How It Works: Cristie Rubrik Bare-metal Recovery (RBMR) for Linux/Unix Hosts

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INTRODUCTION

The purpose of this document is to provide a deep dive of Cristie Rubrik Bare-metal Recovery (RBMR) for Linux/Unix hosts. This will also help readers familiarize themselves with the methods to configure and Install Cristie Rubrik Bare-metal Recovery (RBMR) Solution. Such information will prove valuable when evaluating, designing, or implementing the technologies described herein.

AUDIENCE

The intended audience of this document includes Rubrik's Sales Engineers, Field and Technical Support Engineers, customer architects and engineers who want to have a better understanding of how Cristie Rubrik Bare-metal Recovery for Linux/Unix works.

OBJECTIVES

This paper describes how Cristie's Rubrik Bare-metal Recovery works, how to leverage it in specific physical server recovery and disaster recovery scenarios, and best practices for configuring it. After reading this paper, the audience should be able to understand the basic concepts of Cristie's Rubrik Bare-metal Recovery for Linux and understand more advanced aspects of what to expect when planning for and setting up this solution.

BMR CHALLENGES

VMware ESX 1.0 was released nearly 20 years ago, but believe it or not, there are still many physical servers still standing (mainly due to performance requirements) that need to be managed.[1] Before the era of virtualization, backup, and recovery software vendors provided the ability to perform restores of the operating systems to similar or dissimilar hardware platforms using a feature called "bare-metal restore" or BMR.

Supporting BMR is challenging for software companies. Some issues include:

- Finding the right version of the OS

- Re-applying patches to the correct level

- Finding and reinstalling drivers for specific hardware

- Reinstalling the backup agent

- Remembering the disk partitioning configurations and recreating them

BMR is applicable to every industry on the planet; it doesn't matter whether you're a healthcare organization that needs to prove compliance with legislation like HIPAA or a manufacturing or company that needs to keep the production lines going. Having a dependable DR strategy in place with BMR as part of it ensures that you can get your system(s) back in the same state they were backed up in, without having to perform additional patches, pre-recovery setup or post-recovery remediation. Protecting against data-loss is one of the most common concerns of modern organizations, and there are a wide variety of disasters that could cause data-

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1   https://www.virten.net/vmware/esxi-release-build-number-history/

loss. Ransomware attacks, natural disasters, sabotage, state-sponsored hacking, power failures, hardware failures or even things like misconfigured retention policies, all of these have a potential to cause data loss. Yes, they can all be mitigated against, and indeed they should be, but when it comes down to securing your data the best mitigation you can have is a sound backup policy and well-defined DR strategy.

The reasons why IT managers choose BMR protection are unique for each organization, tailored to their specific needs, but all share a common purpose; to keep the organization up and running, which in turn mitigates monetary losses. Monetary losses may come from lost revenue or fines relating to violating agreements/regulatory non-compliance.

- Healthcare – HIPAA

- Finance/Banking – NYDFS/GLBA/PCI-DSS

- Manufacturing – continuity of production lines

- Commerce – availability of platform

- Education – local authority fines (data protection)

- Telecoms – SLA violation for customers

Some important considerations when thinking about your DR strategy:

- How much data can you afford to lose? (What is your RPO?)

- How long can you wait to get your data back? (What is your RTO?)

- Where will your data be recovered? Ensure you're also planning for physical disasters as well as technical disasters.

- What connectivity does your backup system/storage have to your recovery location? RTO's can quickly become unachievable if the backup data has to go over a low bandwidth link.

- How frequently are your backup archives refreshed in the event of loss of backup system/storage?

- What is your offsite backup policy? Offsite backups are critical to prevent against total data loss.

- Are you incorporating any replication/high availability into your strategy alongside traditional backup/recovery? Replication/HA can be a great way of getting high-priority systems back quickly if your DR site is readily available.

- Are you recovering to physical, virtual or cloud systems? Most virtual and cloud systems are supported out of the box, but physical systems should be tested for hardware compatibility.

CRISTIE

Cristie Software is a leading software provider specializing in solutions for disaster recovery and business continuity planning; particularly bare machine recovery and machine mobility. Cristie is a company focused entirely on software development; they employ experienced and skilled developers as well as creative and dynamic individuals across all departments. Cristie has over 3,000 end users in over 70 countries. This includes the world's largest healthcare, retail, manufacturing, public sector and financial organizations. Over 500,000 licenses are currently in use, ensuring that customers can rapidly back up and recover their important systems and data in the event of failure. They have a long-established, global network of valued partners and resellers at Cristie that share their vision; to ensure customers receive effective and best-in-class solutions. Historically, Cristie Software has its foundations in Cristie Electronics Ltd, founded in 1977, they were the first UK business with floppy disk and hard drive upgrade kits for the IBM PC and led the market in tape storage devices. Cristie Electronics shifted towards software development in 1997 and eventually became Cristie Software in 2007. Cristie has technology partnerships with all major vendors.

Why Cristie for Rubrik BMR:

- Cristie RBMR Software is a pioneer in the space of BMR. This integration helps us in making use of their platform and provides a solution with a great user experience for Rubrik customers.

- Rubrik currently has a native solution for Windows, but does not have a well-supported offering for Linux and Unix Platforms.

- Support for key features like dissimilar hardware is available in case of a disaster recovery.

- Cristie RBMR integrates directly with Rubrik native backups so no need for a separate backup or process.

- The overhead of Cristie agents is minimal.

- Cristie RBMR can recover to any physical, virtual or cloud target and has tier 1 integration with VMware, Hyper-V, Nutanix, AWS, Oracle Cloud and Azure.

- Cristie RBMR is supported on all major operating systems (Windows, Linux, AIX and Solaris) on all of their supported architectures (Intel, PowerPC, SPARC, ARM).

- Enterprise management is included free-of-charge with the Cristie Virtual Appliance, which provides estate management, DR orchestration, reporting and auditing.

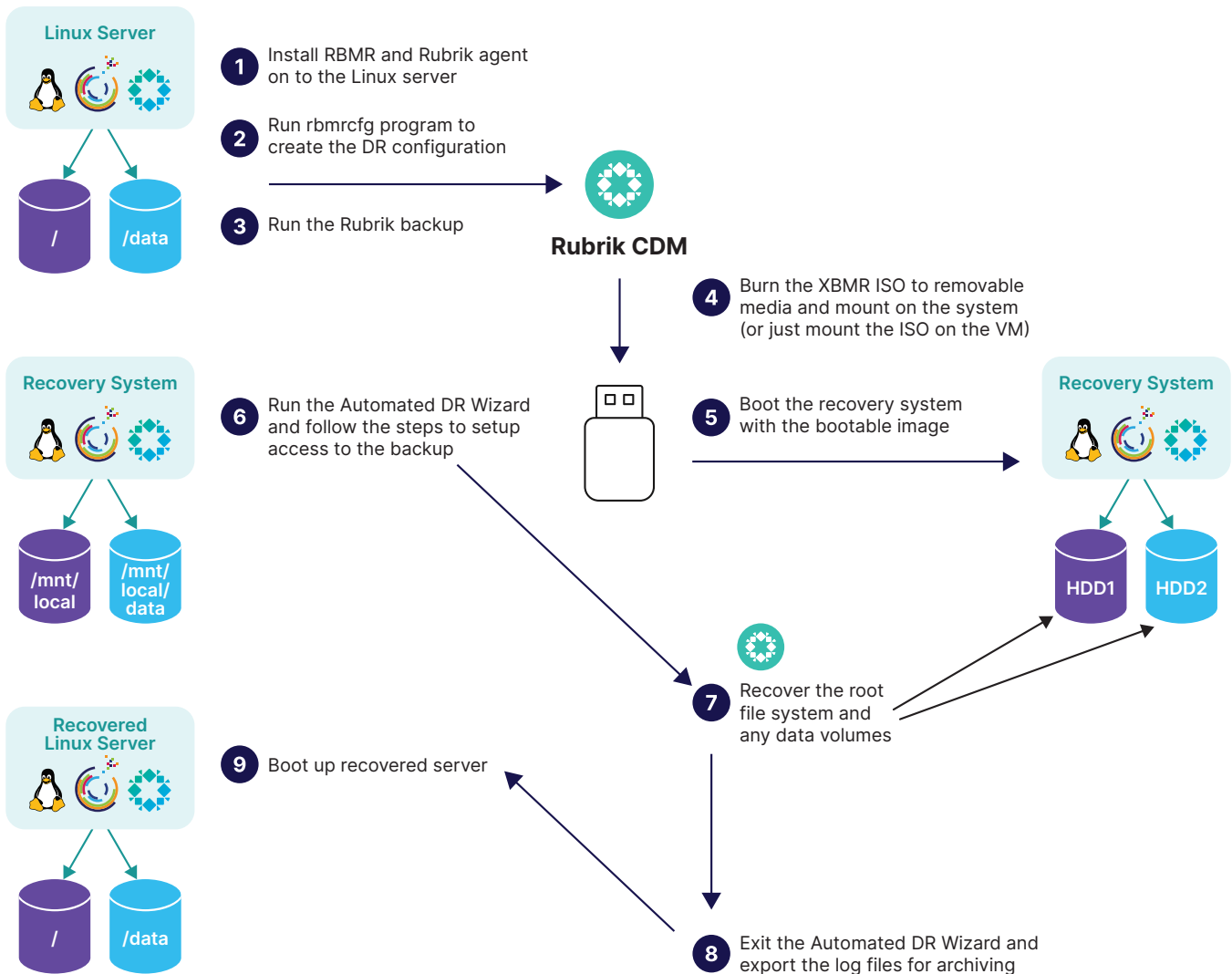- Dedicated support team providing 24×7×365 assistance

CRISTIE RBMR DESIGN AND PROCESS FLOW (SOLUTION OVERVIEW)

The Rubrik integration with Cristie RBMR allows Rubrik to perform bare-metal recovery of operating systems that are supported by Cristie RBMR. Cristie RBMR itself works by booting a "recovery environment", which is a Linux image with all the Cristie RBMR tools and code, that facilitates the recovery process.

ARCHITECTURE STEPS:

1. Install the Rubrik RBS and the Cristie RBMR software on the system. This runs "rbmrcfg" which creates the Cristie machine configuration files. * (this needs to run BEFORE each Rubrik backup)

2. Run a backup of the system via Rubrik.

3. Save the Cristie RBMR ISO (provided by Cristie) onto storage, which is accessible by the physical host to be recovered.

4. Boot the Cristie RBMR ISO onto the target system (physical, virtual, cloud).

5. Input the details of the Rubrik cluster to access the backup of the system

6. Cristie RBMR will reconfigure the target system to match the original system's disk/network layout.

7. Cristie RBMR calls to Rubrik to recover the data.

8. Cristie RBMR sets up the system to boot – injecting any new drivers necessary and setting up the bootloader.

9. Detach the ISO and re-boot the system.

Linux Server

1 Install RBMR and Rubrik agent on to the Linux server

2 Run rbmrcfg program to create the DR configuration

3 Run the Rubrik backup

Rubrik CDM

4 Burn the XBMR ISO to removable media and mount on the system (or just mount the ISO on the VM)

Recovery System

/mnt/local   /mnt/local/data

6 Run the Automated DR Wizard and follow the steps to setup access to the backup

5 Boot the recovery system with the bootable image

Recovery System

HDD1   HDD2

7 Recover the root file system and any data volumes

Recovered Linux Server

9 Boot up recovered server

/   /data

8 Exit the Automated DR Wizard and export the log files for archiving

CRISTIE'S RUBRIK BARE-METAL RECOVERY (RBMR): A STEP-BY-STEP INSTRUCTION GUIDE

CRISTIE RBMR PREREQUISITES

Cristie RBMR requires several prerequisites that must be completed before a Cristie RBMR can be performed. If not done correctly, Cristie RBMR will not be able to recover a protected host.

- Rubrik cluster running version 6.0.1+

- A licensed copy of Cristie RBMR

- Cristie RBMR Supported host(s).

- Gather the IP address you will be assigning when booting off the Cristie recovery ISO if not using DHCP

    a. IP, subnet, gateway, and if VLAN tagging is used

    b. **If the source host is added to the Rubrik cluster by IP address, then you cannot use the same IP address when booting off the Cristie recovery ISO since that will cause a restore conflict.**

        i. Cristie adds itself to the Rubrik cluster by IP address as part of the restore process.

        ii. If the Linux host was added by hostname in the Rubrik cluster then you are fine to use the same IP address off the bootable ISO.

- There are limits to what version of Cristie RBMR for Linux Intel will support.

- It will not support:

    c. Platforms other than Intel 64-bit only.

    d. Multi-boot operating systems

    e. Recovery of files that are being written to at the time of backup.

- A copy of the Cristie XBMR bootable product CD/ DVD-ROM or DR ISO (if your host supports this capability). XBMR is a separate product to RBMR. It is a generic Recovery Environment for all Cristie Linux BMR products.

    f. An example of the XBMR ISO from Cristie is:

        xbmr-9.4.1.2356.linux.x86_64.iso

LINUX/UNIX PHYSICAL HOST PREREQUISITES:

These prerequisites must be completed before the Linux/Unix physical host to be protected by Rubrik and recovered by Cristie RBMR.

1. Rubrik RBS agent should be installed and running on the host

2. Cristie RBMR installed on the host

    a. RBMR is a licensed rpm from Cristie (example rpm: rbmr-9.4.1.2356-1.x86_64.rpm)

3. A current Cristie System Configuration completed using "rbmrcfg"

a. From the Cristie RBMR For Linux User Guide:

    i. **"To save the configuration information for each machine, the supplied command-line program rbmrcfg is used. It is recommended that this has to run before running each backup to ensure the configuration is up-to-date."**

    ii. For Linux/Unix hosts, a Rubrik fileset backup is used to recover a physical host successfully. The "Pre-script" feature can be used to run the Cristie System Configuration program.

PROTECTING A PHYSICAL LINUX/UNIX HOST WITH A RUBRIK FILESET

As stated in the Cristie's Rubrik Bare-metal Recovery User Guide: "To ensure that you can recover to the latest version of the operating system that was installed on your Linux Intel machine, you must ensure that a Rubrik backup is performed every time operating system files change. In addition, you should also configure a run of the "rbmrcfg" program using a pre-script on the server (if supported) *before* the backup.

Here is the process to create the RBMR configuration on the physical host(s) protected by Rubrik volume-based backups that will be recovered by Cristie RBMR.

Step 1: Login to Rubrik and Go to Linux & Unix Hosts.
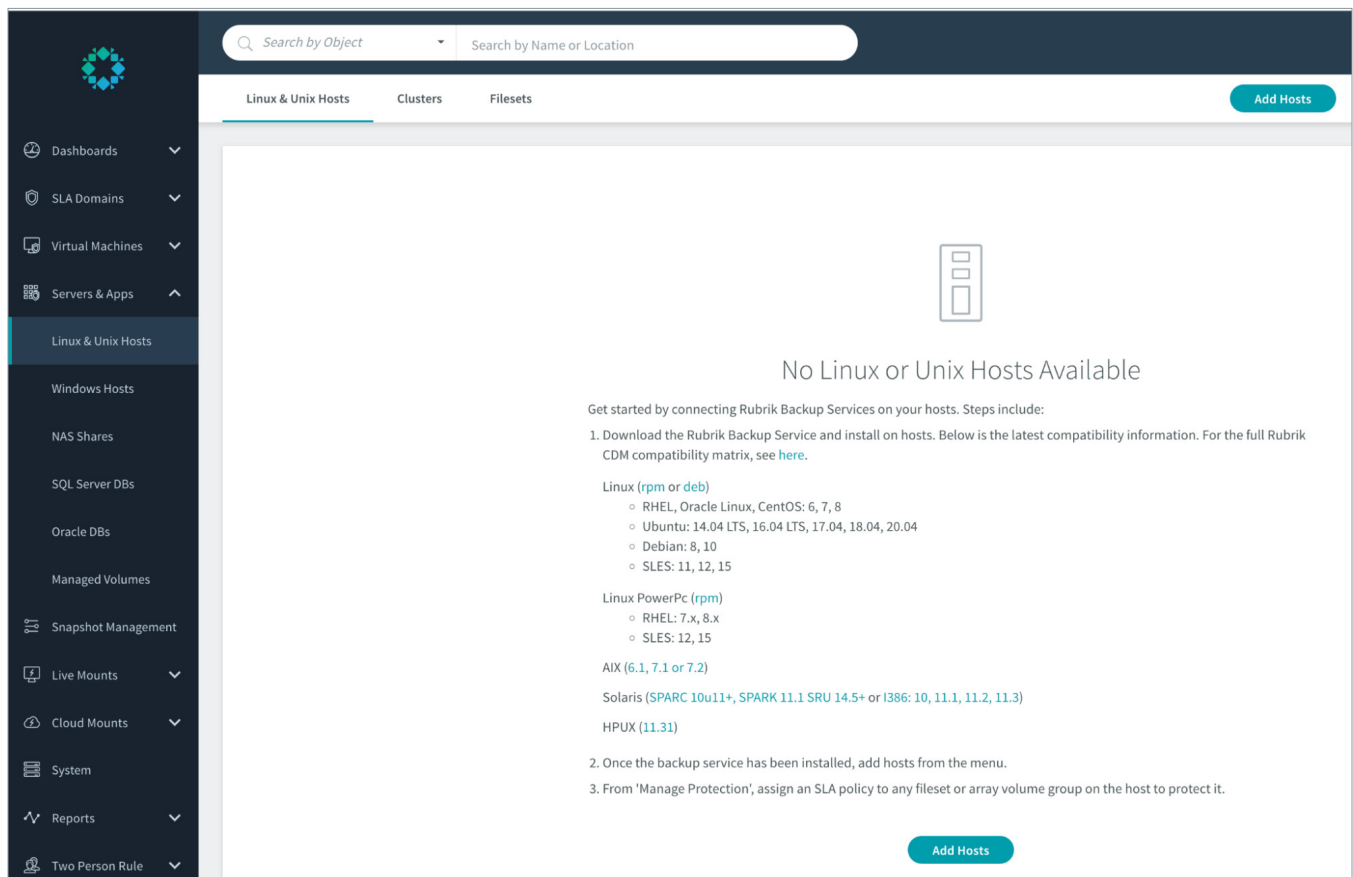
Step 2: Download the matching RPM or deb based on the requirement.

Step 3: Copy the RPM to the Linux/Unix host(s).

Step 4: Install the Rubrik RBS on the physical host(s).

```
[root@data1 ~]# sudo rpm -ivh rubrik-agent.x86_64.rpm
warning: rubrik-agent.x86_64.rpm: Header V4 RSA/SHA512 Signature, key ID b9b8c5f0: NOKEY
Preparing...                          ############################### [100%]
Updating / installing...
```

Step 5: Install the appropriate RBMR package on the physical host(s).

       a. rbmr-9.4.1.2356-1.linux.x86_64.tar.gz

       b. rbmr-9.4.1.2356-1.x86_64.rpm

       c. Rbmr_9.4.1.2356-1_amd64.deb

```
[root@data1 ~]# rpm -Uvh rbmr-9.4.1.2326-1.x86_64.rpm
warning: rbmr-9.4.1.2326-1.x86_64.rpm: Header V4 RSA/SHA1 Signature, key ID 0d469129: NOKEY
Preparing...                          ############################### [100%]
Updating / installing...
   1:rbmr-9.4.1.2326-1                 ############################### [100%]
Created symlink from /etc/systemd/system/multi-user.target.wants/cristie_va.service to /etc/systemd/system/cristie_va.service.
rbmrcfg v9.4.1.2326 (c) Cristie Software Ltd. 2008-2022
Creating machine configuration...
Output written to /RBMRCFG/disrec.ini
```

Once RBMR is installed, execute rbmrcfg to save the System Configuration (manually ran for demo purposes)

```
[root@data1 ~]# ls /RBMRCFG/
disrec.ini   rbmrcfg.log
[root@data1 ~]# ../usr/bin/rbmrcfg
../usr/bin/rbmrcfg v9.4.1.2326 (c) Cristie Software Ltd. 2008-2022
Creating machine configuration...
Output written to /RBMRCFG/disrec.ini
```

Note: Configuration is always saved to /RBMRCFG – it can't be saved anywhere else. This guarantees it is always stored in the backup.

Step 6: Go to Rubrik UI and Click on the add host button.

Note: If you see error, "Could not reach host," please check the firewall settings and disable that. (Or allow TCP 12800, 12801 from the host to the Rubrik cluster)

```
[root@data1 ~]# sudo firewall-cmd --state
running
[root@data1 ~]# sudo systemctl stop firewalld
[root@data1 ~]# sudo systemctl disable firewalld
Removed symlink /etc/systemd/system/multi-user.target.wants/firewalld.service.
Removed symlink /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service.
```

Step 7: Now Click on Fileset > Add fileset button.

The fileset must include the entire root volume of the Linux/Unix host to ensure a successful recovery.

- Note: the "Enable Pre/Post script" option is checked and the "Pre-Backup Script Path" is set to execute the Cristie RBMR rbmrcfg using /usr/bin/brmcfg.

- The option to "Cancel Backup" if "Pre-Backup script Fails" is checked.

Step 8: Now Click on Host > Click on Manage Protection > Select fileset which was created earlier > Next > Assign the SLA > Click Finish.

Manage Protection

1. **Fileset or Array Volume Groups** —————— 2 SLA —————— 3 Review Impact

You have selected **172.22.9.204**. Select a fileset or any array volume groups to protect.

Type

● Fileset
  Set of sub-volume files and folders that can be protected with different SLA Domains.

○ Array Volume Groups
  Collection of array volumes that can be protected with the same SLA Domain.

🔍 Search by Name   ⊕

Name ▼	SLA Domain
◉ 📄 rbmr-cristie	

Cancel   **Next**

Manage Protection

✓ **Fileset or Array Volume Groups** —————— 2 SLA —————— 3 Review Impact

Assign an SLA Domain to the fileset **rbmr-cristie** on host **172.22.9.204**.

🔍 Search SLA Domains   ⊕

Name	Local	Archival Location	Replication Targets
◉ 🛡 Gold	2 years	--	--

Step 9: Take a Rubrik fileset on-demand backup of the Linux/Unix host(s) for verification.

Activity Detail

Event Type
Backup

Node IDs
cluster:::RVM183S048865

Object Name
rbmr-cristie

Location
172.22.9.204

User Name
admin

Status
Success

Start Time
Feb 27, 2023 04:04:20 PM

Elapsed Time
10 secs 394 ms

SLA
Gold

Status	Activity	Date
·	Starting metadata scan for fileset 'rbmr-cristie' on '172.22.9.204' using node cluster:::RVM183S048865.	2/27 4:04 pm
✓	Successfully executed pre-backup script for Fileset 'rbmr-cristie(172.22.9.204)'.	2/27 4:04 pm
✓	Queued on demand backup of Fileset 'rbmr-cristie from 172.22.9.204'.	2/27 4:04 pm

Download Server Logs   [OK]

Filesets and Array Volume Groups

	Name	SLA	Includes	Excludes	Do Not Exclude
📄	rbmr-cristie	Gold	**	--	--

5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	**27**	28				

Activities

Filter Status ▼

| Status	Message	Date
✓	Indexing operation completed on Fileset 'rbmr-cristie' from location 172.22.9.204.	Feb 27, 2023 04:12:46 PM PST
🕐	Scheduled backup of Fileset 'rbmr-cristie' on 'Feb 27, 2023 20:09:29 PST'.	Feb 27, 2023 04:10:29 PM PST
✓ 2 Warnings	Completed backup of Fileset 'rbmr-cristie' from '172.22.9.204'.	Feb 27, 2023 04:10:29 PM PST
✓ 1 Warning	Completed on demand backup of Fileset 'rbmr-cristie' from '172.22.9.204'.	Feb 27, 2023 04:07:21 PM PST

RECOVERING A LINUX/UNIX HOST WITH CRISTIE RBMR

1. Boot the new Linux/Host with the Cristie XBMR bootable ISO and make sure it has more than 5 GB RAM.
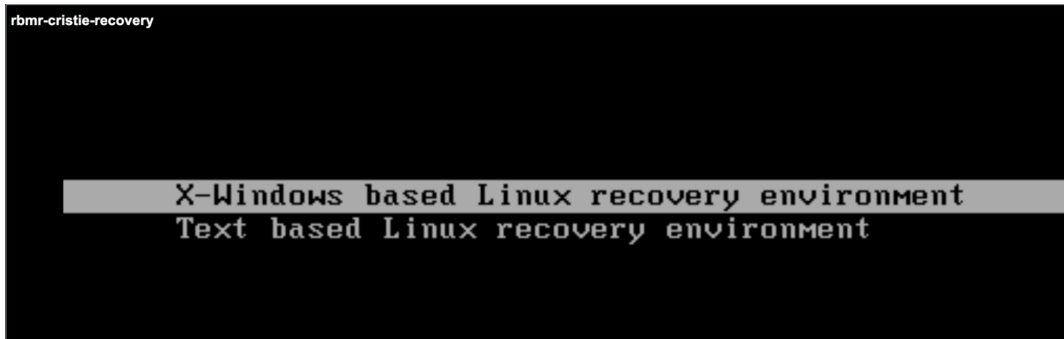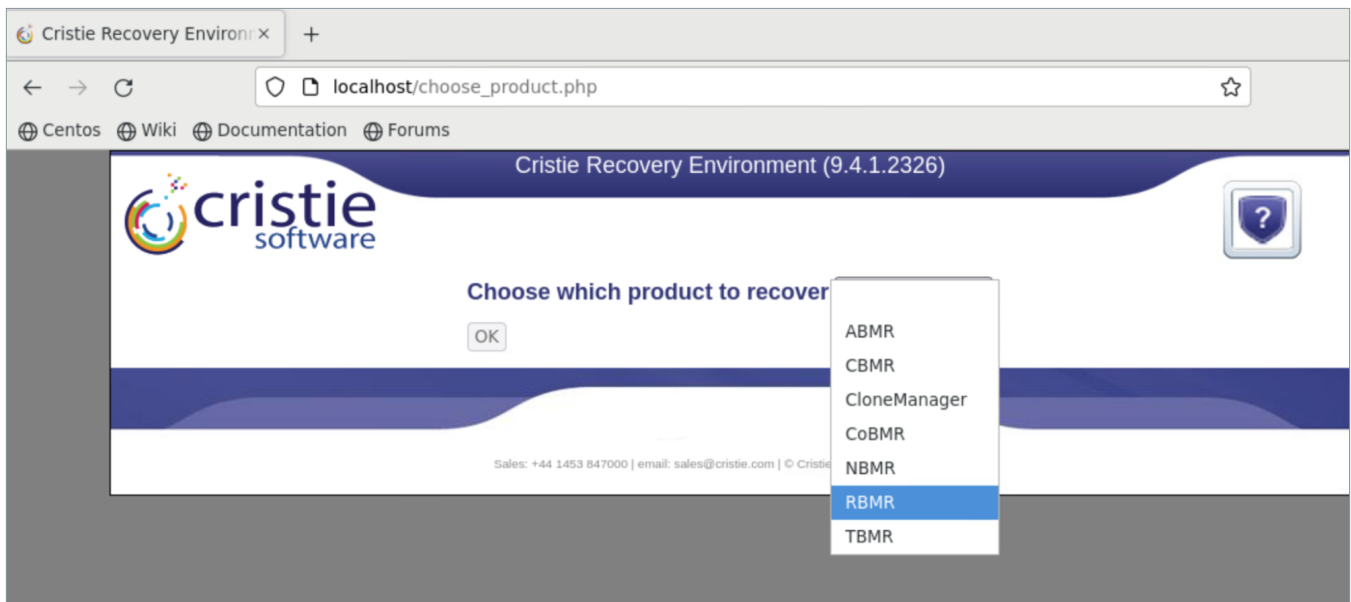

Cristie recommends that you choose the graphical X-Windows recovery environment mode, which loads the Cristie Recovery Environment.
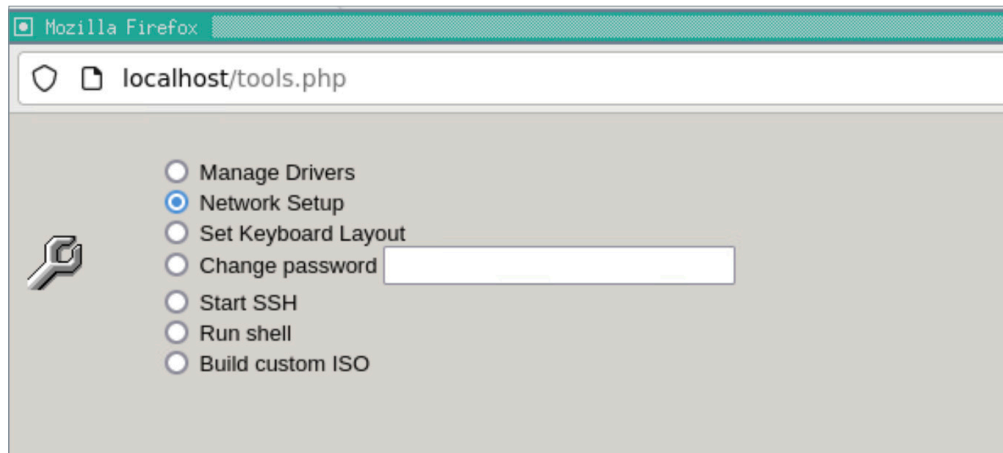
2. Accept the Cristie Licensing terms.
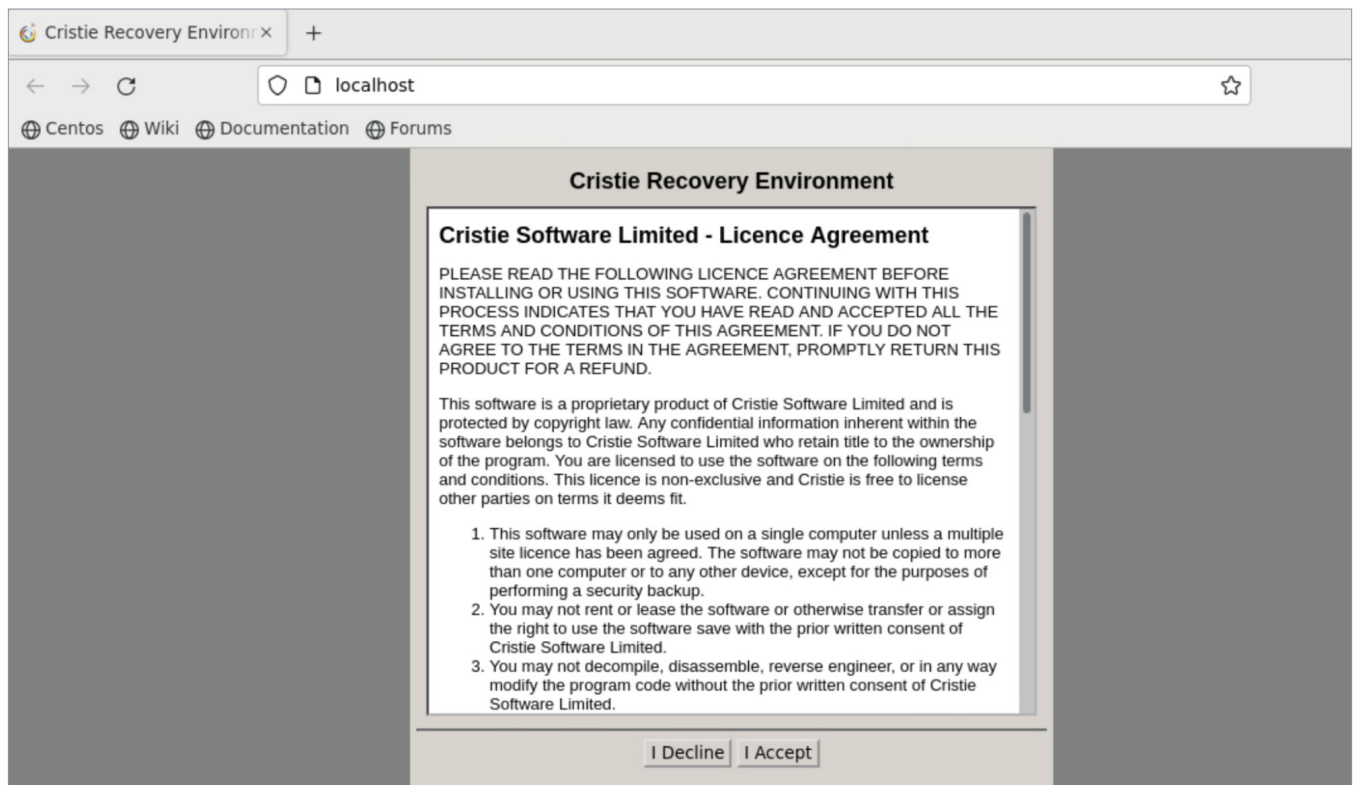
3. Choose the product to use to recover the host.

4. (Optional) Set a static IP if DHCP is not used. To set static IP, Click on Tools > Network Setup > Assign Static IP.

    a. If you don't need VLAN tagging, then you can set it in the UI by choosing "Tools" and "Network Setup".

    b. If you need to set up VLAN tagging then click "Run shell" under the "Tools" menu and use the commands at the end of this document.

Network Setup

Interface: eth0 0:50:56:be:68:8b CO ▾
IP Address: ☐ DHCP
Subnet Mask:
Gateway:
Hostname: cristie_WunYSwtV
Nameserver:
CA Certificate Bundle [Browse]

Start Network

disrec (c) Cristie Software Ltd.
2008-2022
hostname:
cristie_XAOITlmo
...
eth0 172.22.9.245 255.255.248.0
Network setup complete

Verify pinging a Rubrik cluster IP address.


```
bash-4.2# PING
bash: PING: command not found
bash-4.2# ping 172.22.8.195
PING 172.22.8.195 (172.22.8.195) 56(84) bytes of data.
64 bytes from 172.22.8.195: icmp_seq=1 ttl=64 time=0.374 ms
64 bytes from 172.22.8.195: icmp_seq=2 ttl=64 time=0.403 ms
c64 bytes from 172.22.8.195: icmp_seq=3 ttl=64 time=0.251 ms
64 bytes from 172.22.8.195: icmp_seq=4 ttl=64 time=0.324 ms
64 bytes from 172.22.8.195: icmp_seq=5 ttl=64 time=0.350 ms
c64 bytes from 172.22.8.195: icmp_seq=6 ttl=64 time=0.249 ms
64 bytes from 172.22.8.195: icmp_seq=7 ttl=64 time=0.285 ms
64 bytes from 172.22.8.195: icmp_seq=8 ttl=64 time=0.216 ms
```

5. Select Automatic Recovery
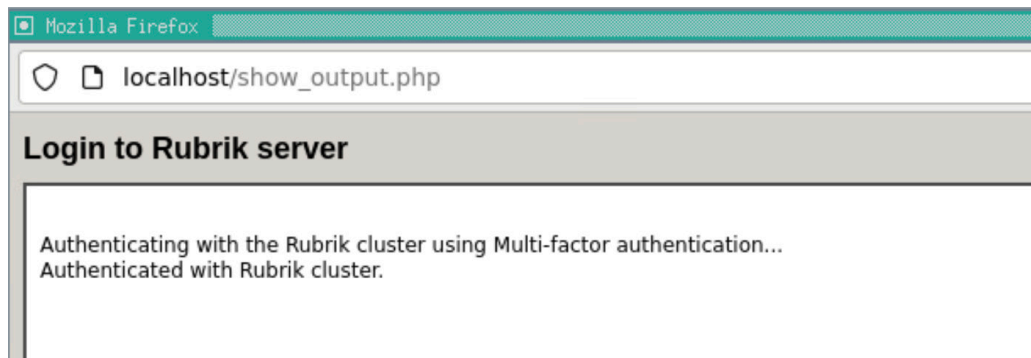

- Provide Server Address – A Rubrik Cluster node IP Address.
- API Port – default 443.
- Domain – add if you have domain server if not you can use local.
- Username – A local Rubrik account username
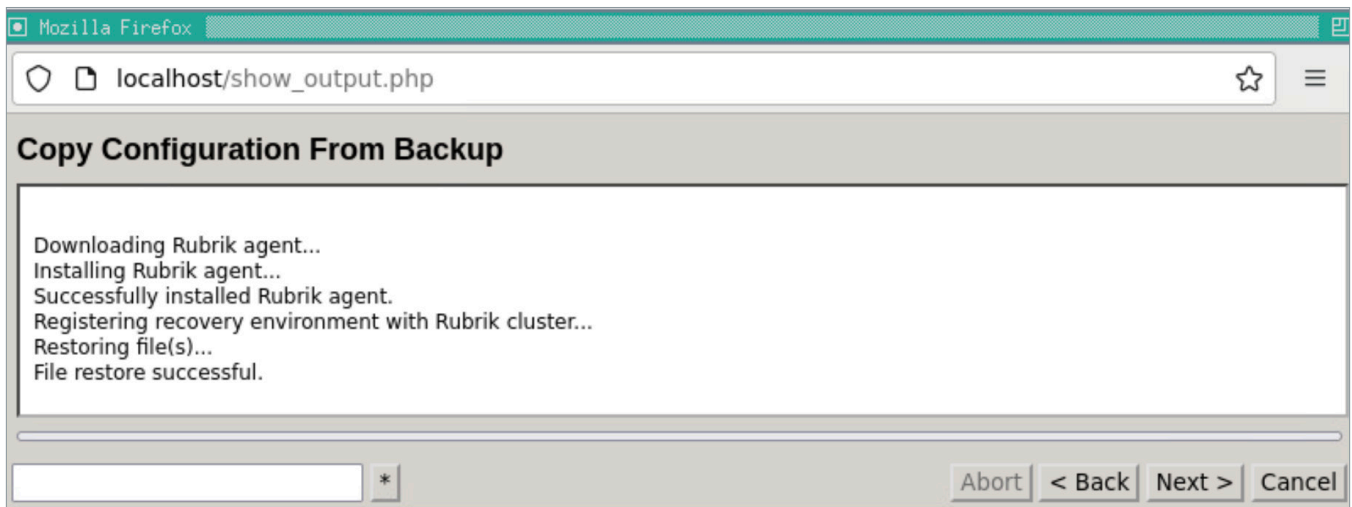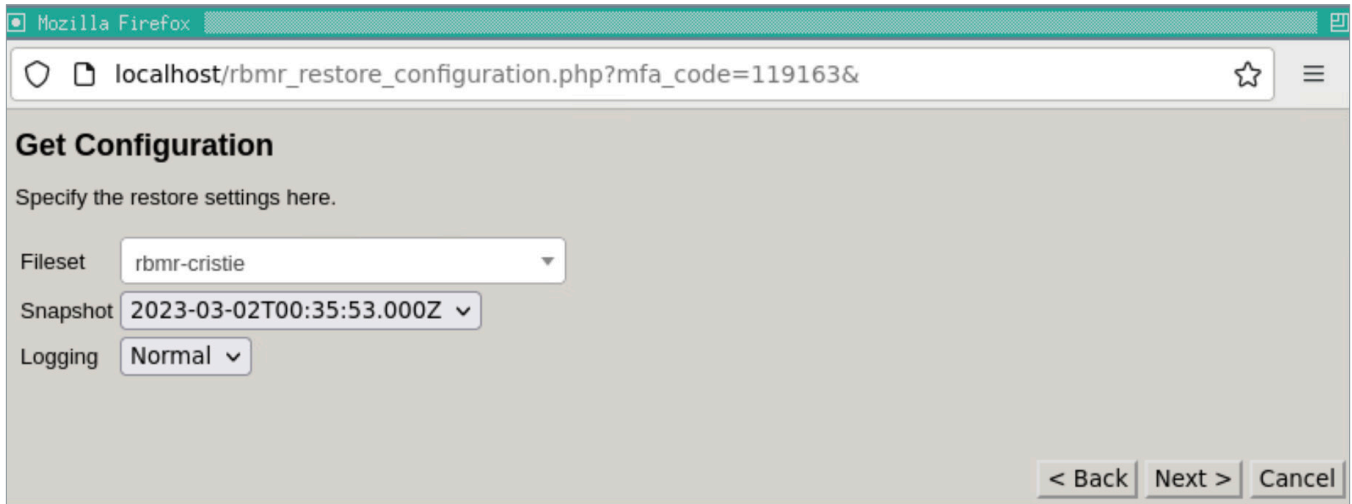- Password – A local Rubrik account Password

6. Sign in to the Rubrik cluster to recover the host from.

    a. Enter the TOTP information
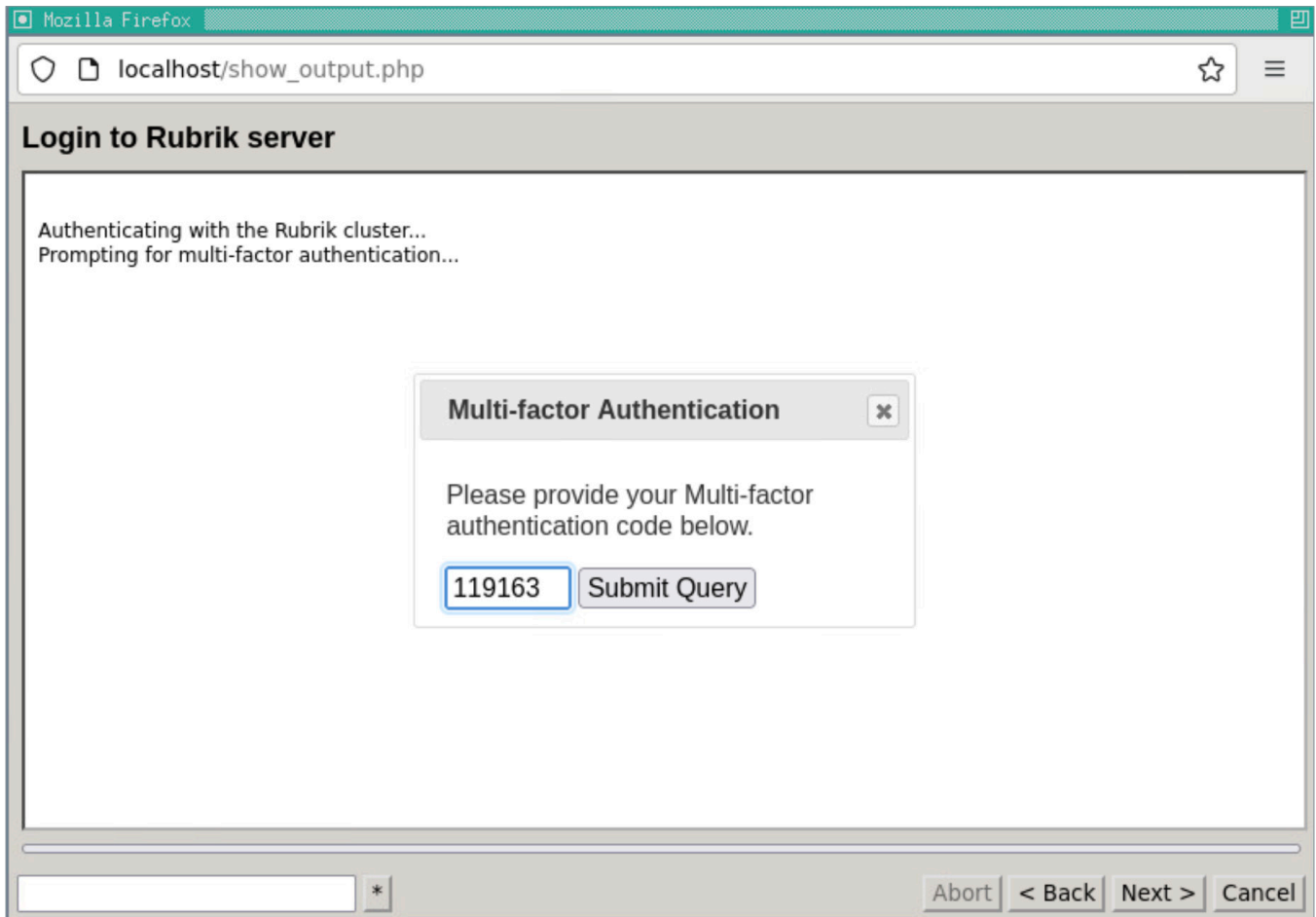
7. After authenticating, click Next

8. Select the Host, Fileset, and the Snapshot to recover from and Click Next.

9. The Cristie XBMR bootable ISO will download the RBS connector from the Rubrik cluster, after that add the XBMR bootable ISO to the Rubrik cluster as a Linux host and do an export of the /RBMRCFG/disrec. ini file from the snapshot selected in Step 7.

10. Confirm the next screen and click on Next > to proceed with the recovery.

Start Recovery

Specify the restore settings here.

Host	172.22.9.205 (CentOS 7.8.2003) ⌄
Fileset	rbmr-cristie ⌄
Snapshot	2023-03-02T00:35:53.000Z ⌄
Dissimilar Hardware	☑ For recovering to different machine types
SELinux Relabel	☑ Reset SELinux on recovered system
Logging	Normal ⌄
Multipath Support	☐ Multipath Options
Local Disks Only	☐ Ignore SAN disks
Recovery Options	Recovery Options Post Recovery Network

11. Cristie RBMR will partition and format the disk(s) and start another export job to restore the files to the host.

Recovery Status

```
meta-data=/dev/sda1 isize=256 agcount=4, agsize=5184 blks
= sectsz=512 attr=2, projid32bit=1
= crc=0 finobt=0, sparse=0, rmapbt=0
= reflink=0
data = bsize=4096 blocks=20736, imaxpct=25
= sunit=0 swidth=0 blks
naming =version 2 bsize=4096 ascii-ci=0, ftype=0
log =internal log bsize=4096 blocks=853, version=2
= sectsz=512 sunit=0 blks, lazy-count=1
realtime =none extsz=4096 blocks=0, rtextents=0
meta-data=/dev/mapper/centos-home isize=256 agcount=4, agsize=215296 blks
= sectsz=512 attr=2, projid32bit=1
= crc=0 finobt=0, sparse=0, rmapbt=0
= reflink=0
data = bsize=4096 blocks=861184, imaxpct=25
= sunit=0 swidth=0 blks
naming =version 2 bsize=4096 ascii-ci=0, ftype=0
log =internal log bsize=4096 blocks=2560, version=2
= sectsz=512 sunit=0 blks, lazy-count=1
realtime =none extsz=4096 blocks=0, rtextents=0
Setting up swapspace version 1, size = 659452 KiB
LABEL=, UUID=f476c95c-2872-42f9-b7ac-22030458e410
/dev/mapper/centos-root (xfs ) mounted at /mnt/slash
/dev/sda1 (xfs ) mounted at /mnt/slash/boot
/dev/mapper/centos-home (xfs ) mounted at /mnt/slash/home
Restoring file(s)...
```

172.22.8.10 says

Recovery finished, remember to copy log files

OK

Recovery Status

```
mknod '/mnt/slash/dev/sda1' 8 1: File exists
'/mnt/slash/dev/sda1' already exists
mknod '/mnt/slash/dev/sda2' 8 2: File exists
'/mnt/slash/dev/sda2' already exists
stat /mnt/slash/etc/mtab:
No such file or directory
stat /mnt/slash/etc/fstab:
No such file or directory
Editing '/mnt/slash/boot/grub/device.map'
mkstemp '/mnt/slash/boot/grub/device.mapuTdZzM':
No space left on device
Editing '/mnt/slash/boot/grub/grubenv'
mkstemp '/mnt/slash/boot/grub/grubenviKmsbn':
No space left on device
chroot:
failed to run command '/usr/bin/env':
No such file or directory
mknod '/mnt/slash/dev/sda' 8 0: File exists
'/mnt/slash/dev/sda' already exists
/mnt/slash/boot unmounted
/mnt/slash/home unmounted
/mnt/slash unmounted
Couldn't validate this recovery environment as being registered to the Rubrik cluster.
Created symlink from /etc/systemd/system/shutdown.target.wants/rbmr_unregister.service to /etc/systemd/system/rbmr_unreg
ister.service.
Recovery finished
```

12. When the file export is finished, click Ok and Close.

13. Cristie RBMR will delete the XBMR bootable ISO Linux host from the Rubrik cluster.

	Linux & Unix Hosts	Clusters	Filesets				Add Hosts

☐	Name ▼	Filesets and Array Volume Groups	SLA Domain	RBS Status
☐	172.22.8.200	--	--	✖ Disconnected
☐	172.22.9.205	rbmr-cristie	Bronze	✔ Connected

14. Back on the main screen, click Reboot > OK.

Cristie Recovery Environment (RBMR 9.4.2.2482)

- Automatic Recovery
- Manual Recovery
- Tools
- Show Logfiles
- Copy Logfiles
- Reboot

Reboot

Sales: +44 1453 847000 | email: sales@cristie.com | © Cristie Software Ltd 2016-2022

APPENDIX

NETWORK VLAN TAGGING SETUP WITH MANUAL NETWORK CONFIGURATION CLI COMMANDS:

If a network needs to be configured manually, for example if the network is using VLAN tagging, you can click "Tools" → "Run Shell" and use the following network commands.

- ip addr
- ip link show
- ip link add link eth0 name eth0.200 type vlan id 200
- ip link set dev eth0.200 up
- ip link show
- ip addr
- ip addr add 192.168.1.200/24 dev eth0.200
- ip addr
- route
- ip route add default via 192.168.1.1 dev eth0.200
- route
- ping <rubrik cluster>

CONTACTING SUPPORT

When Rubrik customers purchase RBMR from Cristie, they will receive 12 months of free support and maintenance. Cristie offers email/phone support 24×7×365 for P1 cases and UK/US office hours support for other cases. Customers who are in a POC phase are entitled to support before purchasing a maintenance contract.

Cristie Support Website: www.cristie.com/support

WHO TO CALL FIRST?

Is it a Rubrik backup issue?
If a customer is having issues with Cristie Rubrik (RBMR), the first step is to validate whether the issue is on the backup with Rubrik's Support team. If the issue is not in backup, the customer would contact Cristie support directly; Rubrik support will close the issue on Rubrik side.

Is it a Cristie recovery issue?
If the issue is not in backup, the customer will contact Cristie support directly. Cristie is responsible for all recovery related issues, and overall integration support questions.

Note: If a customer goes to Cristie with issues during a POC and the Cristie portion isn't the issue, Cristie will engage Rubrik support and hand over the issue, Cristie will keep an eye on the case to ensure mutual wins.

Docs can be obtained from the website at:

https://www.cristie.com/products/rbmr/documentation/

VERSION HISTORY

Version	Date	Summary of Changes
1.0	March 2023	Initial Release

Rubrik is a cybersecurity company. We are the pioneer in Zero Trust Data Security™. Companies around the world rely on Rubrik for business resilience against cyber attacks, malicious insiders, and operational disruptions. Rubrik Security Cloud, powered by machine intelligence, enables our customers to secure data across their enterprise, cloud, and SaaS applications. We automatically protect data from cyber attacks, continuously monitor data risks and quickly recover data and applications. For more information please visit www.rubrik.com and follow @rubrikInc on Twitter and Rubrik, Inc. on LinkedIn. Rubrik is a registered trademark of Rubrik, Inc. Other marks may be trademarks of their respective owners.

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