

Arcserve® Replication and High Availability

r16.0 Release Notes



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Arcserve Product References

This document references the following Arcserve products:

- Arcserve® Replication
- Arcserve® High Availability (HA)
- Arcserve® Assured Recovery®
- Arcserve® Content Distribution

Chapter 1: Contact Arcserve

Contact Technical Support

For your convenience, Arcserve provides one site where you can access the information you need for your Home Office, Small Business, and Enterprise Arcserve products. At arcserve.com/support, you can access the following:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- Arcserve Support policies and guidelines
- Other helpful resources appropriate for your product

Provide Feedback

If you have comments or questions about Arcserve product documentation, you can send a message to techpubs@arcserve.com.

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Chapter 2: Welcome

Welcome to the CA ARCserve RHA Release Notes. This document contains the following information relating to use of the CA ARCserve RHA family of products:

- New and discontinued features, as well information about how the enhancements made to existing features might affect you
- Issues discovered after publication that you should know before you use this product
- A list of the fixes included in this release

Throughout this document, the term "CA ARCserve RHA" refers to all products, unless otherwise specified.

Chapter 3: CA ARCserve RHA r16 Service Pack 2

This section describes new features, enhancements, and included fixes in CA ARCserve RHA r16 Service Pack 2.

This section contains the following topics:

[New Features and Enhancements](#) (see page 9)

[Included Fixes](#) (see page 12)

[Known Issues](#) (see page 13)

New Features and Enhancements

CA ARCserve RHA r16 Service Pack 2 supports the following features:

Restore Support to a Bare Metal Machine

Effective with this release, CA ARCserve RHA supports restoring data to a bare metal machine. You can restore to a bare metal machine (physical or virtual) either from a live system that has performed a failover/switchover or from a bookmark rewind point. This feature not only restores data but also builds the bare metal machine by installing the operating system, applications, and other necessary components.

A bare metal recovery provides the following benefits:

- Builds a machine exactly similar to the Master before restoring data
- Recovers data even to a dissimilar hardware
- Recovers data on a volume level

NAT Support

Effective with this release, you can deploy CA ARCserve RHA in a NAT (Network Address Translation) environment. This feature lets you have an RHA setup where host servers are behind a NAT device or a firewall. For example, you can have a setup where the Master is behind a NAT device whereas the Control Service and Replica are on a public domain.

To use this feature, CA ARCserve RHA provides the RHA NAT utility. You configure the RHA NAT utility on the host that is behind the NAT device.

The RHA NAT feature supports replication, restore, failover, and scenario management.

Enhancements

Effective with this release, CA ARCserve RHA provides the following enhancements:

- **Volume Snapshot Management Support:** The volume snapshot has been simplified and you can set volume snapshots at one place. In addition, you can specify whether you want to have a snapshot while creating a bookmark. A check box is available for this option while creating a bookmark.
- **Advanced Bandwidth and I/O Throttling:** The bandwidth scheduler is enhanced to configure hourly bandwidth settings for the entire week. For example, you can set 256 KB for Monday, 9:00 AM or 192 KB for Wednesday, 4:00 PM.
- **Recover Active Server:** Now Full System scenarios support the Recover Active Server function. You can use this function to simulate switchover or switchback.
- **Start/Stop Virtual Machine:** A new option on the Tools menu has been added to stop or start a virtual machine. This option is applicable for a Data Recovery or High Availability full system scenarios.
- **Delete All VM Resources:** A new option on the Tools menu has been added to delete temporary VM resources. This operation lets you delete temporary resources such as disk files, snapshots, and other temporary files.
- **VMware Distributed Virtual Switch:** Support for the VMware Distributed Virtual switch has been added for full system scenarios. You can select the vSphere Distributed Virtual Switch during network mapping.
- **Proxy Support for Control Service:** HTTP proxy support for RHA Control Service has been added. This service lets the Control Service connect to the RHA engine hosts using HTTP proxy servers.
- **Data Rewind Performance:** The rewind point query function is restructured and the user interface has been redesigned. You can quickly search event points during rewind. The response time is fast even when there are up to million events.
- **Scheduled Bookmark:** A new property, Enable Scheduled Bookmark, has been added to let you create a bookmark schedule for DB scenarios such as MSSQL and Exchange scenarios.
- **CAVSSSoftProv Service:** The CAVSSSoftProv service is no longer required.
- **Log Collection Utility:** A log collection utility has been added. This utility can automatically retrieve Master, Replica, and Control Service logs along with event logs from the Master and Replica.
- **Create Application Consistent Snapshot:** This feature lets RHA engine call application VSS writers, such as the Exchange VSS writer and MSSQL VSS writer, to create application consistent snapshots. The snapshots are created on the master during the bookmark creation process.
- **Keep the Archive Attribute on the Replica:** A new property added to the Replication properties. If set to on, it retains the archive attribute on the replica during synchronization if master and replica files are identical.

- **Retain Local Account Name:** A new property added to the Replication properties to retain the local name in the replica machine. Before you run a scenario, manually create the same local users or groups in both Master and Replica. Use this property for workgroup environments. This property is only applicable to Windows machines.
- **DNS Redirection using the Update DNS Tool:** Use this tool to change the DNS A record of the master server to resolve to the IP address of the replica. You use this tool after you start or stop the VM using the Start/Stop VM feature. You can use this tool by running the update_dns.exe file in the RHA engine installation folder.
- **Offline Synchronization Support for Full System Scenarios:** The offline synchronization is now extended to full system scenarios including forward, backward, and bare metal restore scenarios.

Included Fixes

The following list identifies the fixes included in CA ARCserve RHA r16 Service Pack 2. If you do not see a specific fix listed in this section, please contact Arcserve Support for more information.

Fix Number	Fix Number	Fix Number	Fix Number	Fix Number	Fix Number
T4C4114	T5LF080	T5LF105	T5LF131	T5TM020	T5TM048
T4C4115	T5LF081	T5LF106	T5LF132	T5TM021	T5TM049
T5HP064	T5LF082	T5LF107	T5LF133	T5TM022	T5TM050
T5LE072	T5LF083	T5LF108	T5LF134	T5TM023	T5TM051
T5LE074	T5LF084	T5LF109	T5LF135	T5TM024	T5TM052
T5LE075	T5LF085	T5LF110	T5LF136	T5TM025	T5TM053
T5LE076	T5LF086	T5LF111	T5LF138	T5TM026	T5TM054
T5LE077	T5LF087	T5LF112	T5LF139	T5TM027	T5TM055
T5LE078	T5LF088	T5LF113	T5LF140	T5TM028	T5TM056
T5LE081	T5LF089	T5LF114	T5LT068	T5TM030	T5TM057
T5LE082	T5LF090	T5LF115	T5LT069	T5TM031	T5TM058
T5LE083	T5LF091	T5LF117	T5LT070	T5TM032	T5TM059
T5LE084	T5LF092	T5LF118	T5LT071	T5TM033	T5TM060
T5LE085	T5LF093	T5LF119	T5LT072	T5TM034	T5TM061
T5LE087	T5LF094	T5LF120	T5LT073	T5TM036	T5TM062
T5LE088	T5LF095	T5LF121	T5LT074	T5TM037	T5TM064
T5LE089	T5LF096	T5LF122	T5LT075	T5TM038	T5TM065
T5LE090	T5LF097	T5LF123	T5LT076	T5TM039	T5TM066
T5LE091	T5LF098	T5LF124	T5LT077	T5TM040	T5TM067
T5LE092	T5LF099	T5LF125	T5LT078	T5TM041	T5TM068
T5LE095	T5LF100	T5LF126	T5LT080	T5TM043	T5TM069
T5LE096	T5LF101	T5LF127	T5LT081	T5TM044	T5TM070
T5LE099	T5LF102	T5LF128	T5LT082	T5TM045	T5TM071
T5LE100	T5LF103	T5LF129	T5LT083	T5TM046	
T5LF079	T5LF104	T5LF130	T5LT084	T5TM047	

Known Issues

The following issues are known to exist in this release:

- If you are unable to reset the CA ARCserve RHA interface back to the default after rearranging panels using the dock manager, perform the following steps:
 - Find the running directory for the ws_gui.exe file.
 - Close the interface.
 - In this directory, delete the following files: dock_layout.xml, dock_layoutdefault.xml.
 - Relaunch the interface.

The interface arrangement is returned to the default layout.

- Rewind is not supported for applications that use TxF functionality (IIS 7.0)
- When remotely installing the CA ARCserve RHA Engine on Windows Server 2008 systems, installation fails if you log into the Control Services as local system. To avoid this, use a Domain Admin account to access the Control Service.
- When you use the Switch Computer Name redirection method on computers running Windows Server 2008 R2, you must manually rejoin the Master server to the domain after failover takes place.
- When a NetBIOS server name is longer than 15 characters, the CA ARCserve RHA Manager may fail to launch from the Overview screen if a proxy is set in Internet Options. The proxy server can only resolve DNS names, not NetBIOS names.
- After 72 hours, the bare metal machine will reboot automatically. This is applicable for full system scenarios.
- When you boot the bare metal machine after recovery, some drivers may be missing. Manually install these drivers.
- When you upgrade the RHA engine, all existing bookmarks and rewind points are lost.
- For the Move IP redirection method on Linux platforms, you can configure the IP only by the ifconfig command.
- When you instal RHA engine on clusters using Remote Installer, you need to install the Engine on both physical nodes and select a physical node instead of a cluster name.

Microsoft SQL Server

- In SQL Server scenarios, the cluster server name is changed after switchover, but the server is not rebooted even if the reboot property is set.
- Do not install SQL data files at the root directory of boot volumes such as C:\. During replication, the target files may fail to open on the Replica server, causing errors.
- Assured Recovery scenarios fail on SQL Servers running in a workgroup. This is because:
 - The Replica local admin account is overwritten by the Master local admin account in the Master database.
 - The application uses Windows authentication to log into SQL Server.

To avoid this problem, use SQL authentication or switch computer name redirection method.

Full System Protection

Full System scenarios do not support Dynamic disks on the Master server.

- For Citrix Xen scenarios, we are unable to unmount a disk on a virtual machine when files stored on the disk are in use.
- Depending on your Windows license type, you may need to reactivate your virtual machines after Full System Assured Recovery or switchover. Visit the Microsoft website for more information about reactivation policies.
- In "mixed environments" in which supported and unsupported versions of ESX are managed by a vCenter Server, full system scenarios may fail because VMDK cannot be mounted on the appliance specified. To avoid this situation, verify all versions of ESX in your environment are supported.
- When performing a restore process for a Full System scenario, manually stop the application services on the Master or that application may become corrupt after restore. If the application is corrupted after a restore, stop the application services, restore to the same bookmark again to solve the problem.
- **Upgrading to CA ARCserve RHA r16 SP2:** If you upgrade the RHA engine from previous releases to r16 Service Pack 2, you must synchronize the Master and Replica at least once to complete the upgrade.
- While synchronizing a Full System scenario if you get the "Access is denied" message, then consider the following points:
 - Use the Volume synchronization instead of the File or Block synchronization.
 - Set engine service logon account to Local System. The error could be because the master engine service logon account is local or domain administrator.

CA ARCserve RHA for MMC

- The MMC may fail to connect to the license server under these conditions:
 - The default HTTP or HTTPS proxy is configured on the same host where the MMC is running.
 - The address of the license server is not in the proxy bypass list.
 - The proxy requires authentication to access the website.
 - The Windows account does not have the required privileges to access the proxy, which means the current MMC user is not authorized to use the proxy.

To avoid this situation, do the following:

- Specify the Control Service server in the HTTP proxy bypass list.
 - Remove the HTTP proxy configuration in Internet Explorer so the MMC can connect directly to the Control Service.
 - Authorize the current user to access the HTTP proxy server.
- Note that the MMC connects to the Control Service with Windows Internet Configuration automatically; this setting can be changed by third-party applications.
 - CA ARCserve RHA Disk Resource does not ensure data integrity across multiple volumes in a Microsoft Failover Cluster. For applications that require data integrity between data sets, all data must be hosted on a single volume.
 - You may create CA ARCserve RHA Disk Resources only on the node that owns the cluster. For example, for cluster nodes A, B, C, and D where node A owns the cluster, Disk Resources can be created only on Node A.

Oracle Solaris 11

Before you create a scenario with the Move IP redirection method for Solaris 11, set related NIC/IP addresses to the manual mode in Solaris.

Linux

- For any file operations on the root directory of the master, you must either disable SELinux or change the SELinux security context.

Microsoft Windows 2003

- When a Replica server is Windows 2003 and the Master server is Windows 2008 or higher, you can get the following error. This error is because Windows 2003 does not support Hard Links or Transactional NTFS (TxF) file system operations.

```
Unable to execute event Create hard link for
\\?\Volume{b8262eac-30ac-11e1-959c-000c29f6edbe}/<a-file-path> : Access is
denied.(5)
```


Chapter 4: CA ARCserve RHA r16 Service Pack 1

This section describes new features, enhancements, and included fixes in CA ARCserve RHA r16 Service Pack 1.

This section contains the following topics:

[New Features and Enhancements](#) (see page 17)

[Included Fixes](#) (see page 18)

New Features and Enhancements

CA ARCserve RHA r16 Service Pack 1 supports the following features:

Proxy Server Support

CA ARCserve RHA allows replication using proxy servers. You can configure settings in a scenario to use a proxy server. The use of proxy servers is limited to master-replica synchronization and replication.

Arcserve D2D Support

CA ARCserve RHA provides native support for Arcserve D2D backups with a File System scenario integration option.

Included Fixes

The following list identifies the fixes included in CA ARCserve RHA r16 Service Pack 1. If you do not see a specific fix listed in this section, please contact Arcserve Support for more information.

- T5TM034
- T5LF089
- T5TM032
- T5LT060
- T5LT069
- T5LT082
- T5LF080
- T5LF082
- T5LF085
- T5LE072

Chapter 5: CA ARCserve RHA r16

This section describes new features, enhancements, and included fixes in CA ARCserve RHA r16

This section contains the following topics:

[New Features and Enhancements](#) (see page 21)

Chapter 6: New Features and Enhancements

This section describes the new features and enhancements made to the CA ARCserve RHA family of products, formerly sold as *CA XOsoft*.

This section contains the following topics:

[Change Scenario While Running](#) (see page 21)

[Cloud Support](#) (see page 22)

[Enhanced Cluster Support](#) (see page 22)

[Secure Communication](#) (see page 22)

[Virtualization Enhancements](#) (see page 23)

[Features No Longer Supported](#) (see page 23)

[Known Issues](#) (see page 25)

Change Scenario While Running

Effective with this release, you may modify certain scenario properties without having to stop a running scenario or force a resynchronization. The properties you may modify include:

- Spool settings
- Is Alive values
- Bandwidth settings
- Schedule properties

Cloud Support

Effective with this release, the following features are introduced:

Replicate to the Cloud

You may use an Amazon Web Services EC2 cloud instance as the replication target for your Windows Server data without having to manually provision the replica on EC2. Cloud Replication supports file and byte level replication, multiple EC2 instances running on AWS, scheduled, periodic and continuous replication in forward directions, and recovery from the Cloud.

Failover to the Cloud

You may use an Amazon Web Services EC2 cloud instance as a high availability target for full system protection without having to manually provision the replica on EC2. Failover to Cloud supports full system protection of multiple Windows 2003 and 2008 R2 servers to an online replication target in the EC2 cloud, application and server monitoring, continuous replication in a forward direction, and offline recovery from the Cloud.

Note: An active and configured Amazon Web Services EC2 account is required for these features. Amazon Web Services does not yet officially support Windows 2008 R2 and we have observed issues during testing with this environment.

Enhanced Cluster Support

Effective with this release, CA ARCserve RHA provides the following protection to Microsoft Failover Cluster 2008 systems:

- Eliminates the single point of failure by providing an additional layer of off-site protection to Microsoft Failover Cluster 2008 deployments running in a shared storage configuration. CA ARCserve RHA delivers continuous replication so that the clustered application can survive a complete loss of the shared storage hardware.
- Acts as a replication provider for Microsoft to enable the new geographically dispersed clustering feature introduced with Windows Server 2008 failover clustering. This high availability solution allows for the connection of cluster nodes through a local area network (LAN) or wide area network (WAN), spanning many miles, for a solution that provides automatic disaster recovery.

Secure Communication

Effective with this release, SSL 128-bit encryption for securing communication between on-premises and off-premises servers without using a third-party VPN is now supported.

Note: Secure Communication is not a VPN replacement and does not extend the local LAN or circumvent firewalls.

Virtualization Enhancements

Effective with this release, Full System scenarios support the following virtual platforms:

- Microsoft Hyper-V
- VMware vSphere
- VMware ESX/ESXi
- Citrix Xen Server
- Amazon EC2

Features No Longer Supported

No features have been dropped for this release.

Chapter 7: Known Issues

The following issues are known to exist in this release:

- If you are unable to reset the CA ARCserve RHA interface back to the default after rearranging panels using the dock manager, perform the following steps:
 - Find the running directory for the ws_gui.exe file.
 - Close the interface.
 - In this directory, delete the following files: dock_layout.xml, dock_layoutdefault.xml.
 - Relaunch the interface.

The interface arrangement is returned to the default layout.

- Rewind is not supported for applications that use TxF functionality (IIS 7.0)
- When remotely installing the CA ARCserve RHA Engine on Windows Server 2008 systems, installation fails if you log into the Control Services as local system. To avoid this, use a Domain Admin account to access the Control Service.
- When you use the Switch Computer Name redirection method on computers running Windows Server 2008 R2, you must manually rejoin the Master server to the domain after failover takes place.
- When a NetBIOS server name is longer than 15 characters, the CA ARCserve RHA Manager may fail to launch from the Overview screen if a proxy is set in Internet Options. The proxy server can only resolve DNS names, not NetBIOS names.
- **Microsoft SQL Server**
- In SQL Server scenarios, the cluster server name is changed after switchover, but the server is not rebooted even if the reboot property is set.
- Do not install SQL data files at the root directory of boot volumes such as C:\. During replication, the target files may fail to open on the Replica server, causing errors.
- Assured Recovery scenarios fail on SQL Servers running in a workgroup. This is because:
 - The Replica local admin account is overwritten by the Master local admin account in the Master database.
 - The application uses Windows authentication to log into SQL Server.

To avoid this problem, use SQL authentication or switch computer name redirection method.

Full System Protection

- Full System scenarios do not support Dynamic disks on the Master server.
- For Citrix Xen scenarios, we are unable to unmount a disk on a virtual machine when files stored on the disk are in use.
- Depending on your Windows license type, you may need to reactivate your virtual machines after Full System Assured Recovery or switchover. Visit the Microsoft website for more information about reactivation policies.
- In "mixed environments" in which supported and unsupported versions of ESX are managed by a vCenter Server, full system scenarios may fail because VMDK cannot be mounted on the appliance specified. To avoid this situation, verify all versions of ESX in your environment are supported.
- When performing a restore process for a Full System scenario, manually stop the application services on the Master or that application may become corrupt after restore. If the application is corrupted after a restore, stop the application services, restore to the same bookmark again to solve the problem.

CA ARCserve RHA for MMC

- The MMC may fail to connect to the license server under these conditions:
 - The default HTTP or HTTPS proxy is configured on the same host where the MMC is running.
 - The address of the license server is not in the proxy bypass list.
 - The proxy requires authentication to access the website.
 - The Windows account does not have the required privileges to access the proxy, which means the current MMC user is not authorized to use the proxy.

To avoid this situation, do the following:

- Specify the Control Service server in the HTTP proxy bypass list.
- Remove the HTTP proxy configuration in Internet Explorer so the MMC can connect directly to the Control Service.
- Authorize the current user to access the HTTP proxy server.
- Note that the MMC connects to the Control Service with Windows Internet Configuration automatically; this setting can be changed by third-party applications.
- CA ARCserve RHA Disk Resource does not ensure data integrity across multiple volumes in a Microsoft Failover Cluster. For applications that require data integrity between data sets, all data must be hosted on a single volume.
- You may create CA ARCserve RHA Disk Resources only on the node that owns the cluster. For example, for cluster nodes A, B, C, and D where node A owns the cluster, Disk Resources can be created only on Node A.

Oracle Solaris 11

Before you create a scenario with the Move IP redirection method for Solaris 11, set related NIC/IP addresses to the manual mode in Solaris.

Linux

- For any file operations on the root directory of the master, you must either disable SELinux or change the SELinux security context.

Microsoft Windows 2003

- When a Replica server is Windows 2003 and the Master server is Windows 2008 or higher, you can get the following error. This error is because Windows 2003 does not support Hard Links or Transactional NTFS (TxF) file system operations.

Unable to execute event Create hard link for
\\?\Volume{b8262eac-30ac-11e1-959c-000c29f6edbe}/<a-file-path> : Access is denied.(5)

Chapter 8: System Information

This section describes the supported operating systems and system requirements. Review this information before installing and using CA ARCserve RHA.

This section contains the following topics:

[Minimum Hardware Requirements](#) (see page 29)

[Supported Configurations: Windows](#) (see page 29)

[Supported Configurations: UNIX/Linux](#) (see page 35)

[Supported Virtual Platforms](#) (see page 36)

[Installation Considerations](#) (see page 36)

Minimum Hardware Requirements

For CA ARCserve RHA minimum hardware requirements, follow the minimum hardware requirements specified for the operating system and application you want to support.

Supported Configurations: Windows

For the most current information regarding supported systems, see the Compatibility Matrix

<https://arcserve.zendesk.com/hc/en-us/articles/201865559-Arcserve-RHA-16-5-Software-Compatibility-Matrix>.

General Notes:

- High availability support for BlackBerry (BES) is included with CA ARCserve RHA for SQL and CA ARCserve RHA for File Servers. Arcserve High Availability is not supported in an environment in which either the Master or Replica server is also functioning as a Windows Domain Controller (DC), DNS server, or SBS (Windows Small Business Server) server. You must use Arcserve Replication instead.
- Itanium 2 and IA-64 processors are not supported.
- Hardware requirements for CA ARCserve RHA depend upon the operating system and applications you are running. Ensure your system meets the minimum hardware requirements for the operating system on which you plan to install CA ARCserve RHA and for the applications you wish to protect.

Arcserve Replication

The following operating systems are supported for Replication for File Server, SQL 2005/2008/2008 R2/2012, Exchange 2007/2010/2013, SharePoint 2007/2010:

- Windows Server 2012 R2
- Windows Server 2012
- Windows Server 2003 Standard Edition (32-bit, x64), Windows Server 2003 Standard Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Standard Edition R2 (32-bit, x64)
- Windows Server 2003 Enterprise Edition (32-bit, x64), Windows Server 2003 Enterprise Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Enterprise Edition R2 (32-bit, x64)
- Windows 2003 Web Server Edition (32-bit, x64), Windows 2003 Web Server Edition (32-bit, x64) SP1, SP2
- Windows 2003 Datacenter Edition (32-bit, x64)
- Windows Small Business Server 2003 (32-bit, x64), Windows 2003 Small Business Server (32-bit, x64) SP1, SP2 (Exchange failover is not supported on SBS)
- Windows Small Business Server 2003 R2 (32-bit, x64) (Exchange failover is not supported on SBS)
- Windows Server 2003 Cluster (32-bit, x64), Windows Server 2003 Cluster SP1 (32-bit, x64) (MNS and CCR clusters are not supported)
- Windows Server 2003 Cluster R2, SP2 (32-bit and x64) (MNS and CCR clusters are not supported)
- Windows Storage Server 2003 SP1 (32-bit and x64)
- Windows Server 2008 Standard, Enterprise, Datacenter, Web Server (32-bit and x64). Windows Server 2008 on Itanium-based systems is not supported.
- Windows Server 2008 Enterprise Edition R2 (x64)
- Windows Server 2008 R2 Server Core
- Windows Storage Server 2008 SP1, SP2 (32-bit and x64)
- Windows Storage Server 2008 R2 (Workgroup, Standard, and Enterprise)
- Microsoft Virtual PC (32-bit, x64) (all versions) (Guest environment only)
- Microsoft Virtual Server (all versions) (32-bit, x64) (Guest environment only)
- Microsoft Hyper-V (all versions) (Guest environment only)
- VMware Virtualization Products (ESX, GSX, vCenter Server, Server and Workstation all versions) (32-bit, x64) (Guest environment only)

Notes regarding Replication:

- Replication for Exchange is not supported in an SBS (Windows Small Business Server) environment for failover/failback, but replication for data recovery is fully supported.
- Replication for Exchange 2007 no longer requires or supports the ws_ex2e.exe utility for failover/failback. The failover and failback processes can now be manually performed using Microsoft Exchange Management Shell, a new interface for Microsoft Exchange Server 2007, built on the Microsoft Windows PowerShell. Note that for Japanese environments, this utility is supported only if non-Unicode (single-byte) characters are used as arguments for the Exchange server.

The following operation systems are supported for Full System Replication:

- Microsoft Windows Server 2003 SP2
- Microsoft Windows Server 2003 R2 SP2
- Microsoft Windows Server 2008 SP1, SP2
- Microsoft Windows Server 2008 R2, SP1
- Windows Server 2012
- Windows Server 2012 R2

The following operating systems are supported for Replication for Oracle:

- Windows Server 2003 Standard Edition (32-bit, x64), Windows Server 2003 Standard Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Standard Edition R2 (32-bit, x64)
- Windows Server 2003 Enterprise Edition (32-bit, x64), Windows Server 2003 Enterprise Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Enterprise Edition R2 (32-bit, x64)
- Windows 2003 Web Server Edition (32-bit, x64), Windows 2003 Web Server Edition (32-bit, x64) SP1, SP2
- Windows 2003 Datacenter Edition (32-bit, x64)
- Windows Small Business Server 2003 (32-bit, x64), Windows 2003 Small Business Server (32-bit, x64) SP1, SP2 (Oracle failover is not supported on SBS)
- Windows Small Business Server 2003 R2 (32-bit, x64) (Oracle failover is not supported on SBS)
- Windows Server 2008 Standard, Enterprise, Datacenter and Web Server (32-bit and x64)
- Windows Server 2008 R2 Server Core
- Microsoft Virtual PC (32-bit, x64) (all versions) (Guest environment only)
- Microsoft Virtual Server (all versions) (32-bit, x64) (Guest environment only)

- Microsoft Hyper-V (all versions) (Guest environment only)
- VMware Virtualization Products (ESX, GSX, vCenter Server, Server and Workstation all versions) (32-bit, x64) (Guest environment only)

Notes regarding Oracle:

- Automatic rewind checkpoints are not supported for Oracle. Instead, you can insert manual or scheduled bookmarks.
- Oracle Asynchronous IO or Oracle Direct IO are not supported. Ensure they are disabled.

High Availability

The following operating systems are supported for High Availability for File Server:

- Windows Server 2003 Standard Edition (32-bit, x64), Windows Server 2003 Standard Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Standard Edition R2 (32-bit, x64)
- Windows Server 2003 Enterprise Edition (32-bit, x64), Windows Server 2003 Enterprise Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Enterprise Edition R2 (32-bit, x64)
- Windows 2003 Web Server Edition (32-bit, x64), Windows 2003 Web Server Edition (32-bit, x64) SP1, SP2
- Windows 2003 Datacenter Edition (32-bit, x64)
- Windows Server 2003 Cluster (32-bit, x64), Windows Server 2003 Cluster SP1 (32-bit, x64) (MNS clusters are not supported)
- Windows Server 2003 Cluster R2, SP2 (32-bit and x64) (MNS clusters are not supported)
- Windows Storage Server 2003 SP1 (32-bit and x64)
- Windows Server 2008 Standard, Enterprise, Datacenter and Web Server (32-bit and x64)
- Windows Server 2008 Enterprise Edition R2 (x64)
- Windows Server 2008 R2 Server Core
- Windows Server 2012
- Windows Server 2012 R2
- Windows Storage Server 2008 SP1, SP2 (32-bit and x64)
- Windows Storage Server 2008 R2 (Workgroup, Standard, and Enterprise)
- Microsoft Virtual PC (32-bit, x64) (all versions) (Guest environment only)
- Microsoft Virtual Server (all versions) (32-bit, x64) (Guest environment only)

- Microsoft Hyper-V (all versions) (Guest environment only)
- VMware Virtualization Products (ESX, GSX, Server and Workstation all versions) (32-bit, x64 bit) (Guest environment only)

The following operating systems are supported for High Availability for Exchange 2007/2010/2013, SQL 2005/2008/2008 R2/2012, IIS 6/7.0/7.5, SharePoint 2007/2010, CRM 4.0:

- Windows Server 2003 Standard Edition (32-bit, x64), Windows Server 2003 Standard Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Standard Edition R2 (32-bit, x64)
- Windows Server 2003 Enterprise Edition (32-bit, x64), Windows Server 2003 Enterprise Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Enterprise Edition R2 (32-bit, x64)
- Windows 2003 Web Server Edition (32-bit, x64), Windows 2003 Web Server Edition (32-bit, x64) SP1, SP2
- Windows 2003 Datacenter Edition (32-bit, x64)
- Windows Server 2003 Cluster (32-bit, x64), Windows Server 2003 Cluster SP1 (32-bit, x64) (MNS and CCR clusters are not supported)
- Windows Server 2003 Cluster R2, SP2 (32-bit, x64) (MNS and CCR clusters are not supported)
- Windows Storage Server 2003 SP1 (32-bit and x64)
- Windows Server 2008 Standard, Enterprise, Datacenter, Web Server (32-bit and x64), R2
- Windows Server 2008 R2 Server Core
- Windows Storage Server 2008 SP1, SP2 (32-bit and x64)
- Microsoft Virtual PC (32-bit, x64) (all versions) (Guest environment only)
- Microsoft Virtual Server (all versions) (32-bit, x64) (Guest environment only)
- Microsoft Hyper-V (all versions), (Guest environment only)
- VMware Virtualization Products (ESX, GSX, Server and Workstation all versions) (32-bit, x64) (Guest environment only)

The following operating systems are supported for High Availability for Oracle 10/11g:

- Windows Server 2003 Standard Edition (32-bit, x64), Windows Server 2003 Standard Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Standard Edition R2 (32-bit, x64)
- Windows Server 2003 Enterprise Edition (32-bit, x64), Windows Server 2003 Enterprise Edition (32-bit, x64) SP1, SP2

- Windows Server 2003 Enterprise Edition R2 (32-bit, x64)
- Windows 2003 Web Server Edition (32-bit, x64), Windows 2003 Web Server Edition (32-bit, x64) SP1, SP2
- Windows 2003 Datacenter Edition (32-bit, x64)
- Windows Server 2008 Standard, Enterprise, Datacenter, Web Server (32-bit and x64)
- Windows Server 2008 R2 Server Core
- Microsoft Virtual PC (32-bit, x64) (all versions) (Guest environment only)
- Microsoft Virtual Server (all versions) (32-bit, x64) (Guest environment only)
- Microsoft Hyper-V (all versions) (Guest environment only)
- VMware Virtualization Products (ESX, GSX, Server and Workstation all versions) (32-bit, x64) (Guest environment only)

Notes: Automatic rewind checkpoints are not supported for Oracle; instead you can insert manual or scheduled bookmarks.

The following operating systems are supported for High Availability for Blackberry Enterprise Server (BES):

- Windows Server 2003 Standard Edition (32-bit, x64), Windows Server 2003 Standard Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Standard Edition R2 (32-bit, x64)
- Windows Server 2003 Enterprise Edition (32-bit, x64), Windows Server 2003 Enterprise Edition (32-bit, x64) SP1, SP2
- Windows Server 2003 Enterprise Edition R2 (32-bit, x64)
- Windows 2003 Web Server Edition (32-bit, x64), Windows 2003 Web Server Edition (32-bit, x64) SP1, SP2
- Windows 2003 Datacenter Edition (32-bit, x64)
- Windows Server 2003 Cluster (32-bit, x64), Windows Server 2003 Cluster SP1 (32-bit, x64) (MNS and CCR clusters are not supported)
- Windows Server 2003 Cluster R2, SP2 (32-bit, x64) (MNS and CCR clusters are not supported)
- Windows Server 2008 Standard, Enterprise, Datacenter, Web Server (32-bit and x64)
- Windows Server 2008 R2 Server Core
- Microsoft Virtual PC (32-bit, x64) (all versions) (Guest environment only)

- Microsoft Virtual Server (all versions) (32-bit, x64) (Guest environment only)
- Microsoft Hyper-V (all versions) (Guest environment only)
- VMware Virtualization Products (ESX, GSX, Server and Workstation all versions) (32-bit, x64) (Guest environment only)

Note: BlackBerry Enterprise Server (BES) 4.1 SP6. Assured Recovery is not supported for BlackBerry HA due to SRP key conflicts.

The following operating systems are supported for Full System scenarios:

- Microsoft Windows Server 2003 SP2
- Microsoft Windows Server 2003 R2 SP2
- Microsoft Windows Server 2008 SP2
- Microsoft Windows Server 2008 R2

Assured Recovery Option

- CA ARCserve RHA on Windows
- VSS Snapshot Management is enabled on Windows Server 2003 and later.

Supported Configurations: UNIX/Linux

CA ARCserve RHA is supported on the following UNIX/Linux platforms:

- UNIX:
 - IBM AIX 5.3 TL12, (32- and 64-bit) 6.1 TL9, 7.1 TL3 (64-bit only)
 - Oracle Solaris 10, 11.1 SPARC(kernel level 144488 and later)/x86 (64-bit) (kernel level 144489 and later)
- Linux
 - Red Hat Enterprise Linux version 5 through 6.6 (i386 and x86-64)
 - Novell SuSE Linux Enterprise Server 10 through 11 SP1 (i386 and x86-x64)
 - CentOS version 5 through 6.6 (i386 and x86-x64)
 - Oracle Enterprise Linux 5.7

Note: Assured Recovery is not supported on UNIX/Linux systems.

Oracle 11g R2 is supported, but you must download a 32-bit client. Go to the Oracle website and search for "Separate 32-Bit Client Software for 64-Bit Ports" for more information.

Supported Virtual Platforms

Effective this release, the following are supported

Virtual Platforms:

For Full System Scenarios

Windows:

VMware vSphere 6.0, 5.5, 5.1, 5.0 (applicable to Full System scenarios)

Citrix XenServer 5.6 through 6.2

Amazon Elastic Compute Cloud (Amazon EC2)

For Hyper-V and Full System scenarios

Microsoft Hyper-V 2008 R2, 2012, and 2012 R2

Virtual Appliance:

For Full System Scenarios

Windows:

Windows 2008 Server R2

Windows Server 2012

Windows Server 2012 R2

Installation Considerations

Important! Please note that the CA ARCserve RHA download image exceeds the amount of free disk space available on a standard compact disk (CD). To copy the download image to media, you must use a DVD or a flash drive.

Consider the following:

- Ensure your screen resolution is set to 1024 x 768 or higher. Lower resolutions may result in cropped screens.
- On Japanese environments, the Launching Application dialog may appear in English. To avoid this problem, ensure that the .NET Framework Japanese Language Pack has been applied.

- To avoid firewall issues, you should install or update the CA ARCserve RHA Engine on Windows Server 2008 Master and Replica servers by running setup.exe **locally**, and then disable the Verify CA ARCserve RHA Engine on Hosts option during scenario creation. If you must **remotely** install the CA ARCserve RHA Engine on these machines, you need to enable WMI traffic through the Windows Server 2008 Firewall, and then configure port 25000 on all Master and Replica machines. In addition, if you are creating Hyper-V scenarios, you should also enable ICMP echo messages on all Master, Replica, and Hyper-V guest machines so that CA ARCserve RHA can successfully ping guest operating systems.

Note: We recommend using the Windows Firewall with Advanced Security MMC snap-in. For more information about using the Windows Firewall with Advanced Security MMC snap-in, see the Microsoft website.

Before remotely installing the CA ARCserve RHA Engine, enable WMI traffic through the firewall:

1. From the Control Panel, open Security settings and then click Windows Firewall.

The Windows Firewall Settings dialog opens.

2. Click Change Settings and then click the Exceptions tab.

A list of programs and ports is displayed.

3. Select Windows Management Instrumentation (WMI) to enable WMI traffic through the firewall.
4. Click OK to exit firewall settings.
5. Install the Engine as usual.

6. After you install the Engine, configure port 25000 on each Master and Replica machine using the New Inbound Rule Wizard from the Windows Firewall with Advanced Security MMC snap-in.

Ensure TCP is selected and add port 25000 to the Specific local ports list. Allow the connection and apply it to the applicable profile (for example, Private).

Note: Port 25000 is the default. You may change this port. For more information about completing the wizard, see the Microsoft website.

7. (For Hyper-V scenarios) You should also enable ICMP echo messages on all Master, Replica and Hyper-V guest machines so CA ARCserve RHA can successfully ping Hyper-V guest operating systems.

Use the New Inbound Rule wizard to create a custom rule that enables Specific ICMP Echo Requests for any IP address and allows the connection.

Note: For more information, see the Microsoft website.

- Installing the CA ARCserve RHA Control Service with ACL-based authentication on domain controllers is not supported.

Solaris 11

- The following procedure is for installing the CA ARCserve RHA Engine into a Solaris 11 Sparc or Solaris 11 x86 Non-Global zone. Make sure you have installed CA ARCserve RHA in both the global and non-global zone:

1. Install the pkgadd command in the Non-Global zone:

```
pkg install install/installadm
```

2. Copy the appropriate file into the Non-Global zone:

- For Solaris 11 Sparc, copy the file called arcserverha_sunos511_sparc.tgz
- For Solaris 11 x86, copy the file called arcserverha_sunos511_i386.tgz

3. Log in to the Non-Global zone, uncompress the appropriate tgz file:

For Solaris 11 Sparc:

```
tar zxvf arcserverha_sunos511_sparc.tgz
```

For Solaris 11 x86:

```
tar zxvf arcserverha_sunos511_i386.tgz
```

4. Navigate to the ARCserveRHA folder:

```
cd ARCserveRHA
```

5. Run the script, install.sh to install the CA ARCserve RHA Engine.

Chapter 9: Localized Versions

CA ARCserve RHA is available in the following languages:

- English
- French
- German
- Japanese
- Italian
- Spanish
- Brazilian Portuguese
- Simplified Chinese
- Traditional Chinese

Note: This release of CA ARCserve RHA supports all characters in the Unicode Basic Multilingual Plane. Support for JIS2004 characters includes those encoded in the Basic Multilingual Plane, but not surrogate pair characters (Plane 2).

Character sets for these languages are supported for:

- Installation
- Folder/File Replication
- Database/table/instance/Exchange Message Replication
- Certain wizard screens, menus, reports, and alerts within the Centralized Management Interface

Note: Character sets in these languages are not supported in email attachments within alerts, hostnames, installation/home directory paths, user names and passwords. All servers participating in a scenario should be installed with the same language package. However, the same language package is not required for all servers in a domain.

Appendix A: Acknowledgements

Portions of this product include software developed by the third-party software providers. The license agreements are available in the \Bookshelf_Files\TPSA folder in the Bookshelf.