set automatically when VirtualCenter Version is set.
	• For VC2, the port is sdk.
	• For VC1, the port is 8443.
VirtualCenter	The full address used by VC. This field is generated

URL	automatically, using the values of VirtualCenter Version, VirtualCenter Server, and VirtualCenter Port.
User	The username used to log into VC. vRanger Pro can only back up machines that this username can see.
Password	The password for the login account entered in the User field.
Verify Password	The password for the login account entered in the User field.

#### Configure vRanger Pro for VC

1. Click VirtualCenter.

The VirtualCenter Configuration screen displays.

liguration Types		
Winare Hosts	VirtualCenter Configuration	
	VenalCenter Venion C VC1 C VC2	
Typicial Machines	VistualCenter Server: ECOVER	ex tip-vc-server
<i>a</i>	VituaCerter Pot	
	VitualCenter UFL: https://10.0.4.4/adk	
Villaceva	User red	ex: Administrator OR MiD cenar/LAdministrator
	Patront	
Inital VSS	Varia Panagati	
(30)		
	Delete Int	
SMTP(E-Mail		
t 1 1 1 1 1 1 1 1 1 1 1 1 1		
NC) Host Dests		
<b>m</b>		
Ship Servers		

2. Populate the fields on the screen. Click **OK** to confirm the settings.

## **Test VC Configuration**

- 1. On the VirtualCenter Configuration screen, click **Test.** vRanger Pro attempts to connect to VC using the current configuration information.
- 2. If a dialog displays confirming that the test was successful, click **OK**.

If the connection was not successful, it may indicate that a setting was entered incorrectly or that VC is not visible to the computer where vRanger Pro is installed.

#### Delete VC Information

- 1. On the VirtualCenter Configuration screen, click Delete. A confirmation dialog displays.
- 2. Click Yes.



# 🙋 SMTP (E-Mail)

By configuring this section with your SMTP server settings, vRanger Pro can send you a notification email with logs every time a backup job runs.

Add/Modify SMTP Information Dialog

Server Information		
SMTP Server	mail1.vizioncore.com	
From Address	jsmith@vizioncore.com	
Subject Line	esxRanger Backup Notice	

Server	The address of the SMTP server that vRanger Pro will use to send the notification emails. Note: Choose an SMTP server that does not require authentication. An SMTP server that requires authentication will not allow vRanger Pro to send the notification emails.
From Address	The address that will appear in the From field of the email. Some SMTP servers have rules governing what they will or will not send, based on the From Address (e.g., must be a valid email account registered with that server).
	If you are having trouble configuring email notifications, contact your email provider to verify their sending rules.
Subject Line	The Subject field of the email that is sent. vRanger Pro sets the Subject field of the email to this value, so that it will be easily recognizable.
Add/Change Information	Click this button to add or modify SMTP server settings.

## Add or Modify SMTP Server Settings

- 1. In the left pane of the VirtualCenter Configuration screen, click SMTP (E-Mail).
- 2. Click Add/Change Information.

SMTP Server	mail1.vizioncore.com	
From Address	jsmith@vizioncore.com	
Subject Line	esxRanger Backup Notice	

3. Populate the fields on the Add/Modify SMTP Information dialog. Click OK.



# (VC) Host Dests

VC groups can contain VMs from multiple servers. Due to differences in the way networks and servers are structured, it may not make sense to send all of the archives to the same destination. Usually,each server uses its own local working space rather than a shared working space. If you find this is the case for your configuration, then you can use (VC) Host Dests to improve backup efficiency by assigning a different destination and working/temp space to each server.

#### LAN-Free Backups

During normal operation, vRanger Pro backs up and restores VMs by sending data from one network location (source) to another (destination). The diagram below shows the major steps that the data makes on the path from a source VMFS to a destination VMFS within the

same SAN.



The data travels:

- 1. From VMFS 1, where the VM resides, through the fiber switch to ESX Server C (acting as source).
- 2. From ESX Server C, out to the network switch and back to ESX Server E (acting as destination).
- 3. From ESX Server E to VMFS 4, where the backup will be stored.

In this situation, vRanger Pro lets you take advantage of the high transfer rate of fiberoptic cable by eliminating the time-consuming trip through the network. ESX Server C can act as both the source and destination machine; it pulls the data from VMFS 1, compresses/decompresses it, and writes it directly to VMFS 4.



To perform a LAN-free backup, you need to:

- 1. Configure the source machine in the (VC) Hosts Dests screen.
- 2. Select the configured Host Dest in the Destination tab of the Backup or Restore screen.

#### Note:

If you attempt to restore a backup that was created LAN-free, it should also be restored LAN-free. To perform a LAN-free backup/restore, all ESX Servers that are attached to the fiber switch must be able to see both the source and destination VMFSs.

(VC) Host Dests Screen

Configuration Types	nen				R	
independent Types independent Types independent indepe	Host Defined Definition of the second Control of the second Contr	a noti any "ro la tran kedi. "1045.7 Data tanp Data	τη perimetal τ	Lond to all notific types		
Skip Servers						

Dest Path	The destination location where the archive will ultimately reside.
Temp Path	The working directory where the archive is created. In almost every case, this should be the same as Dest Path.

#### **Configure a Host Destination**

- 1. Select a host or ALL Hosts from the list on the left.
- 2. Populate the Dest Path for the selected host by clicking the ellipsis (...) to browse for the destination path.
- 3. When you have chosen a Dest Path a message displayss, asking if you want to use the destination path as the temporary path.
- 4. Click **Yes**. The path entered in Dest Path is copied to Temp Path. The destination is now defined and can be selected from the Destination tab in VC Backup Mode.



## **Skip Servers**

This option works in conjunction with VC Backup mode. When you back up groups of VMs at once, you can use this page to designate specific VMs that should not be backed up as part of the group backup.

5	Skipped Display Names			
VMware Hosts	All ESK Servers			
	Checked Wild will be slipped story an allegatered-	ni baikup		
Typicial Machines	Display Name	Skpped	Sever	
-	DEVDFSTS1	No		
<b>C 1</b>	DEVDFSTS2	Yes		
VetanCenter	esxCharter-Demo-esx3-jmattox	No		
-	esxCharter-Demo-esx3-rsandow (1)	No		
	esxRanger-Demo-esx3-jmattox	Na		
	GPRDM	No		
Initial VSS	Jims test	Yes		
15200	Ranger Testing	No		
	simplefailover1	Yes		
SMTP (E Mail)	simplefallover2	No		
	vi3otstest	No		
THE I				
MCI Host Desta				
president and				
1				
	1			

Host Server (unlabeled dropdown menu)	The host whose guests you want to designate as skipped. You can choose any host that is configured in the Servers configuration page or choose "All ESX Servers" to see guests from all configured hosts.
Guest List (unlabeled list)	All VMs running on the host indicated in the Host Server field are listed here.
Display Name	The name of a VM.
Skipped	If this is checked, then the corresponding VM will be skipped when a backup is run from VC mode for its host server, cluster, datacenter, or folder.
	Note: This setting is verified at the time the backup is run. If you set a VM to be skipped, schedule a backup that includes the VM,

and then remove the skip setting from the VM, it will be backed up with the rest of its group.



# Install VSS

This option works in conjunction with the Enable VSS option (see Backup chapter for more information). This option installs the Vizioncore VSS service on the selected VM.



Select All	Selects all VMs displayed.
Bulk Configure	Allows the entry of a default set of login credentials to be used on all servers.
Drop Down Menu	Allows the selection of Install VSS or Uninstall VSS.
Start	Initiates the selected process.

Right-clicking anywhere on the Install VSS screen will display the options below:



# 4 Using vRanger Pro

# vRanger Pro User Interface

The vRanger Pro window is the central navigational area of the software. This is where you can view the main components of the system. Through this window you can access the commands that allow you to configure and execute backup and restore jobs.

GUI Modes	1. Source S 2. Destination 3. Op	tions					
	Select a VirtualCenter object from the tree of	in the left.					
19	Hosts & Clusters     Elization Servers	VM Backup List: 12 VMs	gure Hosts 🔊 S	elect Backup	Drive(s)		
Jackup VM(3)	Discovered Virtual Machine	Display Name	Host	Stetus	Back	Total Dis	VC Path
	- B GPROM	DEVDFSTS1	vc-esx3-sup02	OFF	All	7.81	/Hosts
~	Ranger Testing	DEVDFSTS2	vc-esx3-sup02	OFF	All	7.81	/Hosts
(CTC)	a vi3cifstest	esxCharter-Demo-esx3-jmattox	vc-ep:3-sup02	OFF	All	1.95	/Hosts
0	🕷 💋 es/2 Hosts	Charter-Demo-esx3-rsandow [1]	vc-esx3-sup02	OFF	All	1.95	/Hosts
Parton MA	D host	asidNigrator-Demo-esi/2	vc-esi/2-demo1	Host No	A8	1,95	/Hosts
	e 📁 V13	esxRanger-Denio-esx2-Jahn	vc-es/2-demo1	Host No	All.	1.95	/Hosts
	B Bg V13	BeskRanger-Demo-esk3-jmattax	vc-esx3-sup02	OFF	All	2.95	/Hosts.
3	<ul> <li>wc-esk3-demo1.vizioncore.int.</li> </ul>	Jims test	vc-esx3-sup02	OPP	A1	0.20	/Hosts
>1	<ul> <li>wc-esx3-sup02.viziancare.int.</li> </ul>	JW-VC2p4-test	vc-es/2-denio1	HOST NO	All	7.81	/Hosts.
-	DEVDFSTS1	Comparatover 1	vc-esk3-sup02	SUSPER	A45	7.01	/Hosts.
Reports	DEVOFSTS2	a simple and verz	vcreska-supverni	Hort No.	ALL .	7.81	/Hoste
	- B esxCharter-Demo-esx3-jmattox	Contraction and the second					
	B esiCherter-Demo-esiG-rsandow (1)						
	B eoRanger-Demo-eoXJ-jmattox						
•.•	- CD GPRDM						
	- D Jims test						
Configure	Renger Testing						
	p simpletatiover1						
	co simpletallover2						
	(D vi3cifstest						
	* E PD						
	a myzioncore-Testing						
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	Tenesume					mung	mon

The vRanger Pro window features these areas:

- GUI Mode Menu
- Tab Bar
- Menu Bar
- Content Area
- CLI Output

## GUI Mode Menu

Backup	Create backups of existing VMs.
Restore	Restore a VM from a backup you made previously.
Reports	Generate reports about the backups and archives that you have made.
Configure	Set up vRanger Pro to work with your ESX Servers, VC, and backup locations.

The GUI Mode Menu contains the following options:

#### Tab Bar

These tabs represent steps in the backup and restore processes and change depending upon which mode you are in. The individual tabs are described in detail later in this chapter—Source, Destination, and Options.

#### Menu Bar

These menus are available in the backup and restore modes and contain a variety of commands.

#### File Menu

Exit	Closes the GUI window and exits vRanger Pro.

#### Edit Menu

Copy Command	Copies the text from the CLI Output area to the clipboard.
Schedule Command	Attempts to schedule a backup or restore job based on the information currently entered. This has the same effect as clicking the Schedule Backup or Schedule Restore buttons.

#### View Menu

Backup	Switches to Backup mode (same as clicking the Backup button in the GUI Modes menu).
Restore	Switches to Restore mode (same as clicking the Restore button in the GUI Modes menu).
View Logs	Opens the Logs Viewer window, where you can access and delete application log details.

#### Action Menu

Refresh VirtualCenter Tree	Refreshes the VC tree in the right pane of the main screen.
Database Maintenance→ Trim Records and Compact Database	Cleans the database of old records and compresses it, reducing the total size of the database.
Database Maintenance →Compact Database	Compresses the database without removing superfluous files.

#### **Settings Menu**

Backup Mode→ VirtualCenter	Sets the Backup Mode to VC Mode.
Backup Mode→Legacy	Sets the Backup Mode to Legacy Mode.

#### Help Menu

About	Displays information about vRanger Pro, including the version number and licensing information.
Documentation	Opens a PDF of the vRanger Pro User Manual.

#### **Content Area**

This changes depending on which mode and tab you have selected.

#### **CLI Output**

In addition to the standard graphic interface, advanced users can take advantage of the CLI, which can be useful if you want to integrate vRanger Pro with other backup scripts that you are running.
# Backup

After vRanger Pro is configured, you can start to perform backups or schedule them to be performed. You can back up from ESXi 3.5 using VCB over fiber or a network.

Warning: You cannot restore ESX 3.x network backups to ESXi 3.5.

## Backing up Groups of Hosts

If you back up a group of ESX and ESXi 3.5 hosts and select VCB over fiber, standard fiber-based backups will be performed. If you request a network backup of ESX and ESXi hosts and select VCB over the network for ESXi hosts, all backups will be performed over the VCB network.

*Warning:* If you configure network backups of ESX and ESXi 3.5 hosts and do not select VCB over the network, the backups will fail for the ESXi hosts.

### **Backup Process**

vRanger has various flags and options that allow you to customize the backup process to your system architecture. However, most of these backups follow a common set of steps, which are described below. This is how a typical backup works:

- vRanger Pro initiates a point in time backup of ESX Server guest OSs (VMDK files).
- vRanger Pro executes the VSS process (if enabled):

The VSS initiates the commit shadow copy phase. The VSS tells the writers to quiesce their data and temporarily freeze requestor (application) IO write requests for the several seconds required to create the shadow copy of the volume or volumes. The VSS flushes the file system buffer and then freezes the file system, which ensures that its metadata is written in a consistent order.

- vRanger Pro will use the VMware API to add a snapshot (utilizing VMware's Sync Driver) which will unlock the VMDK for read-only purposes. The snapshot will house any additional changes to the .VMDK until it is committed to the VMDK file and the file is restored to the original state.
- While the snapshot is open and housing the changes to the VM, vRanger Pro will begin compressing the VMDK file which makes a copy of the VMDK, eliminates the white space, and significantly reduces the data size.
- Once a snapshot is open, The VSS thaws the file system, releasing the writers from their temporary inactive phase and all queued write IOs are completed.
- vRanger Pro provides options for location of the compressed file to be sent to a Windows or Linux destination, or a particular VMFS or LUN.

- The snapshots are dealt with after the compression is complete and prior to the transfer of the compressed file. vRanger Pro handles the snapshots with a committing algorithm to reduce or eliminate any downtime for the VM.
- Once all changes to the VMDK in the snapshots are committed, the VMDK is returned to the original state and locked once again.
- Upon completion of this process, vRanger Pro will add an information file. Used in the restore process, this file contains information needed about the backup image including who performed it.

### ESXi 3.5 Backup Process

This is how an ESXi 3.5 backup works in vRanger Pro:

- VCB network mode is executed. The entire VMDK is transferred over the network to the vRanger Pro/VCB Proxy server (for example, a 10 GB VMDK will be 10 GB of data over the network).
- The VCB data stream is compressed into a vRanger Pro archive before the 10 GB VMDK reaches the target disk or network. This process is similar to VCB over fiber.

## A Word about Snapshots

Vizioncore has introduced some fail safe features to overcome potential snapshot issues. In addition to the initial Commit command to the VC, vRanger Pro executes similar commands at the Host API and CLI level. While the extra steps offer a more robust approach to managing snapshots, email alerting has also been updated to send notification of open snapshots after a backup.

*Note:* vRanger Pro includes a file locking mechanism that allows for error-free interaction with vReplicator. While vRanger has a VMs snapshot open, a file lock is put in place. vReplicator will read this file lock and will not attempt to open a snapshot on the same VM until the lock is removed. The process also works in reverse, with vRanger Pro reading an existing file lock put in place by vReplicator.

### LAN-Free Backups

The process above covers the majority of VM backups. There is one other common type of backup called a LAN-free backup. You can use this when the source and destination drives are both accessible from the same machine, as is often the case when backing up a VM using a source and destination on the same SAN. In this situation, you can eliminate the network traffic speeding the copying process by restricting it to efficient fiber-optic cable.

## VSS

The VSS process described above uses Microsoft's VSS and Vizioncore's VSS Service. While VSS is integrated with supported MS OSs, the Vizioncore VSS needs to be installed on each guest for which you wish to use it.

### **Enhanced Write Speeds**

vRanger Pro now includes a proprietary functionality that greatly improves write speed to VMFS. This will enable faster backups to ESX Servers, but more importantly enable a lower RTO by reducing restore times. Note that this process does install a driver onto the ESX Server. This driver can be installed and removed without rebooting the server, and is only active during a vRanger Pro write.

### **Backup Archive Types**

There are two general types of backup archives: full and differential.

### **Full Backups**

A full backup is just what you would expect—the configuration file and all associated disk files are backed up in full. This may take up a significant amount of disk space if the VM is large. You can use a full backup to do a complete restore.

### **Differential Backups**

Once you have completed a full backup, the next time you generate a backup vRanger Pro can create a differential backup instead. It contains the blocks in the VM that have changed since the last full backup. This type of archive is ideal for VMs that are backed up frequently or that do not change much between backups. The size of a differential backup will be relatively small—this means that it will take up less hard drive space and the copying stage will be faster. A differential archive is dependent on the most recent full backup at the time it was created— both archives are required to perform a restore.

*Note*: Differential backups are available for Windows destinations only and are not compatible with VCB backups.

### **Uncompressed Backups**

Uncompressed backups are simply full, uncompressed backups of the source VM. They can be used for hot cloning, but the main purpose is to allow integration with data deduplication solutions such as Data Domain. Uncompressed backups can be restored through the normal restore process.

### Free Disk Space Requirements

Depending on the backup options you select, vRanger requires a certain amount of free space on the source and destination drive partitions.

### **Source Requirements**

vRanger requires free space on the source disk to accommodate the snapshot log file, which continues to grow while the VM is archived and copied to the backup destination.

To avoid running out of space, the source hard drive must have a minimum of 6GB free when you begin a backup. However, Vizioncore recommends that you have at least 10GB or 10 percent of the VMFS, whichever is greater.

### **Destination Requirements**

The destination drive must have enough free space to accommodate the new VM archive file. Space requirements will vary, as some archives compress more than others. vRanger Pro checks this by comparing the amount of free space on the destination to the size of the uncompressed VM.

Due to the unique nature of our P2V backup ability, the destination drive for P2V backups must have free space equal to 2 times the size of the target drive. For example, if a P2V backup of a machine with a 40GB hard drive is initiated, the destination machine must have at least 80GB free space.

### Backup Modes

The vRanger Pro backup interface has two different modes: VC mode and Legacy Mode. It is important to understand the distinction between these in order to use vRanger Pro most effectively.

### VC Mode

In VC Mode, vRanger Pro communicates directly with your VC installation and shows your VMs in a tree structure that mirrors VC's interface. The primary benefit of this structure is that you can use it to select an individual VM, a VM group, a host server, a server group, or even your entire infrastructure to be backed up at once.

#### Requirements:

- To use VC Mode, you must have a VMware VC installation running.
- When you configure VC Mode, you designate whether vRanger Pro will run in VC Mode 1 or VC Mode 2. If you are running VMware VC version 1, you have to use VC Mode 1, but if you are running VC version 2, you can choose either VC Mode.
- In VC Mode 1, you can only create backups using hosts running ESX Server v2.x. In VC Mode 2, you can only create backups using hosts running ESX Server v3.x.

-If all of your host servers are running the same version of ESX Server, simply select the appropriate VC Mode.

-If you have a combination of both versions, you will have to decide which VC

VMware VC Version	ESX Server Version	Select VC Mode
1 or 2	All 2.x	1
2	All 3.x	2
2	Majority 2.x	1
2	Majority 3.x	2

mode will benefit you the most. It is often best to select the VC mode corresponding to the majority of your host servers. You can back up the rest of your servers using Legacy Mode.

### Legacy Mode

In Legacy Mode, you can select an individual VM to be backed up regardless of the ESX Server version that is hosting it. Note that P2V backups are not available in Legacy mode. In order to backup a physical machine, VC Mode must be used.

## **General Backup Process**

To create a backup, you must:

- 1. Select the source—the VMs you will be backing up.
- 2. Select a backup destination—the place where the archived backup files will be stored.
- 3. Select related options.

Each of these steps has its own tab in the Backup window. The appearance and features of the tabs may vary depending on whether you are using VC Mode or Legacy Mode.

### Begin the Backup

1. Select the Backup Mode you want to use from Settings on the menu bar.

	Select a VirtualCenter obj	VM Backup List: 15 VM	s \Lambda Configure	e Hosts 🔊 Se	elect Backup Drive	(1)
Backup VM(s)	<ul> <li>Bu Demo servers</li> <li>Bu PD</li> </ul>	Display Mana Most	Ctabur	Backup Dei	Total Dick Six	10° P
	a lin vition ore-Testing	Display Name Host	status	backup bri	1018I DISK 312	NG Passel
	- m relevent reserve	CONDEXTRANSION OF ANY	-sum OFF	43	7.01	/mus
50		Becchart works	COLORE	63	1.65	//fupin
<b>U</b>		Becchart week	Len OFF	61	1.55	71 125) /bdoc
		Bandhirrat ut.and	Ide Hest N	41	1.05	(Indexes)
Restore VM		Barifana arani	Ida Hart N	61	1.95	(black
		A ac Paran int and	OFF	63	2.65	(hine
- 10		CO GPEDM IN. PC.	Lou OFF	AI	4.50	/Hos
2		A line test ward	Leu OFF	AL	0.20	/hine
<b>NI</b>		B.R4-VC20. KC-800	-de. Host N	41	7.81	/Hos.
		B Parcent T Manager	Lau OFF	AL	2.00	/Here
Reports		B simplefeit vc-esx	-su SUSPEN	All	7.81	/Hos
		Simplefail vc-esc	I-su OFF	All	7.81	/Hos
		ave-em-will ve-est	-do Host N	EA	7.81	/1405
1.1		🖉 vi3cifstest vc-eso	I-su OFF	AR	0.00	/Hos
Configure		¢				2
	Refresh Tree				Naviga	tion -

- 2. Select VirtualCenter or Legacy.
- 3. Populate the fields on each of the tabs in order. See the sections below for additional information.

### Source Tab

This tab allows you to select the VM(s) which you will be backing up. It is significantly different for each of the two modes, so they will be discussed separately. This tab is split into two panes: the VC Tree and the VM Backup List.

#### VirtualCenter Mode

OUI Modes		cions					
-	Select a VirtualCenter object from the tree of	in the left.					
19	B    B Demo Servers	VM Backup List: 12 VMs 🔬 Confi	gure Hosts 🔊 S	elect Backup	Drive(s)		
ackup VMB1	Discovered Virtual Machine	Display Name	Host	Stetus	Back	Total Dis	VC Path
	GPRDM.	DEVDFSTS1	vc-esx3-sup02	OFF	48	7.81	/Hosts
	Ranger Testing	DEVDFSTS2	vc-esx3-sup02	OFF	A1	7.81	/Hosts
(TT)	💩 vi3cifstest	Charter-Deno-esci-imattox	vc-ep-3-sup02	OFF	All	1.95	/Hosts.
•	# 💋 es/2 Hosts	Bescharter-Demo-esx3-rsandow (1)	vc-esx3-sup02	OFF	All	1.95	/Hosts
	C host	BeskMigrator-Demo-es/2	vc-esi-2-demo1	Host No	44	1.95	/Hosts.
Restore VM	E 1 V3	Bes-Ranger-Denio-ep-2-Jahn	vc-es-2-demo1	Host No.	48	1.95	/Hosts.
	a 10 VII	Bes-Ranger-Demo-es-3-imattox	vc-esx3-sup02	OFF	48	2.95	/Hosts
-	In ward-denot viring one int	Jims test	vc-esx3-sup02	OFF	44	0.20	/Hosts
	B as and surfly visioneers int	M-VC2p4-test	vc-es-2-demo1	Host No.	40	7.81	/Hosts
~	A DEVOETS	Simplefailover1	vc-esx3-sup02	SUSPEN	All	7.81	/Hosts
-	A DD DOTTO	Simplefallover2	vc-esx3-sup02	OFF	40	7.81	/Hosts.
Reports	D DEVOPSISE	wc-vm-win2k3-test	vc-es/2-demo1	Host No	48	7.81	/Hosts.
	B escharter Deno esco jinaccox						
	D esterar Orma and Institution						
	D cooput						
•••	D GPRUM						
Canfinger	CD JIMS Gest						
comigare	GI Kanger Lesting						
	- CU simpletatiovers						
	SimpletaRover2						
	GP vi3cifstest						
	* <u>m</u> RD						
	in my vizioncore-Testing	· · · · · · · · · · · · · · · · · · ·					
	K	<	10				
	Refresh Tree					Naviga	tion •
	Towership						

#### VC Tree

The left pane shows the VC Tree, which includes all of the servers and VMs configured in VC. This tree operates identically to the one in VC. By clicking on the '+' sign next to a datacenter or cluster, you can expand it to see the subfolders, hosts, or VMs that belong to it.

Icon	Meaning
P	Folder
Ø	Folder (expanded)
	Datacenter
jî ji	Cluster
	Host
C	Host (unconfigured)
Ð	Virtual Machine
8	Virtual Machine (running)

Refresh Tree	Reloads the contents of the VC Tree, updating to match any changes
	that have occurred since it was last loaded.

#### VM Backup List

When you select and highlight any item on the tree, the VM Backup List shows all of the VMs that fall under it. These are the VMs that you are choosing to back up. For instance, if you select a VM in the tree, the same VM will show up in the result pane. If you select a cluster, all of the VMs running on all of the configured hosts in that cluster appear in the VM Backup List and will be backed up.

Display Name	Display name of the VM.
Host	ESX Server that is hosting the VM.
Status	Indicates whether or not the VM is running. Also indicates if the host is not configured.
Backup Drives	Indicates which virtual disks will be backed up.
Total Disk Size (GB)	Disk space (in GB) taken by all files belonging to the VM.
VC Path	Path in the VC Tree to the VM. This is useful if you select a high-level folder or datacenter in the VC Tree and you want to know how to locate a specific VM in the tree.
Drive Count	Indicates the number of virtual hard disks belonging to the VM.
Select Backup	If a VM has more than one virtual hard disk, this allows you to select

Note: VMs that display in RED belong to unconfigured hosts and will not be backed up.

Drive(s)	which ones will be backed up.
Disable Drive Selection	Disables the Select Backup Drive option and backs up all drives for all selected VMs.
Refresh Tree	Refreshes the VC tree view.

Expanding a cluster in the VC Tree pane reveals a list of all host servers and VMs that fall under it, regardless of whether or not the host is configured. VMs running on unconfigured hosts will not appear in the Result pane and will not be backed up.

Additionally, VMs will appear in the Result pane regardless of the version of the host server. For example, if you are running in VC Backup Mode 2 and have a host running ESX Server version 2.x, any VMs running on that host will be backed up in VC2 mode.

When you have selected your backup source, click the Destination tab.

## Legacy Mode



In Legacy Mode, you can select a single VM to back up. Similar to VC Mode, the Source tab is split into two panes: the VM List Pane and the Disk File List Pane. Above the two panes is the Host Selection Box.



#### VM List Pane

The Host Selection Box contains a list of all ESX Servers configured in vRanger Pro. Use it to select a server that hosts the VM that you want to back up, or select "All ESX Server(s)" to see a list of VMs on all configured servers. The VM List pane shows all of

the VMs hosted on the server indicated by the Host Selection Box. Select the VM that you want to back up from the list.

Source ESX, VM and Drive(s) and Co	nfiguration	
10.0.6.37		
Display Name	Config Path	Server
🛱 GPRanger 🚰 Microsoft Windows XP Professional	/root/vmware/GPRan /root/vmware/winXPP	10.0.6.37 10.0.6.37
🛍 vc-vm-CitrixTest	/root/vmware/vc-vm-C	10.0.6.37

Display Name	Display name of the VM.
Config Path	Indicates the location of the VM configuration file.
Server	The ESX Server where the VM is hosted.

You can also right-click on any VM for a few more options.

Source ESX, VM and Driv	ve(s) and Co	onfiguration	
10.0.6.37			
•			
Display Name		Config Path	Server
🛱 GPRanger 🛱 Microsoft Windows XP F	Professional	/root/vmware/GPRan /root/vmware/winXPP	10.0.6.37 10.0.6.37
🔤vc-vm-CitrixTest	🗃 Refres	/root/vmware/vc-vm-C h Disk Files	10.0.6.37
	Check	VM Power State	

Refresh Disk Files	Refreshes the contents of the Disk File List Pane.
Check VM Power State	Displays a message indicating whether or not the selected VM is currently running.

#### Disk File List Pane

This pane contains a list of the disk files that are associated with the selected VM. When you back up the VM, the configuration file is automatically backed up. You can specify which disk files are backed up by checking the box next to the disk, or you can choose to back up all associated disk files (default) by checking the box next to All. When you are finished, click on the Destination tab.

Backup Disk(s)
All State
🗹 🥗 scsi0:0 - int01:vc-vm-CitrixTest.vmdk
🔲 🥗 scsi0:1 - int01:Citrixtest1.vmdk

## **Destination Tab**

Use this tab to select the location where your backup archives will be stored. The interface works the same for both VC and Legacy Modes.



First, you need to select the type of backup destination you will be using by clicking appropriate icon under Destination Types. vRanger supports Windows, some flavors of Linux, and other ESX Servers as destinations. To select an ESX Server, select the Linux icon. If you are doing a LAN-free backup, select the Configured Host Dests icon. The interfaces for each of these Destination Types are described below.

#### Windows Destinations

Immediately to the right of the Destination Types box is the Folder Tree. The tree is split into two groups:

**My Computer**—contains all hard drives directly visible to the machine running vRanger Pro, as well as all mapped network drives.

**Ranger Neighborhood**—contains Windows machines on the same network as the machine running vRanger Pro.

To the right of the Folder Tree there is a small Button Bar and the Contents Pane, which displays the subfolders of the directory that is selected in the Folder Tree.

Icon	Meaning	Icon	Meaning
<b>#</b>	My Computer		Ranger Neighborhood
200	Attached Hard Drive	1	Network Computer
3	Mapped Network Drive		Network Share
<b>`</b>	Folder		

Icon	Meaning
2	<b>Back</b> —jumps to the previously selected item in the Folder Tree.
2	Forward—jumps to the next selected item in the Folder Tree.
6	<b>Create New Folder</b> —creates a new folder within the selected item in the Folder Tree.
6	Add Server—adds a new network computer to the Ranger Neighborhood group.
٥	<b>Remove Server</b> —removes the currently selected network computer from the Ranger Neighborhood group.
	<b>Change View</b> —switches the view of the Contents Pane between large icons and a detailed list.
Q	<b>Show Files</b> —includes files in the Contents Pane; if you do not click this, only subfolders appear.
	<b>Enumerate Network Servers</b> —adds all Windows shares available on the domain that ESX Server is logged into the Ranger Neighborhood group.

When you select a backup destination, the path to that destination is displayed above the Folder Tree, after "Destination ->".

#### Selecting a Networked Computer as a Backup Destination

The My Computer group in the Folders Tree is automatically populated, but the Ranger Neighborhood group starts out empty. To use a Windows computer on your network as a backup location, you can either map it as a network drive or add it to the Ranger Neighborhood.

There are two ways to add a network computer to the Ranger Neighborhood:

- If you click the Enumerate Network Servers button, vRanger Pro will automatically attempt to identify all available networked computers and add them to the Ranger Neighborhood group.
- You can add individual computers manually by clicking the Add Server button. When the new server appears, simply type the computer name and it will be added.

*Note*: vRanger Pro assumes that the computer it is installed on has authentication with any network destination it is instructed to access. It will not attempt to authenticate the destination itself. Because authentication to a share can sometimes be unexpectedly lost over a period of time or after a computer reboot, Vizioncore recommends ensuring that the network shares used as backup destinations are accessible to the account running the scheduled backup.

#### Linux and ESX Server Destinations

The interface for Linux and ESX Server destinations is nearly identical to the Windows Destination interface, with the following differences:

- There is no My Computer group in the Folder Tree.
- The Ranger Neighborhood group automatically contains all ESX Servers that are configured in vRanger Pro. You can add more destinations using the Add Server button.
- There is no Enumerate Network Servers button.

#### Configured Host Dests

If you are using VC mode to back up simultaneously from multiple host servers, you can use this to distribute the processing and storage burden by assigning each host a separate destination and working directory.

You can also use this option to perform a LAN-free backup on a SAN.

### **Use Configured Host Dests**

- 1. Click Configured Host Dests icon under Destination Types.
- 2. If you have already assigned destination paths for the hosts selected in the Source tab, you can proceed to the Options tab.

Otherwise, click the **Click to Configure** link to open the (VC) Host Dests configuration page.

#### Options Tab

This tab contains a variety of simple, yet powerful options that you can choose from to customize your backup. The availability of these options depends on several factors,

including whether you are using VC Mode or Legacy Mode, and the server version of the backup source.



The Options tab is divided into sub-tabs:

- vRanger Backup Options
- VirtualCenter Backup Options (available in VC Mode only)
- VCB Backup Options (visible only with the VCB plug-in installed)

#### vRanger Backup Options

This tab contains two lists—Backup Flags and User Options.

#### Backup Flags

Backup Flags are all on/off options, and each is listed with a Command Switch. The Command Switch is relevant only if you are going to use the CLI.

Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Copy the VM Configuration File	If this flag is checked, vRanger will include the VM configuration (.vmx) file in the backup it creates.
[-copyconfig]	This is checked by default and Vizioncore recommends that you leave it on. Without it, only the disk files are backed up. When performing Vi3 backups the backup of the configuration file is built into the backup process.
Automatically commit persistent mode disk file REDO logs before backup [-autocommit]	If you are backing up a running VM, vRanger creates a snapshot of the VM, allowing it to continue to run while vRanger backs up the disk files. When the backup is completed, the snapshot is merged with the disk files and then deleted.
	If this flag is checked, vRanger closes any existing snapshots when it begins the backup and starts a new one. This is useful because snapshot files can grow in size very quickly for active VMs, consuming disk space which is required for creation of the backup. If the hard disk runs out of room, this can cause the VM to crash and/or may prevent vRanger from completing the backup. By starting the snapshot when the backup begins, the size of this file is kept to a minimum.
	This is checked by default and we recommend that you leave it on.
	To avoid running out of space, the source hard drive must have a minimum of 6GB free when you begin a backup; however, Vizioncore recommends that you have at least 10GB or 10 percent of the VMFS, whichever is greater.
	When performing Vi3 backups autocommit is built into the backup process to look for vRanger and VCB snapshots just prior to executing backups.
Backup only powered on VMs [-onlyon]	If this flag is checked, vRanger will check the status of the VM before it begins a backup, and will skip the VM if it is not running. If a VM is not running, it may be the case that it has not changed significantly since the last backup, so creating another backup could be redundant.

Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Do not check the free space for source or destination [-nospacecheck]	Before vRanger begins a backup, it checks the destination location to ensure that there is enough space available for the backup file to be written. Because it is not possible to determine how much space will be saved by compression, vRanger will generate an error if the free space at the destination is less than the combined size of the files belonging to the VM.
	If this flag is checked, vRanger will perform the backup without verifying the space available at the destination. You would use this flag if you knew that the VM can be compressed enough to fit in the existing free space.
	For example: If the destination drive has 80GB free and the VM is 100GB, vRanger would not usually attempt the backup. If you know, however, that the VM can be compressed to about 30GB (and so will fit on the destination drive), you would use this flag to override the destination free space check.
	<i>Note</i> : This flag does not override the 6GB free space required on the source drive.
Verify that the archive is valid after creating it [-verifyarchive] Restrictions: ESX Server v2.x only	If this flag is checked, vRanger stages the backup on the source ESX Server, verifies it, and then copies it to the destination. This guarantees the integrity of the backup, but may take two to three times longer. When performing Vi3 backups the archive validation is built into the backup process, without the extended time to perform the validation.
Do not create an archive of the file(s) [-nozip] Restrictions:	This flag causes vRanger to create an identical copy of the source VM, without using any compression. This can be used to perform a hot clone of a VM—to create a duplicate copy of a VM that is running.
Not compatible with zipname or the –autodiff user option	This flag is not compatible with the Archive Name user option. If you want to use this option, you must delete the OptionValue listed for Archive Name.

Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Only send mail logs when a backup error occurs [-mailonerror] Restrictions: SMTP must be configured Requires mailto user option	If this flag is checked, vRanger will only generate an email notification when an error occurs during a backup. Backups which are performed successfully will not result in a notification email.
Enable vRanger enhanced write speeds [-vzboost] Restrictions: This feature only supports writing to VMFS.	This functionality will install a driver onto the destination ESX Host to allow for enhanced write speeds to VMFS. When a write to VMFS is initialized, vRanger Pro will activate the driver for the duration of the write. When completed, the driver returns to an inactive state, consuming no resources.
Update the VM Notes with the most recent backup results [-vmnotes] Disable Guest Quiescing [-noquiesce] Not compatible with VCB	If this flag is checked, vRanger will update the VM Notes in VC with the most recent backup status. Note: vRanger maintains the existing VM notes in VC, appending the backup status to the end. Disables the VMware Tools Synch Driver when creating a backup. You should use this flag if you're backing up a database server (for example, SQL Exchange, Active Directory, Oracle or any database that uses a service to write). When executing VCB backups, vRanger does not control VMware snapshots, thus the quiescing option cannot be disabled. To stop VCB from engaging the sync
	driver you must remove it from the VMware Tools by using Add/Remove Programs.
Enable VSS	If this flag is checked, vRanger will interact with the Vizioncore VSS Service to freeze writes on supported
[-vss]	applications. This will provide a consistent image of VSS
<i>Kestrictions:</i> <i>VSS Service must be</i>	enabled databases.
installed prior to backup	
Requires Guest OS and applications to support VSS quiescing.	

Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Encrypt Data Transfer [-encryptdata]	By default vRanger backup traffic is not encrypted to enable the backups to perform as fast as possible. By invoking this option you will reduce your backup speed by about 20 percent and all backup traffic will run over SSH to the Windows host.
<b>Enable Automatic</b> <b>Differential Backup</b> [-autodiff] Restrictions:	If this flag is on, vRanger will create a differential backup instead of a full backup, if possible. This occurs when there is an existing full backup for the VM and depends on the Maximum Size Of A Differential Backup (%) and Number Of Days Before A Full Backup user options.
Windows destinations only Requires <b>diffratio</b> or <b>maxfullage</b> user option Not compatible with VCB	If you select this option and then select Enable VMware Consolidated Backup on the VCB Backup Options tab, VCB differentials will be enabled.

### User Options

User Options allow you to customize various values that relate to the backup, such as the name of the archive or the amount of compression to use.

Option	Description
[-Command Switch]	
Restrictions (if applicable)	
Archive Name	Indicates how the archive file will be named. You can include the following variables in the name:
[-zipname] Restrictions:	<ul> <li>[config] – the name of the vmx file belonging to the VM being backed up</li> </ul>
Not compatible with <b>nozip</b> flag	<ul> <li>[dayofweek] – abbreviated name of the day of the week (Sun, Mon, Tue, Wed, Trs, Fri, Sat)</li> </ul>
	• [year] – current year as a 4-digit number (e.g., 2007)
	• [month] – current month number (01-12)
	• [day] – current day number (01-31)
	• [hour] – current hour (00-23)
	• [minute] – current minute (00-59)
	• [second] – current second (00-59)
	• [weeknum] – current week of the month, starting from the first of the month (0-5)
	• [biweekly] – week of the year (odd or even)
	If you leave this option blank, the name will be [config]_[year][month][day][hour][minute][second]. This naming convention is required for differential backups.
	The variables that you should use will depend on your backup schedule.
<b>Backup Description</b> [-description]	A text description of the backup that goes into the .info file and the backup database. This description will appear when you attempt to restore the VM, and can be used to identify the proper archive.
Mail Results To [-mailto]	vRanger will send an email notification to the addresses listed here upon completion of a backup (or upon error only, if the "Only send mail logs when a backup error occurs" flag is used). Multiple addresses should be separated by a semicolon ';'.

Option	Description
[-Command Switch]	
Restrictions (if applicable)	
Maximum Size Of A Differential Backup (%)	If the <b>Enable Automatic Differential Backup</b> flag is checked, this option helps to determine if vRanger will create a differential backup instead of a full backup.
[-diffratio] Restrictions:	If the size of the most recent differential backup of this VM is greater than the percentage of the full VM size indicated here, then vRanger will create a full backup.
Windows destinations only Not applicable without <b>autodiff</b> flag	Otherwise, vRanger will create a differential backup, subject to the <b>Number Of Days Before A Full Backup</b> user option.
Number Of Days Before A Full Backup	If the <b>Enable Automatic Differential Backup</b> flag is checked, this option helps to determine if vRanger will create a differential backup instead of a full backup.
[-maxfullage] Restrictions:	If it has been more than the number of days* indicated here since the last full backup of this VM, then vRanger will create a full backup.
Windows destinations only	Otherwise, vRanger will create a differential backup, subject to the <b>Maximum Size Of A Differential Backup (%)</b> user option.
Not applicable without <b>autodiff</b> flag	Note: "Days", here, refers to the backup period. If the VM is scheduled to back up every week, then the days in between backups are counted as days; so days are counted literally.
Number Of Days To Retain Backups [-retendays] Restrictions:	This option determines how long vRanger will keep an archive before it is deleted to free up hard drive space. When creating a backup, vRanger checks all existing backups of the same VM with the same destination. Any backup that is older than the number of days* indicated here is deleted.
Windows destinations only Not applicable without	Note: Full and differential backups are not deleted until <i>all</i> differential backups associated with the full backup are older than the number of days indicated here.
autodiff flag	Note: Days refers to the backup period. If the VM is scheduled to back up every week,, then the days in between backups are counted as days; so days are counted literally.

Option	Description
[-Command Switch]	
Restrictions (if applicable)	
VirtualCenter Custom Attribute [-customattrib]	VC allows you to define custom attributes for VMs. This option allows you to further refine the list of VMs to be backed up, based on the values of those attributes.
Restrictions:	The format for this is:
VC Mode only	Attribute=Value
VC 1.x only	where you can list up to three attributes that are defined in VC, separated by &&. vRanger will back up only the VMs that meet the criteria you specify here.
	For example, if you have two attributes defined in VC (column names "SAN" and "DR") you might complete this option as follows:
	san=test&&dr=LH
	Only VMs selected in the source tab that have "test" as the value of the SAN attribute and "LH" as the value of the DR attribute will be backed up.
	This field is not case sensitive.
Working Path (on source server)	Rather than creating an archive of the VM on the same VMFS before copying it to the destination location, you can use this option to have vRanger create the archive in a different location.
	Here are some examples of when you might want to use this:
	• If your VMFS has low free space, you can stage the backup on another disk.
	• If you want to have a specific machine with better performance compress the VM.
	• If the destination location is visible to the host ESX Server (for LAN-free backups).
	This option should almost always be specified in the last case for best performance. This allows vRanger to spool the archive directly in the destination.

#### VirtualCenter Backup Options

These options are available only in VC Backup Mode. They are used to set limits on how many backups can be performed simultaneously, to avoid giving any particular hardware component too much work to do at once. Any scheduled backups that exceed the limits

set here will be queued and performed when the other backups are completed.



Limit total simultaneous backups to # at a time.	The maximum number of VMs that vRanger will back up at the same time.
	Vizioncore recommends keeping this at 10 or less.
Limit per host simultaneous backups to # at a time.	The maximum number of VMs from a single host that vRanger will back up at the same time. Vizioncore recommends keeping this at 1 or 2.
Limit per LUN simultaneous backups to # at a time.	The maximum number of VMs stored on a single LUN that vRanger will back up at the same time. This is relevant when backing up machines from a SAN, where several VMs might be stored on the same LUN but backed up using different hosts. Vizioncore recommends keeping this no higher than 3.

#### VCB Backup Options

vRanger Pro takes advantage of VCB, which can dramatically increase the speed of LAN-free backups by taking the backup workloads from the host ESX Servers and moving them to a centralized VCB proxy server. Use the VCB Backup Options sub-tab to instruct vRanger to use the VCB server when performing a LAN-free backup.

*Note*: This tab only appears if you have installed the VCB plug-in for vRanger and you have selected a Windows destination.



Enable VMware Consolidated	Select this box to instruct vRanger to use the VCB proxy server for LAN-free backups.
Backup	If you select this checkbox as well as the Enable Automatic Differential Backup checkbox on the vRanger Backup Options tab, VCB differentials will be enabled.
Perform Network Backup on Failure	If this box is checked and the VCB backup fails, vRanger will perform a standard LAN-based backup.
Total Number of Concurrent Backups	Indicates the maximum number of simultaneous backups the VCB proxy server will perform at one time.
	Vizioncore recommends that you set this to one (1) or two (2).

#### Finalizing the Backup

Once you have selected a source and destination, and filled in the appropriate options, you are ready to finalize your backup. You can either run the backup immediately or schedule it to run later. Each option has a corresponding button at the bottom of the Options tab.

*Note*: If these buttons are disabled, it means that insufficient information has been provided to perform the backup or that conflicting options have been selected (such as selecting the nozip flag without deleting the zipname option). Double-check each tab to make sure that you have provided all of the information necessary.

#### Scheduling Backups to Run Later

vRanger uses Windows Task Scheduler to manage scheduled backups. You can find the Task Scheduler by selecting Control Panel from the Windows Start menu. For more information on maintaining scheduled backups, refer to the Help menu within Task Scheduler.

If you click the Schedule Backup button, the Schedule Task dialog displays.

Schedule Task	
Task Name: 🛛	ailServerBackup
Task Interval	Task Date And Time Start Time: 2:21:03 PM ♀ Start Date: 1/ 2/2007 ♀
Task User User:	BCKPCMP\rangeruser
Password:	Add Cancel

Task Name	This is the name of the task as it appears in the Scheduled Tasks list and in Windows Task Manager.
Task Interval	Indicates how frequently the backup job will be run. You can choose Daily, Weekly, Monthly, or Run Once.
	The options in Task Date And Time may change depending on what you select here.
Start Time	The time of day that the job will start.
Start Date	The date that this job will first run.
	Available only if Task Interval is set to Daily or Run Once.
Day (Day	Day of the week that the job will be run.
Names)	Available only if Task Interval is set to Weekly.
Day (Numbers)	Date each month that the job will be run.
	Available only if Task Interval is set to Monthly.
User	When the job is initiated, it will be run under this user. To make it easier to monitor vRanger activities, Vizioncore recommends that you run all backup and restore jobs as "ComputerName\rangeruser".
Password	The password associated with the user account in User.

vRanger uses Windows Task Scheduler to manage scheduled backups. You can find the Task Scheduler by selecting Control Panel from the Windows Start menu. For more information on maintaining scheduled backups, refer to the Help menu within Task Scheduler.

### Physical Machine Backups

The process to perform a P2V backup is similar to a standard vRanger Pro backup.

### **Flags and Options**

Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Do not check the free space for source or destination [-nospacecheck]	Before vRanger Pro begins a backup, it checks the destination location to ensure that there is enough space available for the backup file to be written. Due to the unique nature of our P2V backup ability, the destination drive for P2V backups must have free space equal to two times the size of the target drive. For example: if a P2V backup of a machine with a 40GB hard drive is initiated, the destination machine must have at least 80GB free space.
	<i>Note</i> : This flag does not override the 6GB free space required on the source drive.
Only send mail logs when a backup error occurs	If this flag is checked, vRanger Pro will only generate an email notification when an error occurs during a backup. Backups that are performed successfully will not result in a notification email.
[-mailonerror]	
Restrictions:	
<i>SMTP</i> must be configured	
Requires <b>mailto</b> user option	
<b>Do not create an</b> <b>archive of the file(s)</b> [-nozip]	This flag causes vRanger Pro to create an identical copy of the source VM, without using any compression. This can be used to perform a hot clone of a VM to create a duplicate copy of a VM that is running.
	This flag is not compatible with the <b>Archive Name</b> user option. If you want to use this option, you must delete the OptionValue listed for <b>Archive Name</b> .

### **User Options**

Option	Description
[-Command Switch]	

Option	Description
[-Command Switch]	
Maximum Simultaneous Backup Count [-asynccount]	The maximum number of backups that can be run at the same time. Default value is 5.
<b>Backup Description</b>	A text description of the backup that goes into the .info file and the backup database. This description will appear when you
[-description]	attempt to restore the VM, and can be used to identify the proper archive.
Mail Results To	vRanger will send an email notification to the addresses listed
[-mailto]	here upon completion of a backup (or upon error only, if the "Only send mail logs when a backup error occurs" flag is used). Multiple addresses should be separated by a semicolon ';'.
Working Path (on source server) [-temp]	Rather than creating an archive of the VM on the same VMFS before copying it to the destination location, you can use this option to have vRanger create the archive in a different location.
	Here are some examples of when you might want to use this:
	• If your VMFS has low free space, you can stage the backup on another disk.
	• If you want to have a specific machine with better performance compress the VM.
	• If the destination location is visible to the host ESX Server (for LAN-free backups).
	This option should almost always be specified in the last case for best performance. This allows vRanger Pro to spool the archive directly in the destination.

Option	Description
[-Command Switch]	
Archive Name	Indicates how the archive file will be named. You can include the following variables in the name:
Restrictions:	• [config] – the name of the vmx file belonging to the VM being backed up
Not compatible with <b>nozip</b> flag	<ul> <li>[dayofweek] – abbreviated name of the day of the week (Sun, Mon, Tue, Wed, Trs, Fri, Sat)</li> </ul>
	• [year] – current year as a 4-digit number (e.g., 2007)
	• [month] – current month number (01-12)
	• [day] – current day number (01-31)
	• [hour] – current hour (00-23)
	• [minute] – current minute (00-59)
	• [second] – current second (00-59)
	• [weeknum] – current week of the month, starting from the first of the month (0-5)
	• [biweekly] – week of the year (odd or even)
	If you leave this option blank, the name will be [config]_[year][month][day][hour][minute][second]. This naming convention is required for differential backups.
	The variables that you should use will depend on your backup schedule.

### Begin a Backup

1. Select the physical machine you wish to backup from the Physical Machines folder.

GUI Modes	🕜 1. Source 🛛 😿 2. De	stination	3. Options			1
	Select an item from the tr	ee on the left.				
Backup	Catacenters     Physical Machines	Backup List: 1	Select	t Backup Drive(s)		
	vc-P2V-del.beta.loc	Display Name	Status	Backup Drives	Total Disk Size (GB)	Drive Co
3		Uvc-P2V-dell.	. OK	All	135.46	3
Restore						
Reports						
<b>*</b> •						
Configure		-				
		<u> </u>				
	Refresh Tree				Navig	ation —)

2. Add the destination server.

Note that only Windows servers are supported as destination servers. P2V destinations servers are not enumerated from VC; each one needs to be added separately.

Edit Yere Acta	ion Settings telp							
GUI Modes	🕜 1. Source 😥	2. Destination	2 3. Options					4
0	Destination Types	Select Desta	nation Directory					
Backup	(Bar)	Folders		53	000	-	10 2	
<b>A</b>	- Materia	- 19 Eng	Add Serv	1				
Restore			Show File	ť				
~				L				
1				L				
Reports				L				
				I				
Configure				L				
		J		I				
						+	Nevigation	->

Right-click Ranger Neighborhood→Add Server.

3. Enter the credentials for the destination server.

User, Pa	issword on win2k3svisp	51	
	Usemame:	[	1
	Password:	[	
	Verify Password		

4. Select a location.



5. Click the Options tab and configure the backup options.

	🕗 1. Source 🥌 2. Destination 🔇	> 3. Ontion		
GUT Modes				
	Flags and Options			
Inches	vRanger Backup Options			
Course -	Backup Flags		Command Switch	
•	Do not check the free space for the destina	tion	-nospacecheck	
<b>49</b>	Only send mail logs when a backup error oc	outs	mailonerror	
D	Do not create an archive of the file(s)		ncap	
3	<u>.</u>		-	þ
3	User Options			
Reports	User Options     OptionName	CommandBwitch	OptionValue	)
Reports	User Options OpfoeName Maximum Simultaneous Backup Count	CommandSwitch	OptionValue 5	
Reports	User Options     OptionName     Madivens Blockup Count     Backup Description	CommandBwitch	OptionValue S	•
Reports	User Options     OptionName     Medicinum Simultaneous Backup Count     Backup Description     Medi Results To	Command9witch asymccount -description -mailto	OptionValue S	•
Reports	Chara Options     CopionName     Machines Backup CopionName     Backup CopionName     Mail Results To     Backup Decision(Non Format)     Mail Results To     Backup Decision(Non Format)	Command9witch asymccount -description -mailto -temp	OptionValue S	•
Reports Configure	Unar Options     OptionName     Maximum Simultaneous Backup Count     Backup Cociption     Mail Results To     Backup Decotory(Unc Format)     Archive Name	CommandBwitch -astmccount -description -mailto -temp -zipname	OptionValue	•
Reports Configure	Inser Options     OptionName     OptionName     Bestup Description     Mark Results Transm     Bestrip Description     Mark Results Trans     Bestrip Desctory (Unc Format)     Activity	CommandSwitch -stanscotunt -description -mailto -cenp -cipname	OptionValue S [config]_Iweeknum]	,
Reports	Chart Options     OptionName     Manioum Binu/Mancoug Backup Count     Backup Scription     Melul Results To     Backup Deceting (Min Format)     Archive Name	CommandSwitch -asyncoopyri -description -mailto -emp -cipname	OptionValue 5	2

6. Click Schedule Backup or Run Backup.

## Monitoring Backups in Progress

### **User Accounts**

Scheduled backups are run based on what you specified in the Schedule Task dialog. To facilitate monitoring of backups that are currently running, set them up to run under a single user account that is not used for other scheduled tasks. Vizioncore recommends creating a user account called *rangeruser* for this purpose.

Unscheduled backups (jobs that are created by clicking Run Backup) are run under the user account that is currently logged in. You should run all such backups when logged into the *rangeruser* account, if possible.

## Monitoring

If you want to check the status of a backup that is currently running, simply log into the computer as *rangeruser*.

*Warning*: Do not log out of the *rangeruser* account while a backup job is running, as this will stop the backup. If your setup supports fast user switching, you can switch to another user without logging *rangeruser* out, and any active jobs will continue to run in the background.

## **File Locking**

vRanger Pro includes a feature that will enable successful interaction with vReplicator. The main component of this feature is a file lock mechanism that verifies vRanger Pro has exclusive access to a VM before taking a snapshot. If a backup job is scheduled or started and vReplicator currently has the lock, vRanger Pro will wait until the lock is removed.



## Data Domain

Vizioncore partners with Data Domain, a leading provider of enterprise protection storage systems for disk backup and network-based DR, to enable advanced data deduplication via vRanger Pro backups. Data Domain's inline data deduplication and replication technologies offer data reduction rates that enable new efficiencies in enterprise data protection.

The integration of vRanger Pro and Data Domain is virtually seamless. Note that the process below assumes that the Data Domain appliance is already installed and configured.

1. Initiate vRanger Pro backup with the following options:

-Full: There is no need to perform a differential backup with Data Domain.

-Uncompressed: The Data Domain appliance requires the data in its uncompressed state.

-Archive Name: Rather than overwrite existing backups, provide a unique backup directory for each deduplicated backup by using the Archive Name User Option in the vRanger Pro options screen. The ideal OptionValue would be "[config]\_[year][month][day][hour][minute][second]"

- 2. Use the Data Domain UNC path as the Backup Destination.
- 3. Execute or schedule the backup.

The Data Domain appliance will receive the data and perform high speed inline deduplication and compression, which reduces the backup data by an average of twenty times.

Restore the deduplicated backup just as you would an ordinary backup.

# Restore

Once you have used vRanger Pro to create some backup archives, you can restore them. The restore processes and modes are described below.

### **Restore Process**

vRanger Pro provides you with a few different ways to restore your backed up VMs, as well as numerous options and flags. A typical restore includes these steps:

- vRanger Pro verifies that there is enough free space on the destination drive to perform the backup. This is simply the size of the uncompressed VM.
- vRanger Pro copies the configuration file to the destination and creates empty disk files.
- The compressed disk files are sent to the destination, block by block, decompressed, and written into the disk file.
- vRanger Pro registers the extracted disk files with the VM config file.
- The restored VM is registered with VC, if applicable, and configured in vRanger Pro.

#### Multiple .VMDKs

vRanger Pro enables VMs with multiple .VMDKs to be restored to multiple data stores. A storage location can be easily selected for each .VMDK during the restore process. In addition, each virtual NIC in a given VM can be configured to a virtual switch.

#### Enhanced Write Speeds

vRanger Pro includes a proprietary functionality that greatly improves write speed to VMFS. This will enable a lower RTO by reducing restore times. This process does install a driver onto the ESX Server, which can be installed and removed without rebooting the server and is only active during a vRanger Pro write.

### ESXi 3.5 Restore Process

You can restore a VCB backup of ESX 3.x to ESXi 3.5. You cannot restore a network backup of ESX 3.x to ESXi 3.5.

This is how an ESXi 3.5 restore works in vRanger Pro:

- A shell VM is created, based on user configuration, during the restore process. Blank VMDKs are created as well.
- The vRanger Pro archive is not compressed by the vRanger Pro server.
- The uncompressed data stream is not written to disk, but written to the shell VMDKs via VMware VDDK (for example, a 2 GB archive that holds a 10 GB VMDK becomes 10 GB of data written over the network for restore).

### **Restore Modes**

Similar to the backup process, there are a few different ways to restore a VM:

- Normal Mode—the typical restore method, using the vRanger database.
- **Restore From Info**—uses the info file to restore the VM, instead of an entry in the vRanger database. You might use this if the VM was backed up from another installation of vRanger and is not included in your local copy of the database.
- File Level Restore—used to mount the archived disk file, allowing you to search through it and find individual files to restore.
- **P2V Restore**—used to restore a P2V backup to a VM.

### Normal Mode

To restore a backed up VM, you must complete these steps:

- Select the restore archive that you want to restore from. •
- Choose the restore to location, where the VM will be placed. •
- Select various related options. •

Each of these steps has its own tab in the Restore screen.

### **Begin the Restore**

- 1. Select **Restore VM** from the GUI Modes menu on the left.
- 2. Populate the fields on each of the tabs, in order.



# Restore Archive

This tab lists the available backups that have been performed by this installation of vRanger and allows you to select backup archives to restore.



#### Restore Grid

When vRanger backs up a VM, it makes an entry in its internal database containing information about the backup, such as backup date and VM name. This information is displayed here, on the restore grid, for archives that have not expired and been overwritten.

Each row represents a full backup that vRanger has processed. Some of these rows have a "+" sign at the left end. You can click that to show differential archives that were created, based upon that full backup.

Restore /	Check the box to restore this archive.

Differentials	Notes: If you are selecting differential archives, make sure you only select one differential per full backup.
	Highlighting a row by clicking on it does not select it for restoring or deleting—this box must be checked to have an effect.
Backup Date	The date and time the backup was completed.
Backup VM	The name of the VM in the archive.
Backup Archive	The path to the backup archive.
Backup Status	Indicates whether or not the original backup job was successful. You can only restore backups which were successful.
Backup Duration	The length of time that the original backup took.
Backup Size	The disk space taken up by the compressed backup archive.
Backup Source	The host which acted as the backup source.
Backup Source Version	Indicates the version of ESX Server used by the Backup Source at the time of the backup.
Backup Destination	The machine name where the archive is stored.
Backup Info File	The full path to the .info file for the backup. This file contains all information necessary to perform the restore.

Last # Days	Shows only available archives created in the time span selected.
Show Expired	Includes archives which have expired and been overwritten. This is for information purposes only. You cannot restore from these archives.

Delete Archive	Click this button to delete the selected archive(s) from the backup database (and disk if desired).
	Note: Differential backups are dependent on their full image parent. Never delete a full backup if you might need to use its differentials.
Restore From Info	Opens the Restore From Info dialog.
Mount VMDK	Click this button to mount a disk file from the selected archive to perform a file-level restore.
	Note: Exactly one restore box must be checked to use this.

### **Delete Archive**

- 1. Check the **Restore** checkbox for one or more archives in the Restore Grid.
- 2. Click the **Delete Archive**.

The Delete Archive dialog displays.



3. Select one of the following:

-Delete From The Restore Grid—Deletes the listing from the backup database, but leaves the archive file intact. You can still restore the archive using the Restore From Info method.

-Delete From The Restore Grid And Disk—Deletes the listing from the backup database and deletes the actual archive and .info files associated with it.

- 4. Click OK.
- 5. When you have selected the archives you want to restore, click the **Restore To** tab to continue.



### **Restore To**

This tab allows you to choose the restore destination for each archive that you selected from the Restore Grid on the Restore Archive tab.



Restore Type	Indicates whether the archive is from a full backup or a differential backup.
Restore VM	The name of the VM that will be restored.
Restore To Server	Select the destination server to which the VM will be restored.
Restore To VMFS	When selected, the Restore To VMFS configuration will open.
Restore Network	When selected, the Restore Network configuration will open.
Backup Source	The location of the .info file where the backup archive is stored.
Backup Source Version	The ESX Server version of the original backup host. The VM must be restored to a host running the same ESX Server version.

Note: Vizioncore recommends restricting simultaneous restores as follows:

- No more than 2 simultaneous restores to a single host.
- No more than 10 simultaneous restores to a single VMFS.

### Complete Tab

- 1. For each row, select a Restore Server, Restore VMFS, and Restore Network.
- 2. Click the Options tab to continue.

### **Restore to VMFS Configuration**

When Restore To VMFS is clicked, a window opens that provides the ability to select storage locations for each .VMDK. To configure, simply select the .VMDK(s) to restore and the select the desired Destination VMFS, then click OK.


## Restore to Network Configuration

When Restore to Network is clicked, the Restore to Network window opens, providing the ability to select the desired virtual switch for each vNIC. To configure, simply select the virtual NIC to use and the select the desired Destination Virtual Switch, then click OK.





Use this tab to select various options that determine how the restore job will be processed.



Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Perform an unattended restore (overwrites all config / disk files).	If the VM being restored already exists at the restore destination location, and if this flag is checked, then the existing files for that VM will be removed before the restore begins.
Restrictions: ESX Server v2.x only	If the flag is not checked, vRanger will prompt you when starting the restore to see if you want to remove the old version.
Requires <b>-forcepoweroff</b>	<i>Note</i> : This setting applies to ESX Server v2.x destinations only. Overwriting happens automatically for ESX Server v3.x destinations, regardless of this setting.
Overwrite any existing disk / config files of the same name as those in the archive. [-forceoverwrite]	If this option is checked, existing disk and config files at the destination will be overwritten by the new files, if they have the same name.
<b>Power off the VM if it is</b> <b>on for the restore.</b> [-forcepoweroff]	If this VM is running on the restore destination and this flag is checked, then it will be shut down before the restore begins.
Restrictions: ESX Server v2.x only	<i>Note</i> : This setting applies to ESX Server v2.x destinations only. Shutdown happens automatically for ESX Server v3.x destinations, regardless of this setting.
Power on the VM after the restore.	If this flag is checked, the VM will be turned on when the restore is complete.
[-jorcepoweron]	

Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Restore the VM configuration. [-restoreconfig] Restrictions: ESX Server v2.x only	If this flag is checked, vRanger will restore the VM config file, as well as the disk files. If it is not checked, only the disk files will be restored. <i>Note</i> : This setting applies to ESX Server v2.x destinations only. Config files are automatically restored for ESX Server v3.x destinations, regardless of this setting.
Register the VM if it is not registered. [-registervm] Restrictions: ESX Server v2.x only	If this flag is checked and you are using vRanger with VC, vRanger will register the VM with VC if it is not already registered. <i>Note</i> : This setting applies to ESX Server v2.x destinations only. VMs are registered automatically for ESX Server v3.x destinations, regardless of this setting, if vRanger is configured with VC.
Enable vRanger enhanced write speeds [-vzboost]	This functionality will install a driver onto the destination ESX Host to allow for enhanced write speeds to VMFS. When a restore is initialized, vRanger Pro will activate the driver for the duration of the restore. When the restore is completed, the driver returns to an inactive state, consuming no resources.

Working Directory	Indicates the spooling directory for the restore job. This field applies only to ESX Server v2.x destinations.
	For ESX v2.x, instead of uncompressing the archive as it is copied the entire archive is copied and then extracted. If there is not enough space on the destination for both the archive and the restored VM, you can use this field to indicate the directory where the archive should be copied. It will then be extracted to the destination location.
Restore As	Changes the VM display name and all file names to this value. The VM will be assigned a new UID (unique identifier) when the restore is complete.

## Finalizing the Restore

Once you have selected your source and destination, and filled in the appropriate options, you are ready to finalize your restore. You can either run the job immediately, or

schedule it to run later. Each option has a corresponding button at the bottom of the Options tab.

*Note*: If these buttons are disabled, it means that insufficient information has been provided to perform the restore or that conflicting options have been selected. Double-check each tab to ensure that you have provided all of the necessary information.

## Scheduling Restores to Run Later

vRanger uses the Windows Scheduled Tasks feature to manage scheduled restore jobs. For more information on this feature, search for "Common Tasks: Scheduled Tasks" or "Using Scheduled Tasks" in Windows Help. If you click the Schedule Restore button, the Schedule Task dialog displays.

<u> Schedule</u> Task	
Task Name: Mail Task Interval Daily Weekly Monthly Run Once	ServerRestore Task Date And Time Start Time: 10:47:32 AM Start Date: 1/12/2007 V
Task User User:	BCKPCMP\rangeruser
Password:	
	Add

Task Name	This is the name of the task as it appears in the Scheduled Tasks list and in Windows Task Manager.
Task Interval	Indicates how frequently the backup job will be run. You can choose Daily, Weekly, Monthly, or Run Once.
	The options in Task Date And Time may change depending on what you select here.
Start Time	The time of day that the job will start.
Start Date	The date that this job will first run.
	Available only if Task Interval is set to Daily or Run Once.
Day (Day	Day of the week that the job will be run.
Names)	Available only if Task Interval is set to Weekly.
Day (Numbers)	Date each month that the job will be run.
	Available only if Task Interval is set to Monthly.

User	When the job is initiated, it will be run under this user. To make it easier to monitor vRanger activities, Vizioncore recommends that you run all backup and restore jobs as "ComputerName\rangeruser".
Password	The password associated with the user account in User.

## Restore From Info

When vRanger backs up a VM, it creates an entry in an internal database and also generates an .info file, which contains information about the backup job. Typically, if you wanted to restore a VM from a backup archive, you would use the database entry to restore it. However, there are some circumstances in which this might not be possible, or in which it might be preferable to restore the VM using the .info file. Some of these situations include:

- If the backup database becomes corrupted and cannot be used to restore the VM.
- If you want to restore the VM using a different installation of vRanger than the one that created the backup, so the backup database would not include the archive.
- If the archive is moved, the path saved in the database becomes invalid.

This section describes how you can restore a VM from its .info file.

## Info Path

Use this tab to locate and select an .info file to restore from. This screen functions in a similar fashion to the Destination tab in Backup Mode.



## Select .info File

1. Select a Destination Type—Windows or Linux.

2. Use the Folder Tree to navigate to the location of the .info file.

The Folder Tree functions identically to the Destination tab in Backup Mode.

3. Select an .info file from the Contents Pane on the right.

Note: You can only restore one VM at a time using this method.

#### **Restore To**

Use this tab to indicate where the VM should be restored. Once you have made selections in the appropriate fields, click the Options tab.

1. Into Path     2. Restore To	3 Options	
Restore to the same server and the     Restore to a different server or VMF	same VMFS as the backup is from.	•
Select a Server	10.0.1.12	¥.
Select a VMPS	🍯 storeget (†)	
Sulart a Matural	VIAN Manager	

Restore to	Select one of the following options:
	<i>Restore to the same server and the same VMFS as the backup is from</i> – Restores the VM to its original location. If you choose this option, you do not need to complete the rest of this tab.
	<i>Restore to a different server or VMFS</i> – Allows you to choose a different location to restore the VM. If you choose this option, you must complete the rest of the fields on this tab.
Select a Server	Choose an ESX Server to restore the VM to. All ESX Servers that are configured in vRanger Pro appear as options.
Select a VMFS	Select a VMFS from the server selected above, where the VM will be stored.
Select a Network	Select the NIC you will use to restore the VM.

## Options

Use this tab to select various options that determine how the restore job will be processed. The contents of this tab look and function identically to the Options tab in the typical restore process.

1, Into Path	2 Restore To	3. Options			
Restore Option					
Pestore Flags Perform Power of Power of Power of Power or Power or Power or Power or Power or Power or Power or Power of Power of Po	an unaffended restore (over any existing disk,/ config the VM 2 is on for the res the VM after the restore the VM after the restore the VM 2 it is not registered	invites all contig/disk files) (ES) Nes of the same name at those in tore (ESX2x Only) 2x Only) 1(ESX2x Only)	Command Switch		
Working Directory Restore As:	Enter a base for the ext the section with a base copying a bidded up v	rected the to be settined as abo name of tasters. This will give yo that in actions	ver. For exemple, entering test-in v the shifty to restors the face watg	il adved all of the contents o	;
				4 Navigation	Dun Dectore

Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Perform an unattended restore (overwrites all config / disk files). [-unattended]	If the VM being restored already exists at the restore destination location, and if this flag is checked, then the existing files for that VM will be removed before the restore begins.
Restrictions: ESX Server v2.x only	If the flag is not checked, vRanger will prompt you when starting the restore to see if you want to remove the old version
Requires <b>-forcepoweroff</b>	<i>Note</i> : This setting applies to ESX Server v2.x destinations only. Overwriting happens automatically for ESX Server v3.x destinations, regardless of this setting.
Overwrite any existing disk / config files of the same name as those in the archive. [-forceoverwrite]	If this option is checked, existing disk and config files at the destination will be overwritten by the new files, if they have the same name.
Power off the VM if it is on for the restore.	If this VM is running on the restore destination and this flag is checked, then it will be shut down before the restore begins.
[-forcepoweroff] Restrictions: ESX Server v2.x only	<i>Note</i> : This setting applies to ESX Server v2.x destinations only. Shutdown happens automatically for ESX Server v3.x destinations, regardless of this setting.

Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Power on the VM after the restore.	If this flag is checked, the VM will be turned on when the restore is complete.
[-forcepoweron]	
<b>Restore the VM</b> <b>configuration.</b> [-restoreconfig]	If this flag is checked, vRanger will restore the VM config file, as well as the disk files. If it is not checked, only the disk files will be restored.
Restrictions: ESX Server v2.x only	Note: This setting applies to ESX Server v2.x destinations only. Config files are automatically restored for ESX Server v3.x destinations, regardless of this setting.
<b>Register the VM if it is</b> not registered.	If this flag is checked and you are using vRanger with VC, vRanger will register the VM with VC if it is not already registered.
Restrictions: ESX Server v2.x only	<i>Note</i> : This setting applies to ESX Server v2.x destinations only. VMs are registered automatically for ESX Server v3.x destinations, regardless of this setting, if vRanger is configured with VC.
Enable vRanger enhanced write speeds [-vzboost]	This functionality will install a driver onto the destination ESX Host to allow for enhanced write speeds to VMFS. When a restore is initialized, vRanger Pro will activate the driver for the duration of the restore. When the restore is completed, the driver returns to an inactive state, consuming no resources.

Working Directory	Indicates the spooling directory for the restore job. This field applies only to ESX Server v2.x destinations.
	For ESX v2.x, instead of uncompressing the archive as it is copied the entire archive is copied and then extracted. If there is not enough space on the destination for both the archive and the restored VM, you can use this field to indicate the directory where the archive should be copied. It will then be extracted to the destination location.
Restore As	Changes the VM display name and all file names to this value. The VM will be assigned a new UID (unique identifier) when the restore is complete.

## Finalizing the Restore

Once you have selected the source and destination, and filled in the appropriate options, you are ready to run your restore job by clicking the Run Restore button.

*Note*: If this button is disabled, it means that insufficient information has been provided to perform the restore or that conflicting options have been selected. Double-check each tab to ensure that you have provided all of the necessary information.

## File-Level Restore

If you only need a file or two, and don't want to restore an entire VM, you can use vRanger to mount a VMDK archive on your Windows machine and access archived files as though they were on another hard disk.

*Note*: To use this feature, you must download and install the free File-Level Restore Plug-in from the Vizioncore website.

#### Access an Archive at the File Level

1. Check the **Restore** box next to <u>one</u> archive that contains the disk file that you want to mount.

*Note*: This archive must be stored on the machine running vRanger. You cannot mount a disk file over the network.

#### 2. Click Mount VMDK.

The Mount Form dialog displays.



3. Select a drive letter from the Available Drives list. When the disk file is mounted, it will appear as the selected drive letter.

#### 4. Click Mount VMDK.

vRanger starts by extracting the disk file in the same directory where the compressed archive in located. This will take several minutes depending on the size of the disk file (typically 1-2 minutes per GB, but this can vary).

When the extraction is complete, vRanger uses Windows to mount the disk file. It will appear as a drive letter under My Computer, with the previously selected drive letter. The Vizioncore File System Explorer window also displays.

Name A Documents and Settings Program Files RECYCLER System Volume Information WHOOWS Campub Ca	Size	Go File Folder File Folder File Folder File Folder File Folder File Folder File Folder
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boot.ini		MS-DOS batch File
	1 KB	Configuration Settings
CONFIG.SYS	0 KB	System file
IO.SYS	0 KB	System file
msdos.sys	0 KB	System file
TINTDETECT.COM	47 KB	MS-DOS Application
🔟 ntldr	289 KB	System file
🔤 pagefile.sys	589,824 KB	System file
	I JO.SYS MSDOS.SYS NTDETECT.COM Intidr pagefile.sys	ID 10,5Y5         0.68           MSD05,5Y5         0.48           INDETECT.COM         4748           INDETECT.COM         4748           India         28948           pagefie.sys         559,824 KB



- 5. Use either the **Vizioncore File System Explorer** or **Windows Explorer** to access individual files or directories on the mounted image. *Note*: The image is mounted in read-only mode. You can copy files from it, but you cannot add, change, or erase anything on the image.
- When you are finished, simply close the Mount Form. This signals vRanger to unmount the disk image and delete the extracted disk file. The compressed archive remains, so you mount it again or use it for a restore job later.

#### P2V Restore

vRanger Pro offers the ability to create a VM archive from a physical machine. This archive is restored using essentially the same process as a typical vRanger Pro backup.

To restore a backed up VM, you must complete these steps:

• Select the archive that you want to restore from.

- Choose the restore to location, where the VM will be placed. •
- Select various related options.

Each of these steps has its own tab in the Restore screen.

#### **Begin the Restore**

- 1. Select **Restore VM** from the GUI Modes menu on the left.
- 2. Populate the fields on each of the tabs, in order.



## 😂 Restore Archive

This tab lists the available backups that have been performed by this installation of vRanger and allows you to select backup archives to restore.



#### Restore Grid

When vRanger backs up a VM, it makes an entry in its internal database containing information about the backup, such as backup date and VM name. This information is displayed here, on the restore grid, for archives that have not expired and been overwritten. Each row represents a full backup that vRanger has processed. At this time, all P2V backups are full backups.

Restore	store Check the box to restore this archive.	
	Note: Highlighting a row by clicking on it does not select it for restoring or deleting. This box must be checked to have an effect.	
Backup Date	The date and time the backup was completed.	
Backup VM	The name of the VM in the archive.	

Backup TGZ	The path to the backup archive.
Backup Status	Indicates whether or not the original backup job was successful. You can only restore backups which were successful.
Backup Duration	The length of time that the original backup took.
Backup Size	The disk space taken up by the compressed backup archive.
Backup Source	The host that acted as the backup source.
Backup Source Version	Indicates the version of ESX Server used by the Backup Source at the time of the backup.
Backup Destination	The machine name where the archive is stored.
Backup Info File	The full path to the .info file for the backup. This file contains all information necessary to perform the restore.

Last # Days	Shows only available archives created in the time span selected.
Show Expired	Includes archives that have expired and been overwritten. This is for information purposes only. You cannot restore from these archives.

Delete Archive	Click this button to delete the selected archive(s) from the backup database (and disk if desired).
	Note: Differential backups are dependent on their full image parent. Never delete a full backup if you might need to use its differentials.
Restore From Info	Opens the Restore From Info dialog.
Mount VMDK	Click this button to mount a disk file from the selected archive to perform a file-level restore.
	Note: Exactly one restore box must be checked to use this.

#### Delete an Archive

1. Check the **Restore** checkbox for one or more archives in the Restore Grid.

2. Click Delete Archive.



3. Select one of the following:

-Delete From The Restore Grid: Deletes the listing from the backup database, but leaves the archive file intact. You can still restore the archive using the Restore From Info method.

-Delete From The Restore Grid And Disk: Deletes the listing from the backup database and deletes the actual archive and .info files associated with it.

- 4. Click OK.
- 5. When you have selected the archives you want to restore, click the **Restore To** tab to continue.



## Restore To

This tab allows you to choose the restore destination for each archive that you selected from the Restore Grid on the Restore Archive tab.



Restore Type	Indicates whether the archive is from a full backup or a differential backup. This will always be set to "Full Restore" for P2V backups.
Restore VM	The name of the VM that will be restored.

Restore Server	Select the destination server to which the VM will be restored.
Restore To VMFS	When selected, the Restore To VMFS configuration will open. See below for more information.
Restore To Network	When selected, the Restore To Network configuration will open. See below for more information.
Backup Source	The location of the .info file where the backup archive is stored.
Backup Source Version	The ESX Server version of the original backup host. The VM must be restored to a host running the same ESX Server version.

Note: Vizioncore recommends restricting simultaneous restores as follows:

- No more than two simultaneous restores to a single host
- No more than ten simultaneous restores to a single VMFS

#### **Complete this Tab**

- 1. For each row, select a Restore Server, Restore VMFS, and Restore Network.
- 2. Click the Options tab to continue.

#### **Restore to VMFS Configuration**

When Restore to VMFS is clicked, the Restore to VMFS window opens, providing the ability to select storage locations for each .VMDK. To configure, select the .VMDKs to restore and the select the desired Destination VMFS, then click OK.

0	VMDK Sel	ection		
	Select VMDK	VMDK	Destination VMFS.	-
•		VM's Configuration	ISCSI-0	V
		Win2K3_Enterprise.v_	ISCSI-0	~
		Win2K3_Enterprise_1	ISCSI-0	~
	<b>V</b>	Win2K3_Enterprise_2	ISCSI-0	*
				_

#### **Restore to Network Configuration**

When Restore to Network is clicked, the Restore to Network window opens, providing the ability to select the desired virtual switch for each vNIC. To configure, select the

virtual NIC to use and the select the desired Destination Virtual Switch, then click OK.





## Options

Use this tab to select various options that determine how the restore job will be processed.



Flag	Description
[-Command Switch]	
Restrictions (if applicable)	

Flag	Description
[-Command Switch]	
Restrictions (if applicable)	
Perform an unattended restore (overwrites all config / disk files). [-unattended] Restrictions: ESX Server v2.x only Requires – forcepoweroff	If the VM being restored already exists at the restore destination location, and if this flag is checked, then the existing files for that VM will be removed before the restore begins. If the flag is not checked, vRanger will prompt you when starting the restore to see if you want to remove the old version. Note: This setting applies to ESX Server v2.x destinations only. Overwriting happens automatically for ESX Server v3.x destinations, regardless of this setting.
Overwrite any existing disk / config files of the same name as those in the archive. [-forceoverwrite]	If this option is checked, existing disk and config files at the destination will be overwritten by the new files, if they have the same name.
Power off the VM if it is on for the restore.	If this VM is running on the restore destination and this flag is checked, then it will be shut down before the restore begins.
[-forcepoweroff] Restrictions: ESX Server v2.x only	<i>Note</i> : This setting applies to ESX Server v2.x destinations only. Shutdown happens automatically for ESX Server v3.x destinations, regardless of this setting.
Power on the VM after the restore.	If this flag is checked, the VM will be turned on when the restore is complete.
[-forcepoweron]	
<b>Restore the VM</b> <b>configuration.</b> [-restoreconfig]	If this flag is checked, vRanger will restore the VM config file, as well as the disk files. If it is not checked, only the disk files will be restored.
Restrictions: ESX Server v2.x only	Note: This setting applies to ESX Server v2.x destinations only. Config files are automatically restored for ESX Server v3.x destinations, regardless of this setting.

Flag	Description
Restrictions (if applicable)	
Register the VM if it is not registered. [-registervm] Restrictions: ESX Server v2.x only	If this flag is checked and you are using vRanger with VC, vRanger will register the VM with VC if it is not already registered. Note: This setting applies to ESX Server v2.x destinations only. VMs are registered automatically for ESX Server v3.x destinations, regardless of this setting, if vRanger is configured with VC.
Enable vRanger enhanced write speeds [-vzboost]	This functionality will install a driver onto the destination ESX Host to allow for enhanced write speeds to VMFS. When a restore is initialized, vRanger Pro will activate the driver for the duration of the restore. When the restore is completed, the driver returns to an inactive state, consuming no resources.

Working Directory	Indicates the spooling directory for the restore job. This field applies only to ESX Server v2.x destinations.
	For ESX v2.x, instead of uncompressing the archive as it is copied the entire archive is copied and then extracted. If there is not enough space on the destination for both the archive and the restored VM, you can use this field to indicate the directory where the archive should be copied. It will then be extracted to the destination location.
Restore As	Changes the VM display name and all file names to this value. The VM will be assigned a new UID (unique identifier) when the restore is complete.

#### Finalizing the Restore

Once you have selected the source and destination, and filled in the appropriate options, you are ready to finalize your restore. You can either run the job immediately, or schedule it to run later. Each option has a corresponding button at the bottom of the Options tab.

*Note*: If these buttons are disabled, it means that insufficient information has been provided to perform the restore or that conflicting options have been selected. Double-check each tab to ensure that you have provided all of the necessary information.

Scheduling Restores to Run Later

vRanger uses the Windows Scheduled Tasks feature to manage scheduled restore jobs. For more information on this feature, search for "Common Tasks: Scheduled Tasks" or "Using Scheduled Tasks" in Windows Help.

If you click Schedule Restore, the Schedule Task dialog displays:

🚱 Schedule Task			
Task Name: Mail Task Interval © Daily © Weekly © Monthly	ServerRestore Task Date And Start Time: Start Date:	Time 10:47:32 AM 1/12/2007	*
C Run Once Task User User: Password:	BCKPCMPyranger	user	
		Add	Cancel

Task Name	This is the name of the task as it appears in the Scheduled Tasks list and in Windows Task Manager.
Task Interval	Indicates how frequently the backup job will be run. You can choose Daily, Weekly, Monthly, or Run Once.
	The options in Task Date And Time may change depending on what you select here.
Start Time	The time of day that the job will start.
Start Date	The date that this job will first run.
	Available only if Task Interval is set to Daily or Run Once.
Day (Day Names)	Day of the week that the job will be run.
	Available only if Task Interval is set to Weekly.
Day (Numbers)	Date each month that the job will be run.
	Available only if Task Interval is set to Monthly.
User	When the job is initiated, it will be run under this user. To make it easier to monitor vRanger activities, Vizioncore recommends that you run all backup and restore jobs as "ComputerName\rangeruser".
Password	The password associated with the user account in User.

# **Running Reports**

In addition to performing powerful backup and restore jobs, vRanger Pro makes it easy to generate reports based on its activities. To access vRanger's reporting capabilities, simply click the Reports icon in the GUI Modes menu. This displays the Database Query dialog.

esxRanger PRO::Query D	atabase			X
Database Query				
Records that match the fe Showing backups between Ji Showing ALL hosts. Showing ALL VM(s). Showing ALL (Success, Warr	Illowing criteria will be included in anuary 15, 2007 01:03 PM AND Jani ing. or Failure) Backup Results.	a the report. uary 16, 2007 0	01 03 PM.	
Choose Report Type:	Backup	with an	report showing detailed information about backups. The backup result, han the backup was run, and the user who ran the backup and more re shown by VM.	J
Show Records From:	January 15, 2007 01:03 PM	💌 То	a January 16, 2007 01:03 PM 💌 🗆 Advanced	
			QK Cancel	_

Records that match the following criteria will be included in the report.	Displays the current search criteria, as indicated by values entered in other fields.
Choose Report Type	Indicates the type of report being generated. You can choose from:
	Backup—shows information about each backup, such as when it was run, the user who ran it, and the result, displayed by VM.
	Archive—shows information about the archives created by a backup job, such as archive size, compression ratio, and the time spent creating/transferring the archive, displayed by VM.
	Runtime—shows timing information about each step of a backup job, displayed by Host and VM.
Show Records From To	Indicates the start and end date/time for the report – only records in between these two date/times will be displayed.
Advanced	Displays Advanced Query Filtering options, when checked, allowing you to further refine your report.

## Advanced Query Filtering

By clicking on the Advanced checkbox, you can display the Advanced Query Filtering options.

Records that match the f	offowing criteria will be included in	the repo	ort.				
Showing backups between J Showing Hosts: esx2 viziono Showing VM(s): vorum-adc0 Showing backup results: Suo Showing backups that took 3	lanvary 15, 2007 01.03 PM AND Janv ore int 2vovm-exch1.vovm-exwebr202 ccess -4 Hours.	ery 16, 20	07 01:03 PM				
Choose Report Type:	Beckup	up. A report showing detailed informati when the backup was run, and the are shown by VM.			tion about backups. The backup result, user who ran the backup and more		
			are shown by	Y M.			
Show Records From:	January 15, 2007 01:03 PM	۷	To January	16.200701.03 PM	M	Advanced	
Show Records From: dvanced Query Filtering	January 15, 2007 01.03 PM	M	To January	16. 2007 01.03 PM	<b>M</b>	Advanced	
Show Records From dvanced Query Filtering Filter results by selecting	January 15, 2007 01 03 PM	v and side (	are shown by	16, 2007 01:03 PM	s from the	IF Advanced	
Show Records From: dvanced Query Filtering Filter results by selecting Hosts	January 15, 2007 01 03 PM	and side (	are shown by	16, 2007 01:03 PM	s from the	I Advanced	
Show Records From: dvanced Query Filtering Filter results by selecting Hosts botto Backup Results Backup Results	January 15, 2007 01 03 PM	and side (	and then checki	16, 2007 01 03 PM	s from the	R Advanced	
Show Records From dvanced Query Filming Filter results by selection   Hosts Bodup Results   Bodup Results   Bodup Run Time	January 15, 2007 01 03 PM	and side (	and then checki	16, 2007 01:03 PM	s from the	P Advanced	
Show Records From: dvanced Query Filtering Filter results by selecting Hote Date Backup Results Backup Run Time	January 15, 2007 01 03 PM	nnd side i	and then checki	16, 2007 01 03 PM	s from the	P Advanced	

This extra pane allows you to apply additional filters to your report results. To use it, select a filter criteria group from the left-hand side, then check off the values you want to display in the right-hand side.

The filter criteria groups you can choose from are:

- Hosts—display only backups from the selected hosts, or select ALL to display backups from all hosts.
- VMs—display only backups of the selected VMs or select ALL to display backups of all VMs.
- Backup Result—display only backups with the selected results, or select ALL to display backups with any result.
- Backup Run Time—display only backup jobs that took longer than the selected run time, or select ALL to display any backup, regardless of run time.

#### **Generated Reports**

When you click OK, vRanger queries its internal database and generates the appropriate report, corresponding to your specified criteria.

SesxRanger PRO::Report View	rer					
K < ▶ N 🗗 × 🖨 🖗 🖿	Q • M					
🖃 🗋 10.0.0.100 MainRe	port					
- D vc-vm-exchcrm_SAI	10					
- 🗅 vc-vm-vc01						
- 🗅 vc-vm-vc2	Host Backup Du	iration				
- 🗅 vc-vm-vc2prod	vizioncore esxRanger PR	O				
	1/16/2007					
- 🗋 vc-vm-adc01	Host & VM Name	Compression Duration	Comp. Rate	Transfer Duration	Transfer Rate	Total Duration
-D vc-vm-adc02	rissi te visi tume	compression paradon	comprisence	TTWISTER D WINCOW	<u>riunsier rune</u>	Tom Duration
-D vc-vm-exch1	esx2.vizioncore.int					
- C-vm-maxdata	2006/12/8_10-16-50PM	0 hes 23 mins	0.00 MB/c	0 hes 23 mine	0.00 MB/s_0.00 Mb/s	0 hes 23 mine
- 🗋 vc-vm-sharept1	2006/12/15 10:16:52PM	1 hrs 58 mins	10.22 MB/s	1 hrs 58 mins	10.22 MB/s, 81.76 Mb/s	1 hrs 58 mins
vc-vm-ssateU1	2006/12/29 10:17:00PM	1 hrs 18 mins	8.22 MB/s	1 hrs 18 mins	8.22 MB/s, 65.76 Mb/s	1 hrs 18 mins
vc-vm-vc2prod	Averages:	1 hrs 53 mins	6.15 MB/s	1 hrs 53 mins	6.15 MB/s, 49.17 Mb/s	1 hrs 53 mins
- D vc-vm-vpn02	20 					
	vc-vm-adc02					
Vizioncore.com Dov	2006/12/8 10:16:52PM 2006/12/15 10:16:53PM	0 hrs 17 mins 0 hrs 13 mins	0.97 MB/s	0 hrs 17 mins 0 hrs 13 mins	0.97 MB/s, 7.75 Mb/s	0 hrs 17 mins 0 hrs 14 mins
	2006/12/22 10:16:55PM	0 hrs 13 mins	1.24 MB/s	0 hrs 13 mins	1.24 MB/s, 9.92 Mb/s	0 hrs 13 mins
	2006/12/29 10:16:58PM	0 hrs 14 mins	1.16 MB/s	0 hrs 14 mins	1.16 MB/s, 9.30 Mb/s	0 hrs 14 mins
	2007/1/5 10:16:59PM	0 hrs 14 mins	1.18 MB/s	0 hrs 14 mins	1.18 MB/s, 9.42 Mb/s	0 hrs 14 mins
	Averages:	0 hrs 14 mins	1.15 MB/s	0 hrs 14 mins	1.15 MB/s, 9.23 Mb/s	0 hrs 14 mins
	vc-vm-exch1 2006(12)13_0:16:46AM	1 hes 10 mins	6 20 MB/s	1 hrs 10 mins	6 20 MD/c. 40 64 Mb/c	1 hrs 10 mins
	200012/15 7.10.40/04	1 hrs 10 mins	6.20 MD/s	1 hrs 10 mins	6.20 MD/s, 49.04 Mb/s	1 hrs 10 mins
	Averages:	1 ms 19 mms	0.20 MB/S	1 mrs 19 mms	0.20 MB/8, 49.04 MD/8	1 ms 19 mms
	vc-vm-exwebr202					
	2006/12/30 1:21:55AM	1 hrs 51 mins	4.68 MB/s	1 hrs 51 mins	4.68 MB/s, 37.47 Mb/s	1 hrs 51 mins
	2007/1/6 1:21:51AM	1 hrs 58 mins	4.11 MB/s	1 hrs 58 mins	4.11 MB/s, 32.89 Mb/s	1 hrs 58 mins
	Averages:	1 hrs 54 mins	4.40 MB/s	1 hrs 54 mins	4.40 MB/s, 35.18 Mb/s	1 hrs 54 mins
	ve-vm-maxdata		2 (2 ) (0)		A 77 A (D) - 20 22 A (L)	11 - 1 - 1
	2006/12/8 9:01:03PM 2006/12/22 9:01:08PM	1 hrs 5 mins 1 hrs 38 mins	5.67 MB/s 6.17 MB/s	1 hrs 5 mins 1 hrs 38 mins	5.67 MB/s, 29.33 Mb/s 6.17 MB/s, 49.33 Mb/s	1 hrs 5 mins 1 hrs 38 mins
	2006/12/29 9:01:07PM	1 hrs 10 mins	3.40 MB/s	1 hrs 10 mins	3.40 MB/s, 27.24 Mb/s	1 hrs 10 mins
	2007/1/5 9:01:02PM	1 hrs 7 mins	3.56 MB/s	1 hrs 7 mins	3.56 MB/s, 28.50 Mb/s	1 hrs 7 mins
	Averages:	1 hrs 0 mins	4.20 MB/s	1 hrs 0 mins	4.20 MB/s, 33.60 Mb/s	1 hrs 0 mins
	vc-vm-sharept1		1.05.1470		1.253/02/ 0.003/0/	11 11 1
	2006/12/8 9:01:02PM 2006/12/15 9:00:52PM	1 hrs 41 mins 1 hrs 39 mins	1.25 MB/s 1.31 MB/s	1 hrs 41 mins 1 hrs 39 mins	1.25 MB/s, 9.98 Mb/s 1.31 MB/s, 10.46 Mb/s	1 hrs 41 mins 1 hrs 39 mins
	2006/12/29 9:01:06PM	1 hrs 39 mins	1.31 MB/s	1 hrs 39 mins	1.31 MB/s, 10.45 Mb/s	1 hrs 39 mins
	2007/1/5 9:01:02PM	1 hrs 41 mins	1.25 MB/s	1 hrs 41 mins	1.25 MB/s, 9.98 Mb/s	1 hrs 41 mins
	Averages:	1 hrs 40 mins	1.28 MB/s	1 hrs 40 mins	1.28 MB/s, 10.22 Mb/s	1 hrs 40 mins
	1					
	vc-vm-ssafe01		0.00 100	11 52 5	0.00100/	
2 × 3 × 5	2006/17/23 2-22-50.4 M	I hre 57 mine	n uk MR/e	1 hre \$7 mine	n ux MR/e 7.84 Mb/e	I hre \$7 mine
Current Page No: 2	Total Page	No: 2+		Zoom	Factor: Whole Page	

You can use the toolbar at the top to move from page to page, print, or export the report. The Group Tree on the left lets you jump to a specific section of the report, based on VM or Host (runtime reports only).

# 5 Using vRanger Pro CLI

The vRanger CLI allows you to use DOS scripts to activate your backup jobs, giving you a little more flexibility and control over how and when your backup jobs are run.

## Using vRanger CLI

You can find the CLI executable where the vRanger GUI is installed—typically:

"C:\Program Files\vizioncore\vRanger CLI"

To simplify entering the many options and flags required to run a backup job, the vRanger GUI will generate the command line calls for you.

## Use GUI to Generate a Command Line Call

- 1. Use the GUI as described in earlier chapters to select your source, destination, and any applicable options or flags. As you select each option, the CLI Output text at the bottom of the screen is updated to reflect your changes.
- 2. When you are satisfied with the options you have selected, do not click the Run or Schedule buttons. Instead, right-click on the CLI Output text and select **Copy Command**.

This option is also available in the Edit menu.

*Note*: The Copy Command option will not appear if you have supplied insufficient or contradictory information.

3. You can then paste this text into a script or text file. This command line call contains all of the options and information you supplied in the GUI and will produce the same results when used to call the CLI.

For additional information on CLI functionality, contact Customer Support.

# 6 Appendix

## Databases

vRanger Pro is a software tool designed to provide hot, image-based backups of running VMs. vRanger Pro is able to take advantage of VCB which offers, among other things, queiescing for Windows file systems. The purpose of this is to ensure that no file system writes are pending when the snapshot is taken, allowing for file system level consistency.

Unfortunately, the VMware Sync Driver responsible for file system quiescing has been known to cause problems with multiple types of databases, including SQL, Exchange, and Oracle. Note that these problems are not associated with vRanger Pro, but with the driver itself. Vizioncore does not recommend using the VMware Sync Driver on VMs running these databases, and as such has the Sync Driver disabled by default in the vRanger Pro Options screen.

This means that standard, image-level backup tools (VCB and other image-level backup products) can only provide what is known as a crash-consistent image of database servers. Restoring a crash-consistent image is essentially the equivalent of rebooting a server after a hard shutdown. For typical VMs this has not been an issue, as current OSs can easily handle this type of activity. For database servers, however, enterprises are unwilling to accept the risk of lost data, data corruption, or even the high resource consumption of database consistency checks that accompany bringing up a database on a crash consistent image.

In response to this, Vizioncore has developed a process to incorporate the appropriate VSS functions into vRanger Pro backups to provide consistent images of VSS enabled databases.

## VSS

The process of implementing VSS enabled backups is more complex than simply creating a VSS snapshot inside the guest prior to backups. Using this method, the restored image would have an open VSS. This can cause problems. Our process utilizes only the freeze portion of VSS to pause application writes, flush the guest file system buffer and then freeze the guest file system. The exact process is detailed below:

1. The requestor asks the VSS to enumerate the writers, gather the writer metadata, and prepare for shadow copy creation.

2. The writer creates an XML description of the backup components to the VSS, and defines the restore method. The VSS notifies the application-specific writer to prepare its data for making a shadow copy.

3. The writer prepares the data in whatever way is appropriate, such as completing all open transactions, rolling transaction logs, and flushing caches. When the data is prepared for shadow copy creation, the writer notifies the VSS.

4. The VSS initiates the commit shadow copy phase.

5. The VSS tells the writers to quiesce the data and temporarily freeze requestor (application) IO write requests for the several seconds required to create the VMware snapshot. IO read requests are still possible. The application freeze is not allowed to take longer than 60 seconds. The VSS flushes the file system buffer and then freezes the file system, which ensures that file system metadata is written in a consistent order.

6. Open VMware snapshot with VMware's Sync Driver. By flushing the OS and applications beforehand, then it is fine to use the VMware Sync Driver on the file system to help with any other writes.

7. The VSS thaws the file system and releases the writers from their temporary inactive phase. All queued write IOs are completed.

8. The VSS queries the writers to confirm that write IOs were successfully held during the freeze.

9. If the writes were not successfully held (meaning that the freeze was unsuccessful), the requestor is notified.

10. The requestor can retry the process (go back to step 1) or notify the administrator to retry it at a later time.

11. If the freeze is successful, the VSS will provide the information back to the requestor.

#### **Recommended Solution**

It is important to remember that even with VSS, vRanger Pro is intended to be an imagelevel backup tool. It is recommended that the appropriate database agent is utilized to properly maintain the database as well as provide such granular ability as mailbox level restores. By combining an agent-based database backup, and a consistent, outside the guest, image-level backup, a fully functional backup/recovery strategy can be implemented.