



Backup Solution Testing on UCS for Small–Medium Range Customers (Disk-to-Disk)—Backup Exec 2012

First Published: January 07, 2013

Last Modified: January 07, 2013

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Backup Solution Testing

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Overview

This program (Backup Testing—Disk-to-Disk) validates data backup from the Windows and Linux operating systems on the Cisco UCS environment and the backup data stored in the local disk (Local HDD) of Cisco UCS C-Series.

The objective of Backup Testing is to verify the Backup and Restore of data/database, Virtual machines and Server recovery by the backup software (Symantec Backup Exec 2012) with the data repository models, which are covered in the [Features Tested](#) section.

Acronyms

Acronym	Description
10GbE	10 Gigabit Ethernet
CIMC	Cisco Integrated Management Controller
CNA	Converged Network Adapter
DB	Database
HDD	Hard Disk Drive
JOS	Japanese Operating System
MDS	Multilayer Director Switch
MS	Microsoft
OS	Operating System
RAID	Redundant Array of Independent Disks
RDM	Raw Device Mapping

Acronym	Description
RHEL	Red Hat Enterprise Linux
SAN	Storage Area Network
SP	Service Pack
SQL	Structured Query Language
UCS	Unified Computing System
UCSM	Unified Computing System Manager
VM	Virtual Machine
VNIC	Virtual Network Interface Card
VSS	Volume Shadow Copy Service

Backup Testing Strategy

The requirements gathered for Backup Testing (Disk-to-Disk) are specific to the Japanese usage and market. The following requirements are derived based on the inputs and prioritization given by Cisco Japan Solution Engineers:

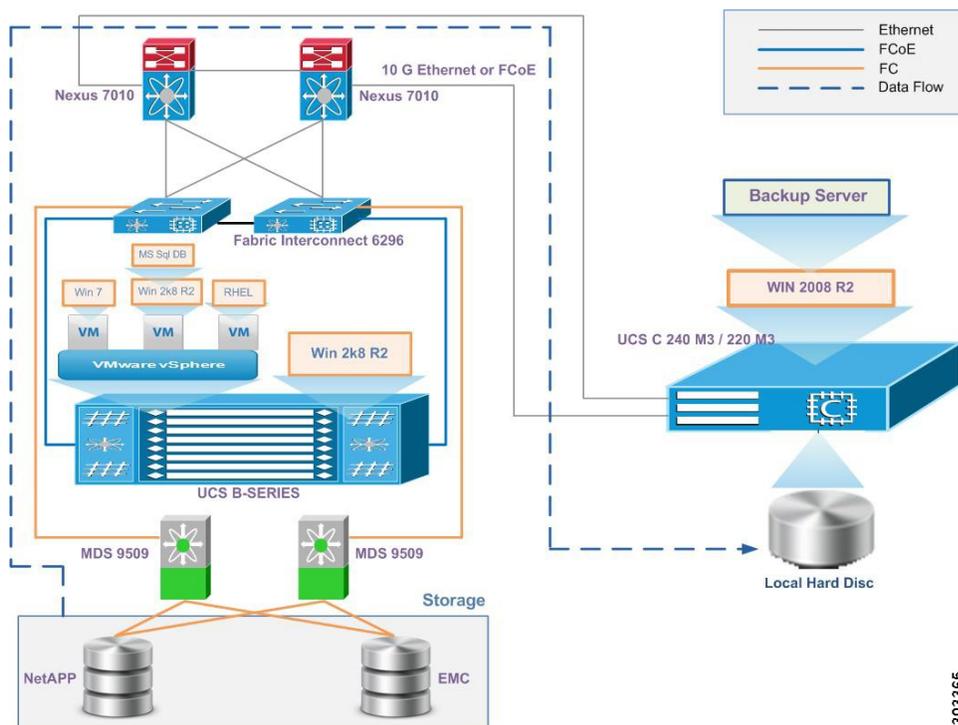
- Virtual Machines are available on ESXi 5.1, which is installed in the Cisco UCS B Series Servers (B22 M3, B200 M2, B230 M2, and B250 M2).
- The backup software, Symantec Backup Exec 2012 is used.
- Backup data is stored in Local HDD of the Cisco UCS C Series servers (C240 M3).
- Backup the Full Virtual Machines from the ESXi 5.1 Server which is installed on UCS B Series server (B22M3, B200 M2, B230 M2 and B250 M2).Virtual Machines are installed with Windows or Linux Operating System.
- Backup the Windows 2008 R2 Server which is installed on Cisco UCS B Series Server as a Bare metal and efficiently recover the Windows 2008 R2 Server after a hard drive failure by enabling disaster recovery feature.
- Data backup from the MS Windows 7 and RHEL 6.1 Japanese Operating Systems that are installed as Virtual machines. Data files include Microsoft Excel, Microsoft Word, and PDF.
- Database backup from MS SQL Server on the Windows Server 2008 R2 SP1 Japanese Operating System that is installed as a Virtual Machine.

Test Topology and Environment Matrix

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Test Topology

Figure 1: Backup Testing (Disk-to-Disk) Topology



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Environment Matrix

Component	Version
UCS	
1. Blade Servers	B22 M3 , B200 M2 , B230 M2 , B250 M2
2. Rack servers	C240 M3
3. UCSM	2.1(1a)
Backup Software	
Symantec Backup Exec	2012
Operating Systems	
1. Windows	Windows Server 2008 R2 SP1 x64 (Japanese) , Windows 7 Enterprise SP1 x64 (Japanese)
2. Linux	Red Hat Enterprise Linux 6.1 x64 (Japanese)
Database	
MS SQL server	Microsoft SQL Server 2008 R2 Enterprise x64 (Japanese)
Hypervisor	
ESXi	VMware ESXi 5.1
Storage	
1. EMC CX4-120	04.30.000.5.525
2. NetApp FAS 3140 / 3240	7.3.3 / 8.1



Implementation and Features Tested

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Design and Implementation

This program verifies and validates the functionality of Symantec Backup Exec 2012 features on Cisco UCS Servers for Japanese environment. Backup Server components (Server and Client) are installed on JOS and schedule backup from B Series Server to the C Series Server.

The following activities were involved in the Implementation phase:

- Installed VMware ESXi 5.1 on the B Series Servers (B22 M3, B200 M2, B230 M2, and B250 M2) that are configured to boot from SAN.
- Installed the Windows Server 2008 R2 Japanese operating system in the C Series Servers (C240 M3) on a local hard disk that is configured with RAID 5 (single parity).
- In the B Series Servers installed with ESXi 5.1, three virtual machines were created and installed with the following Japanese Operating Systems respectively:
 - Windows 7 Enterprise SP1 x64
 - Windows Server 2008 R2 SP1 x64
 - Red Hat Enterprise Linux 6.1 x64
- 10 GbE connectivity from the C Series CNA card (vNIC) was established to the B Series Blade Server for backup data Read/Write operations.
- C Series Servers were installed with the Windows Server 2008 R2 SP1 x64 Japanese Operating System; Symantec Backup Exec 2012 was installed on top of Japanese OS.
- Virtual machines were installed with Symantec Backup Exec 2012 software Client Agents.
- Symantec Backup Exec 2012 uses a specific plugin for Microsoft SQL database backup. SQL plugin was installed in the Microsoft Windows Server 2008 R2 Japanese Operating System and Microsoft SQL Server 2008 R2 Japanese.

- In the C Series Servers installed with system Symantec Backup Exec 2012 software Server, the client agents were added to the backup software.
- Windows 2008 R2 Server installed on a UCS B Series Server as a bare metal and added to the Backup Exec Server as a client. Backup of Windows 2008 R2 Server with Disaster recovery feature enabled. A bootable DVD media is generated using the "Create Simplified Disaster recovery Disk" wizard and stores the disaster recovery file in default or alternate storage location. During recovery operations, recovering the Server with the most recent backup using the Disaster Recovery Disk created earlier.
- Virtual machines created on ESXi 5.1 Server which was installed on UCS B series Server. Add the ESXi Server to the backup exec Server. Backup the full Virtual machines that contains Windows and Linux Operating System then restore that Virtual machines on same or different ESXi host
- Symantec Backup Exec 2012 uses a specific plugin for Microsoft SQL database backup. Installation of Microsoft SQL Server 2008 R2 and creation of databases was performed on the same RDM.

Features Tested

Data Backup was tested with the following backup methods.

Full Backup

Full backup is the starting point for all other types of backup and contains all the data in the folders and files that are selected to be backed up. Because full backup stores all files and folders, frequent full backups result in faster and simpler restore operations.

Differential Backup

Differential backup contains all files that have changed since the last FULL backup. The advantage of a differential backup is that it shortens restore time compared to a full backup or an incremental backup. However, if you perform the differential backup too many times, the size of the differential backup might grow to be larger than the baseline full backup.

Incremental Backup

Incremental backup stores all files that have changed since the last FULL, DIFFERENTIAL, or INCREMENTAL backup. The advantage of an incremental backup is that it takes the least time to complete. However, during a restore operation, each incremental backup must be processed, which could result in a lengthy restore job.

One-time Backup

A one-time backup is a job that only runs once without any recurring instances. We may want to create a one-time backup to create a baseline for a server before you upgrade it or install new software.

Compression

Copies the data to the media in its original form (uncompressed). Using some form of data compression can help expedite backups and preserve storage space. Hardware data compression should not be used in environments where storage devices that support hardware compression are used interchangeably with devices that do not have that functionality. In this situation, hardware compression is automatically disabled. You can manually turn on hardware compression on the drives that support it, but this results in media inconsistency.

If the drive that supports hardware compression fails, the compressed media cannot be restored with the non-compression drive.

Uses STAC software data compression, which compresses the data before it is sent to the storage device.

Encryption

Backup Exec supports two security levels of encryption: 128-bit Advanced Encryption Standard (AES) and 256-bit AES. The 256-bit AES encryption provides a stronger level of security because the key is longer for 256-bit AES than for 128-bit AES. However, 128-bit AES encryption enables backup jobs to process more quickly. Hardware encryption using the T10 standard requires 256-bit AES.

Software Encryption

While installing Backup Exec, the installation program installs encryption software on the Backup Exec server and on any remote computers that use a Backup Exec agent. Backup Exec can encrypt data at a computer that uses a Backup Exec agent, and then transfer the encrypted data to the Backup Exec server. Backup Exec then writes the encrypted data on a set-by-set basis to tape or to a backup-to-disk folder.

Backup Exec encrypts the following types of data:

- User data, such as files and Microsoft Exchange databases.
- Metadata, such as file names, attributes, and operating system information.
- On-tape catalog file and directory information.

Backup Exec does not encrypt Backup Exec metadata or on-disk catalog file and directory information.

Encrypted

Anyone can use the key to encrypt data during a backup job, but users other than the key owner must know the pass phrase. If a user other than the key owner tries to restore the encrypted data, Backup Exec prompts the user for the pass phrase. If you cannot supply the correct pass phrase for the key, you cannot restore the data.

Advanced Open File Options

Backup Exec can use snapshot technology to capture any files that are open when a backup runs. You can configure default options for open files, which your backup jobs inherit when you create them. Or you can override the default open file settings when you create backup jobs.

Snapshot Technology

Enables the use of snapshot technology for backup jobs.

Automatically Select Snapshot Technology

Enables Backup Exec to select the best snapshot method to use for the type of data that you back up.

Microsoft Volume Shadow Copy Server (Windows 2003 and later)

Enables third-party hardware and software vendors to create snapshot add-ins for use with Microsoft technology. Microsoft, as well as other third party software vendors, often provide the additional components that work with VSS. These components are called Writers. Writers flush application data or file data (if a file is open)

that resides in the computer's memory. The data is flushed before the Microsoft Volume Shadow Copy Service makes a snapshot of the volume to be backed up.

Snapshot Provider

Lets us select one of the following snapshot providers for jobs:

- **Automatic** - Allow VSS to select the snapshot provider. Select this option to enable VSS to select the best provider for the selected volume. The order in which a snapshot provider is selected is hardware provider and then the system provider.
- **System** - Use Microsoft Software Shadow Copy Provider.
- **Hardware** - Use technology provided by hardware manufacture.

If you select Hardware as the snapshot provider, then the following information applies:

- If multiple volumes are selected, then the same type of provider must be able to snap all volumes.
- Hardware providers cannot both be used to snap different volumes in the same job. You must either create another job, or select the option "Processlogicalvolumes for backup one at a time".

SQL Backup Options

Consistency check before backup.

Specifies one of the following consistency checks to run before a backup:

- **None**. This option does not run a consistency check before a backup. Symantec recommends that you always run a consistency check either before the backup.
- **Full check, excluding indexes**. This option excludes indexes from the consistency check. If indexes are not checked, the consistency check runs significantly faster but is not as thorough.
- **Full check, including indexes**. This option includes indexes in the consistency check. Any errors are logged.
- **Physical check only**. This option performs a low overhead check of the physical consistency of the database. This option only checks the integrity of the physical structure of the page. This option is selected by default.

Full VM Backup

The Symantec Backup Exec Agent for VMware Virtual Infrastructure (Agent for VMware) backup and restore virtual machines . Backup Exec performs a single-pass backup to protect all Guest virtual machines and VSS-aware applications that are installed on the Guest virtual machines. Backup Exec's Granular Recovery Technology (GRT) is enabled by default for jobs. You can use a GRT-enabled backup to restore individual files and folders from a Windows Guest virtual machine without restoring the entire virtual machine.

Additional features of the Agent for VMware do the following

- Redirect the restore of data from a Guest virtual machine to an alternate folder, datastore, host, or network.
- Back up to a disk device or to a tape device.
- Perform incremental and differential backup jobs.

Simplified Disaster Recovery

Simplified Disaster Recovery quickly recover the Windows Server after a hard drive failure or catastrophic failure. The Simplified Disaster Recovery (SDR) includes all the Critical System Configuration files during Backup by creating the Disaster Recovery Information File (DR). The Disaster Recovery Information File contains the hard disk layout, storage drivers, network drivers, and system version details. Once the Disaster Recovery Information File is created, generate the Simplified Disaster Recovery Disk by adding the additional network and storage drivers. Upon Successful creation we will be able to get the Simplified Disaster Recovery Disk (ISO image), which can be used when the server hardware crashes.



Test Scenarios for UCS with Symantec Backup Exec 2012

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Backup Data Files from Windows 7 Operating System—Full, Incremental and Differential Backups with Snapshot Technology

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 7 Operating System using Backup Exec 2012 Backup software is successful. Windows 7 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine to the Backup Server as a Backup Agent.
- 3 Verify that Remote Agent for Windows is installed on the Backup client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure**Full VM Backup**

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Snapshot Technology.
- 3 Schedule Full backup in the backup server software.

- 4 Run the backup job by selecting Standard Backup method and Full backup option.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Incremental Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Snapshot Technology.
- 3 Schedule a Full and Incremental backup.
- 4 Run the Full backup proceeding with Incremental backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Differential Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Snapshot Technology.
- 3 Schedule a Full and Differential backup.
- 4 Run the Full backup proceeding with Differential backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration

Backup Data Files from Windows 2008 R2 Operating System—Full, Incremental and Differential Backups with Snapshot Technology

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 2008 R2 Operating System using Backup Exec 2012 Backup software is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine to the Backup Server as a Backup Agent.
- 3 Verify that Remote Agent for Windows is installed on the Backup client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure**Full Backup**

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Snapshot Technology.
- 3 Schedule Full backup in the backup server software.

- 4 Run the backup job by selecting Standard Backup method and Full backup option.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Incremental Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Snapshot Technology.
- 3 Schedule a Full and Incremental backup.
- 4 Run the Full backup proceeding with Incremental backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Differential Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Snapshot Technology.
- 3 Schedule a Full and Differential backup.
- 4 Run the Full backup proceeding with Differential backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Windows 7 Operating System—Full,Incremental and Differential Backups with Microsoft Volume Shadow Copy Service Technology

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 7 Operating System using Backup Exec 2012 Backup software is successful. Windows 7 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Enable the Volume Shadow Copy feature on Windows Server.
- 3 Add the client machine to the Backup Server as a Backup Agent.
- 4 Verify that Remote Agent for Windows is installed on the Backup client.
- 5 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure**Full Backup**

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Volume Shadow Copy Technology.

- 3 Schedule Full backup in the backup server software.
- 4 Run the backup job by selecting Standard Backup method and Full backup option.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Incremental Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Volume Shadow Copy Technology.
- 3 Schedule a Full and Incremental backup.
- 4 Run the Full backup proceeding with Incremental backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Differential Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Volume Shadow Copy Technology.
- 3 Schedule a Full and Differential backup.
- 4 Run the Full backup proceeding with Differential backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Windows 2008 R2 Operating System—Full, Incremental and Differential Backups with Microsoft Volume Shadow Copy Service Technology

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 2008 R2 Operating System using Backup Exec 2012 Backup software is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Enable the Volume Shadow Copy feature on Windows Server.
- 3 Add the client machine to the Backup Server as a Backup Agent.
- 4 Verify that Remote Agent for Windows is installed on the Backup client.
- 5 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure**Full Backup**

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Volume Shadow Copy Technology.

- 3 Schedule Full backup in the backup server software.
- 4 Run the backup job by selecting Standard Backup method and Full backup option.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Incremental Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Volume Shadow Copy Technology.
- 3 Schedule a Full and Incremental backup.
- 4 Run the Full backup proceeding with Incremental backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Differential Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Volume Shadow Copy Technology.
- 3 Schedule a Full and Differential backup.
- 4 Run the Full backup proceeding with Differential backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Windows 7 Operating System—Full, Incremental and Differential Backups with Compression Technology

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 7 Operating System using Backup Exec 2012 Backup software is successful. Windows 7 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine to the Backup Server as a Backup Agent.
- 3 Verify that Remote Agent for Windows is installed on the Backup client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure**Full Backup**

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Compression Technology.
- 3 Schedule Full backup in the backup server software.

- 4 Run the backup job by selecting Standard Backup method and Full backup option.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Incremental Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Compression Technology.
- 3 Schedule a Full and Incremental backup.
- 4 Run the Full backup proceeding with Incremental backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Differential Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Compression Technology.
- 3 Schedule a Full and Differential backup.
- 4 Run the Full backup proceeding with Differential backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Windows 2008 R2 Operating System—Full,Incremental and Differential Backups with Compression Technology

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 2008 R2 Operating System using Backup Exec 2012 Backup software is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine to the Backup Server as a Backup Agent.
- 3 Verify that Remote Agent for Windows is installed on the Backup client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure**Full Backup**

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Compression Technology.
- 3 Schedule Full backup in the backup server software.

- 4 Run the backup job by selecting Standard Backup method and Full backup option.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Incremental Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Snapshot Technology.
- 3 Schedule a Full and Incremental backup.
- 4 Run the Full backup proceeding with Incremental backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Differential Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Compression Technology.
- 3 Schedule a Full and Differential backup.
- 4 Run the Full backup proceeding with Differential backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Windows 7 Operating System—Full, Incremental and Differential Backups with Encryption Technology

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 7 Operating System using Backup Exec 2012 Backup software is successful. Windows 7 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine to the Backup Server as a Backup Agent.
- 3 Verify that Remote Agent for Windows is installed on the Backup client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure**Full backup**

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Encryption Technology.
- 3 Schedule Full backup in the backup server software.

- 4 Run the backup job by selecting Standard Backup method and Full backup option.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Incremental Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Encryption Technology.
- 3 Schedule a Full and Incremental backup.
- 4 Run the Full backup proceeding with Incremental backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Differential Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Encryption Technology.
- 3 Schedule a Full and Differential backup.
- 4 Run the Full backup proceeding with Differential backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Windows 2008 R2 Operating System—Full, Incremental and Differential Backups with Encryption Technology

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 2008 R2 Operating System using Backup Exec 2012 Backup software is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine to the Backup Server as a Backup Agent.
- 3 Verify that Remote Agent for Windows is installed on the Backup client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure**Full backup**

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Encryption Technology.
- 3 Schedule Full backup in the backup server software.

- 4 Run the backup job by selecting Standard Backup method and Full backup option.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Incremental Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Encryption Technology.
- 3 Schedule Full backup in the backup server software.
- 4 Run the Full backup proceeding with Incremental backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Differential Backup

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is Encryption Technology.
- 3 Schedule a Full and Differential backup.
- 4 Run the Full backup proceeding with Differential backup.
- 5 Delete the files from the Client machine.
- 6 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Windows 7 Operating System—One-time Backup

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 7 Operating System using Backup Exec 2012 Backup software is successful. Windows 7 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 7 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine to the Backup Server as a Backup Agent.
- 3 Verify that Remote Agent for Windows is installed on the Backup client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is One Time Backup.
- 3 Run the one time backup.
- 4 Delete the files from the Client machine.

- 5 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Windows 2008 R2 Operating System—One-time Backup

Description

Verify that backup of data files (Word, PDF, and Excel) from Windows 2008 R2 Operating System using Backup Exec 2012 Backup software is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server. This scenario tested in below different combinations.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine to the Backup Server as a Backup Agent.
- 3 Verify that Remote Agent for Windows is installed on the Backup client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure

- 1 Select the data files to be backup from the client machine.
- 2 Ensure that the selected backup method is One Time Backup.
- 3 Run the one time backup.
- 4 Delete the files from the Client machine.
- 5 Restore the data from C series local disk to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Linux Operating System—One-time Backup

Description

Verify that backup of documents from RHEL 6.1 Operating System using Symantec Backup Exec 2012 software is successful. RHEL 6.1 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Install Backup Software client in RHEL 6.1 Machine.
- 2 Add the RHEL 6.1 machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure

- 1 Select the data files to be backup from the client machine.
- 2 Schedule one-time backup in the backup server software.
- 3 Run the one-time backup job.
- 4 Delete the files from the Client machine.
- 5 Restore the data from C Series Server Local HDD to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Linux Operating System—Full and Incremental Backups

Description

Verify that backup of documents from RHEL 6.1 Operating System using Symantec Backup Exec 2012 software is successful. RHEL 6.1 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Install Backup Software client in RHEL 6.1 Machine.
- 2 Add the RHEL 6.1 machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure

Full Backup

- 1 Select the data files to be backup from the client machine.

- 2 Schedule Full backup in the backup server software.
- 3 Run the Full backup job.
- 4 Delete the files from the Client machine.
- 5 Restore the data from C Series Server Local HDD to Client machine.

Incremental Backup

- 1 Add some more documents in the backup location.
- 2 Select the data files to be backup from the client machine.
- 3 Schedule Incremental backup in the backup server software.
- 4 Run the Incremental backup job with backup method as Standard.
- 5 Repeat steps 1 to 4 for three times.
- 6 Perform the Restore operation by selecting the latest savesets.
- 7 Restore the data from C Series Server Local HDD to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Linux Operating System—Full and Incremental Backups with Compression Technology

Description

Verify that backup of documents from RHEL 6.1 Operating System using Symantec Backup Exec 2012 software is successful. RHEL 6.1 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Install Backup Software client in RHEL 6.1 Machine.
- 2 Add the RHEL 6.1 machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure

Full backup

- 1 Select the data files to be backup from the client machine.
- 2 Schedule Full backup in the backup server software and enable the compression option as software type in storage tab.
- 3 Run the Full backup job.
- 4 Delete the files from the Client machine.
- 5 Restore the data from C Series Server Local HDD to Client machine.

Incremental Backup

- 1 Select the data files to be backup from the client machine.
- 2 Schedule Full backup in the backup server software and enable the compression option as software type in storage tab.
- 3 Run the Full backup proceeding with Incremental Backup.
- 4 Delete the files from the Client machine.
- 5 Restore the data from C Series Server Local HDD to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.

- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup Data Files from Linux Operating System—Full and Incremental Backups with Encryption Technology

Description

Verify that backup of documents from RHEL 6.1 Operating System using Symantec Backup Exec 2012 software is successful. RHEL 6.1 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese RHEL 6.1 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Install Backup Software client in RHEL 6.1 Machine.
- 2 Add the RHEL 6.1 machine in Backup server software as a Backup Client.
- 3 Create a Encryption key in the Backup server software.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure**Full Backup**

- 1 Select the data files to be backup from the client machine.
- 2 Schedule Full backup in the backup server software and the respective Encryption key which has been created earlier.
- 3 Run the Full backup job.
- 4 Delete the files from the Client machine.
- 5 Restore the data from C Series Server Local HDD to Client machine.

Incremental Backup

- 1 Add some more documents in the backup location.
- 2 Select the data files to be backup from the client machine.
- 3 Schedule Incremental backup in the backup server software with the Encryption key being selected in the storage tab.
- 4 Run the Incremental backup job with backup method.
- 5 Repeat steps 1 to 4 for three times.
- 6 Perform the Restore operation by selecting the latest savesets.
- 7 Restore the data from C Series Server Local HDD to Client machine.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that data is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Full Backup with Consistency Check as Full Check Including Indexes

Description

Verify that backup of MS SQL database with Consistency check as Full check including indexes is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Verify that Remote Agent for SQL is installed on the Backup Client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure

- 1 Select the database instance to be backup from the client machine.
- 2 Select the Option consistency check as Full Check, including indexes on Microsoft SQL Backup options.
- 3 Run the Full backup job.
- 4 Delete the database from the Client machine.

- 5 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Full Backup with Consistency Check as Physical Check

Description

Verify that backup of MS SQL database with Consistency check as Physical check is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Verify that Remote Agent for SQL is installed on the Backup Client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure

- 1 Select the database instance to be backup from the client machine.
- 2 Select the Option consistency check as Physical check on Microsoft SQL Backup options.
- 3 Run the Full backup job.
- 4 Delete the database from the Client machine.
- 5 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that backup is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Copy of SQL Database to the Alternate Path in Full Backup

Description

Verify that backup of MS SQL database and the copy of database to the alternate path in Full backup is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Verify that Remote Agent for SQL is installed on the Backup Client.
- 4 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.

Procedure

- 1 Select the database instance to be backup from the client machine.
- 2 Select the option consistency check as none on Microsoft SQL Backup.
- 3 Create the Folder on the Backup Client and specify the location of folder to the alternate path in Backup option.

- 4 Run the Full backup job.
- 5 Delete the database from the Client machine.
- 6 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that backup of database to the alternate path is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Incremental Backup as Log with Consistency Check as Full Check Excluding Indexes

Description

Verify that backup of MS SQL database with Consistency check as Full check excluding indexes, Incremental log backup type and restore is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.
- 4 Perform full backup of database.

Procedure

- 1 Add some more data into the database.
- 2 Select Incremental backup type as log in the backup server software.
- 3 Select the Option consistency check as Full Check, excluding indexes on Microsoft SQL Backup options.
- 4 Run the backup job.
- 5 Perform the Incremental Transaction log backup two or three times.
- 6 Delete the database from the Client machine.
- 7 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that Incremental of log back up with consistency check as full check excluding index is successful.
- Verified that recover of database is successful.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Incremental Backup as Log with Consistency Check as Full Check Including Indexes

Description

Verify that backup of MS SQL database with Consistency check as Full check including indexes, Incremental log backup type and restore is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.

- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.
- 4 Perform full backup of database.

Procedure

- 1 Add some more data into the database.
- 2 Select Incremental backup type as log in the backup server software.
- 3 Select the Option consistency check as Full Check, including indexes on Microsoft SQL Backup options.
- 4 Run the backup job.
- 5 Perform the Incremental Transaction log backup two or three times.
- 6 Delete the database from the Client machine.
- 7 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that Incremental of log back up with consistency check as full check including index is successful.
- Verified that recover of database is successful.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Incremental Backup as Log with Consistency Check as Physical Check Including Indexes

Description

Verify that backup of MS SQL database with Consistency check as physical, Incremental log backup type and restore is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.
- 4 Perform full backup of database.

Procedure

- 1 Add some more data into the database.
- 2 Select Incremental backup type as log in the backup server software.
- 3 Select the Option consistency check as physical check on Microsoft SQL Backup options.
- 4 Run the backup job.
- 5 Perform the Incremental Transaction log backup two or three times.
- 6 Delete the database from the Client machine.
- 7 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that Incremental of log back up with consistency check as physical is successful.

- Verified that recover of database is successful.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Incremental Backup as Log and Copy of SQL Database to the Alternate Path

Description

Verify that backup of MS SQL database with Consistency check as physical, Incremental log backup type and copy of database to the alternate path is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.
- 4 Perform full backup of database.

Procedure

- 1 Add some more data into the database.
- 2 Select Incremental backup type as log in the backup server software.
- 3 Select the Option consistency check as none on Microsoft SQL Backup options.
- 4 Browse the folder to the location where the copy of database need to be stored.
- 5 Run the backup job.
- 6 Perform the Incremental Transaction log backup two or three times.
- 7 Delete the database from the Client machine.
- 8 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that backup of database to the alternate path is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Incremental Backup as Differential with Consistency Check as Full Check Excluding Indexes

Description

Verify that backup of MS SQL database with Consistency check as Full check excluding indexes, Incremental backup type as differential and restore is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.
- 4 Perform full backup of database.

Procedure

- 1 Add some more data into the database.
- 2 Select Incremental backup type as differential in the backup server software.
- 3 Select the Option consistency check as Full Check, excluding indexes on Microsoft SQL Backup options.
- 4 Run the backup job.

- 5 Perform the Incremental Transaction log backup two or three times.
- 6 Delete the database from the Client machine.
- 7 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that Incremental of back up as differential with consistency check as full check excluding index is successful.
- Verified that recover of database is successful.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Incremental Backup as Differential with Consistency Check as Full Check Including Indexes

Description

Verify that backup of MS SQL database with Consistency check as Full check including indexes, Incremental backup type as differential and restore is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.
- 4 Perform full backup of database.

Procedure

- 1 Add some more data into the database.
- 2 Select Incremental backup type as differential in the backup server software.
- 3 Select the Option consistency check as Full Check, including indexes on Microsoft SQL Backup options.
- 4 Run the backup job.
- 5 Perform the Incremental Transaction log backup two or three times.
- 6 Delete the database from the Client machine.
- 7 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that Incremental back up as differential with consistency check as full check including index is successful.
- Verified that recover of database is successful.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Incremental Backup as Differential with Consistency Check as Physical Check Including Indexes

Description

Verify that backup of MS SQL database with Consistency check as physical , Incremental backup type as differential and restore is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.
- 4 Perform full backup of database.

Procedure

- 1 Add some more data into the database.
- 2 Select Incremental backup type as differential in the backup server software.
- 3 Select the Option consistency check as physical check on Microsoft SQL Backup options.
- 4 Run the backup job.
- 5 Perform the Incremental Transaction log backup two or three times.
- 6 Delete the database from the Client machine.
- 7 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that Incremental back up as differential with consistency check as physical is successful.
- Verified that recover of database is successful.
- Verified that database is available in the Client machine after restoration.

Backup MS SQL 2008 R2 Database—Incremental Backup as Differential and Copy of SQL Database to the Alternate Path

Description

Verify that backup of MS SQL database with Consistency check as physical, Incremental backup type as differential and copy of database to the alternate path is successful. Windows 2008 R2 Operating System installed as a Virtual Machine on UCS B series blade server.

Tested Combinations

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240

UCS Used for Backup Server	UCS Used for Backup Client	Storage Used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Virtual Machine)	Local HDD of UCS C240 M3 / EMC CLARiiON

Prerequisites

- 1 Enable the .NET Framework feature on Windows Server.
- 2 Add the client machine in Backup server software as a Backup Client.
- 3 Configure Local HDD of C Series Server as Disk Storage in the Backup server software.
- 4 Perform full backup of database.

Procedure

- 1 Add some more data into the database.
- 2 Select Incremental backup type as differential in the backup server software.
- 3 Select the Option consistency check as none on Microsoft SQL Backup options.
- 4 Browse the folder to the location where the copy of database need to be stored.
- 5 Run the backup job.
- 6 Perform the Incremental Transaction log backup two or three times.
- 7 Delete the database from the Client machine.

- 8 Restore the data from C series local disk to Client machine SQL.

Verification

- Verified that backup of database to the alternate path is successful and check the same in Status console window.
- Verified that restore is successful and check the same in Status console window.
- Verified that database is available in the Client machine after restoration.

Full VM Backup - Restore on same, different and multiple hosts

Description

Create a VM on ESXi 5.1 host which is installed on UCS B series blade server. Verify the full VM backup and restore on same host using Backup Exec 2012 software.

Tested Combinations

UCS used for Backup server	UCS used for Backup Client	Storage used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B200 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B230 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B250 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON

Prerequisites

- 1 Create Virtual Machine on ESXi 5.1 host which is installed on UCS B series blade server.
- 2 Add the Esxi host to the Backup server software as a Client.

- 3 Configure local disk of C series as a Disk storage in the Backup server software.

Procedure

Backup

- 1 Select the VMs which is installed with Operating system (Windows or RHEL) to be backup from the client machine
- 2 Schedule Full backup in the backup server software.
- 3 Run the backup job by selecting "Use the full backup method for virtual machines that do not support incremental or differential backups" option.
- 4 Delete the VMs from the Client machine.

Restore on Same Host

- 1 Restore the data from C series local disk to the same host by selecting "To the original location" option.

Different Host

- 1 Restore the data from C series local disk to different ESXi host by selecting "To different vCenter or ESXi server" option

Multiple Hosts

- 1 Restore the VM files from C series local disk to server machine or windows share location
- 2 The above VM files can be used for restoring VMs on multiple ESXi hosts.

Verification

- 1 Verify that backup is successful and check the same in Status console window.
- 2 Verify that restore is successful and check the same in Status console window.
- 3 Verify that VM is available in the Client machine after restoration.

Full VM Backup - In power off state

Description

Create a VM on ESXi 5.1 host which is installed on UCS B series blade server. Verify the full VM backup which is in power off state and restore on ESXi host using Backup Exec 2012 software.

Tested Combination

UCS used for Backup server	UCS used for Backup Client	Storage used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240

UCS used for Backup server	UCS used for Backup Client	Storage used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B200 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B230 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B250 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON

Prerequisites

- 1 Add the ESXi host to the Backup server software as a Backup Client.
- 2 Configure local disk of C series as a Disk storage in the Backup server software.

Procedure

- 1 Select the VMs from the client machine to be backup which is in powered off state
- 2 Schedule Full backup with “Enable the Backup virtual machines that are powered off” option .
- 3 Run the backup job.
- 4 Delete the VMs from client machine.
- 5 Restore the VM from C series local disk to ESXi host.

Verification

- 1 Verify that backup is successful and check the same in Status console window.
- 2 Verify that restore is successful and check the same in Status console window.
- 3 Verify that VM is available in the Client machine after restoration.

Full VM Backup -Incremental backup

Description

Create a VM on ESXi 5.1 host which is installed on UCS B series blade server. Verify the full backup method for virtual machines that support incremental or differential backups using Backup Exec 2012 software.

Tested Combinations

UCS used for Backup server	UCS used for Backup Client	Storage used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B200 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B230 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B250 M2 (VM installed with JOS).	Local HDD of UCS C240 M3/ EMC CLARiiON

Prerequisites

- 1 Add the ESXi host to the Backup server software as a Client.
- 2 Configure local disk of C series as a Disk storage in the Backup server software.

Procedure

- 1 Select the VMs to be backup from the client machine
- 2 Schedule incremental backup with the option “Use the full backup method for virtual machines that do not support incremental or differential backups” is disabled on server software.
- 3 Run the backup job Full with scheduled incremental backup option.
- 4 Perform some changes on the VM machine once the full backup is completed.
- 5 Perform the Incremental backup.

- 6 Delete the VMS from the Client machine.
- 7 Restore the data from C series local disk to host.

Verification

- 1 Verify that backup is successful and check the same in Status console window.
- 2 Verify that restore is successful and check the same in Status console window.
- 3 Verify that VM is available in the Client machine after restoration

Bare metal Recovery on Windows 2008 R2 using SDR to the Same Storage—One Time Backup

Description

Verify that Bare metal recovery of Windows Server 2008 Operating System using Backup Exec 2012 on same storage with UCS B Series Blade Server.

Tested Combinations

UCS used for Backup server	UCS used for Backup Client	Storage used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ EMC CLARiiON

Prerequisites

- 1 Verify Backup Software client Agent is installed on Windows 2008 R2 Machine.
- 2 Add the Windows 2008 machine in Backup server software as a Backup Client.
- 3 Configure local disk of C series as Standalone drive in the Backup server software.
- 4 Enable Simplified Disaster Recovery options on BE2012 Software.
- 5 Download the Simplified Recovery Disk Software 64 bit and place it on the BE2012.
- 6 Perform One Time Backup.

Procedure

- 1 Select the Computer Specific files on Windows 2008 R2 Machine for Backup.
- 2 Schedule a One Time Backup for Windows 2008 R2 with SDR enabled.
- 3 Once the Backup is successful verify the corresponding .DR file is generated on the default location.
- 4 Create a Disaster Recovery disc with ISO file we downloaded.
- 5 Generate the required ISO file for the computer that we backed up.
- 6 Delete some of the computer specific files on Windows 2008 R2 machine.
- 7 Map the generated ISO image to the corresponding server and perform the recovery operation

Verification

- 1 Verify that <computer_name.DR> file is created successfully.
- 2 Verify that the entire operating system is recovered successfully
- 3 Verify that the data present in the operating system is also recovered successfully.

Bare metal Recovery on Windows 2008 R2 using SDR to the Different Storage—One Time Backup

Description

Verify that Bare metal recovery of Windows Server 2008 Operating System using Backup Exec 2012 on different storage with UCS B Series Blade Server.

Tested Combinations

UCS used for Backup server	UCS used for Backup Client	Storage used for Backup Server / Client
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240

UCS used for Backup server	UCS used for Backup Client	Storage used for Backup Server / Client
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ NetApp 3140 / 3240
UCS C240 M3	UCS B22 M3 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B200 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B230 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ EMC CLARiiON
UCS C240 M3	UCS B250 M2 (Japanese Windows 2008 R2 Operating System as a Bare metal).	Local HDD of UCS C240 M3/ EMC CLARiiON

Prerequisites

- 1 Verify Backup Software client Agent is installed on Windows 2008 R2 Machine.
- 2 Add the Windows 2008 machine in Backup server software as a Backup Client.
- 3 Configure local disk of C series as Standalone drive in the Backup server software.
- 4 Enable Simplified Disaster Recovery options on BE2012 Software.
- 5 Download the Simplified Recovery Disk Software 64 bit and place it on the BE2012.
- 6 Perform One Time Backup

Procedure

- 1 Select the Computer Specific files on Windows 2008 R2 Machine for Backup.
- 2 Schedule a One Time Backup for Windows 2008 R2 with SDR enabled.
- 3 Once the Backup is successful, verify the corresponding .DR file is generated on the default location.
- 4 Create a Disaster Recovery disc with ISO file we downloaded.
- 5 Generate the required ISO file for the computer that we backed up
- 6 Provision another storage to the server.
- 7 Map the generated ISO image to the corresponding server and perform the recovery operation of entire operating system.

Verification

- 1 Verify that <computer_name.DR> file is created successfully.
- 2 Verify that the entire operating system is recovered successfully
- 3 Verify that the data present in the operating system is also recovered successfully

The Following table Consists of Calculated **Mean Time** for Bare metal Disaster Recovery:

Blade	Recovery Time (Mins)
B22 M3	8.4
B200 M2	9.5
B250 M2	10.5
B230 M2	9.1

Related Documentation

Symantec Backup Exec

<http://www.symantec.com/backup-exec>

Symantec Backup Exec 2012 Administrator's Guide

<http://www.symantec.com/business/support/index?page=content&id=doc5211>

Backup Exec 2012 Software Compatibility List

http://www.symantec.com/business/support/index?page=content&id=TECH175581&key=15047&basecat=COMPATIBILITY_LIST&actp=LIST