



**Hewlett Packard**  
Enterprise

# **HPE XP7 Replication Manager 8.5.2-01**

## **Release Notes**

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# Release notes

## Description

This is the initial release of Hewlett Packard Enterprise XP7 Replication Manager 8.5.2-01. For details, see **Enhancements** on page 9. For a list of updates associated with this release, see **Fixes** on page 9.

### Update recommendation

Routine

### Superseded version

8.5.2-00

## Product models

XP7 Replication Manager

## Devices supported

XP7 Storage

XP P9500 Storage

XP24000 Disk Array

XP20000 Disk Array

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### NOTE:

XP1024 Disk Array, XP128 Disk Array, 200 Storage Virtualization System, XP12000 Disk Array and XP10000 Disk Array are no longer supported by Hewlett Packard Enterprise.

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## Operating systems

For supported operating systems, see the Replication Manager system configurations and requirements chapter of the *HPE XP7 Replication Manager Configuration Guide*. This guide is on the XP7 Command View Advanced Edition manuals page at:

<http://www.hpe.com/support/cvae/manuals>

## Changes to supported operating systems

The following operating systems are not supported with version 8.0.0 or later.

**Table 1: Replication Manager server**

<b>OS name</b>	<b>Edition</b>	<b>Service pack</b>	<b>Architecture</b>
Windows XP	Professional Edition	SP2 SP3	x86
Windows Server 2003	R2 Standard Edition R2 Enterprise Edition R2 Datacenter Edition	SP2	x86 x64
Windows Vista	Business Edition Enterprise Edition Ultimate Edition	no Service Pack SP1 SP2	x86
Windows Server 2008	Standard Enterprise Datacenter	no Service Pack SP1 SP2	x86 x64
	R2 Standard R2 Enterprise R2 Datacenter	no Service Pack	x64
Windows 7	Professional	no Service Pack	x86
	Enterprise	SP1	x64
	Ultimate		
Red Hat Enterprise Linux 5 Red Hat Enterprise Linux 5 Advanced Platform	5.3	-	x86
	5.4		x64
	5.5		
	5.6		
	5.7		
	5.8	-	x86
	5.9		
	5.10		
Red Hat Enterprise Linux 6 Red Hat Enterprise Linux 6 Advanced Platform	6.0	-	x86
	6.1		
	6.2		
	6.3		
	6.4		

*Table Continued*

OS name	Edition	Service pack	Architecture
SUSELES	10	SP3	x86
	11	no Service Pack SP1 SP2 SP3	x86

**Table 2: Application Agent (when the Application Agent backs up and restores Exchange Server 2003)**

OS name	Edition	Service pack	Architecture
Windows Server 2003	Standard Edition Enterprise Edition Datacenter Edition	SP2	x86
Windows Server 2003	R2 Standard Edition R2 Enterprise Edition R2 Datacenter Edition	SP2	x86

The following operating systems are not supported with version 8.0.1 or later.

**Table 3: Application Agent**

OS name	Edition	Service pack	Architecture
Windows Server 2003	Standard Edition Enterprise Edition Datacenter Edition	SP2	x86 x64 IPF
Windows Server 2003	R2 Standard Edition R2 Enterprise Edition R2 Datacenter Edition	SP2	x86 x64

The following operating systems are not supported with version 8.1.1 or later.

**Table 4: Replication Manager server**

OS name	Edition	Service pack	Architecture
SUSELES	10	SP3	x64

The guest operating systems in the following virtualized environments are not supported in version 8.2.0 or later.

**Table 5: Replication Manager server and Application Agent**

Virtualized environments	Version
VMware ESX VMware ESXi	4.x

The following operating systems are not supported with version 8.4.0 or later.

**Table 6: Application Agent**

OS Name	OS Version	OS Service Pack	Architecture
Windows Server 2008	Standard Edition	no Service Pack	x86
	Enterprise Edition	SP1	x64
	Datacenter Edition	SP2	IPF

The following operating systems are not supported with version 8.4.1 or later.

**Table 7: Replication Manager server**

OS Name	OS Version	OS Service Pack	Architecture
SUSELES	11	no Service Pack SP1	x64

**Table 8: Replication Manager management client**

OS Name	OS Version	OS Service Pack	Architecture
SUSELES	11	no Service Pack	x86
		SP1	
Windows 8.0	Pro Enterprise	no Service Pack	x86
			x64

**Table 9: Browser**

Browser name	Version
Firefox ESR	17
	24
	31

The following operating systems and browser are not supported with version 8.5.0 or later.



**Table 10: Replication Manager server and Application Agent**

Virtualized environments	Version
VMware ESXi	5.0
	5.1

**Table 11: Browser**

Browser name	Version
Firefox ESR	38

The following operating systems are not supported with version 8.5.1 or later.

**Table 12: Replication Manager server**

OS Name	OS Version	OS Service Pack	Architecture
SUSELES	11	SP2	x64

## Enhancements

### Enhancements made in 8.5.2-01

None

### Enhancements made in 8.5.2-00

- Replication Manager now supports the following functions for a THP pool on enterprise-class storage systems:
  - displaying detailed information
  - creating alerts
  - exporting history information
- Replication Manager now supports Firefox ESR 52 on the following operating systems:
  - Red Hat Enterprise Linux 7.0, 7.1, 7.2, 7.3
  - Oracle Linux 7.2, 7.3
  - SUSE12 (no Service Pack, SP1, and SP2)
- Replication Manager management server now supports the following operating system: Red Hat Enterprise Linux 6.9
- Application Agent now supports the following tape backup management software: NetBackup 8.0

## Fixes

### Corrections made in 8.5.2-01

The title and the breadcrumbs trail of the SQL Server subwindow or Exchange Server subwindow are displayed incorrectly.

## Corrections made in 8.5.2-00

The following security vulnerabilities were fixed:

- Vulnerabilities in the XML parsing process
- Cross-site scripting vulnerabilities

## Corrections to manuals

From 8.5.1-00

**Table 13: HPE XP7 Replication Manager Application Agent CLI User Guide**

Section	Before	After
Overview of Application Agent Application Agent functions Cluster support	Depending on the storage system type and the functionality of the OS, you might not be able to perform a restore operation while the cluster is online.	Deleted
Application Agent system configurations Requirements and precautions for SQL Server databases Requirements and precautions for backup and restoration	When using the FILESTREAM function, execute an Application Agent command when no online index operation is being performed on a database. If you execute the command during index operation, the operations of the command being executed on the database might fail and end abnormally.	When using the FILESTREAM function or In-Memory OLTP function, execute an Application Agent command when no online index operation is being performed on a database. If you execute the command during index operation, the operations of the command being executed on the database might fail and end abnormally.
Application Agent system configurations Requirements and precautions for SQL Server databases SQL Server requirements that can be operated in Application Agent	Table List of SQL Server requirements that can be operated in Application Agent: Function: In-Memory OLTP Version of SQL Server: 2008 --, 2012 --, 2014 --, 2016 --	Table List of SQL Server requirements that can be operated in Application Agent: Function: In-Memory OLTP Version of SQL Server: 2008 --, 2012 --, 2014 Y, 2016 Y

*Table Continued*

Section	Before	After
<p>Application Agent system configurations</p> <p>Requirements and precautions for SQL Server databases</p> <p>SQL Server requirements that can be operated in Application Agent</p>	<p>Item 3</p> <p>The following configurations are not supported:</p> <p>A configuration that is combined with the FILESTREAM function</p> <p>Item 5</p> <p>A configuration that is combined with the FILESTREAM function is not supported.</p> <p>Item 6</p> <p>A configuration that is combined with the FILESTREAM function is not supported.</p>	<p>Item 3</p> <p>The following configurations are not supported:</p> <p>A configuration that is combined with the FILESTREAM function or In-Memory OLTP function</p> <p>Item 5</p> <p>A configuration that is combined with the FILESTREAM function or In-Memory OLTP function is not supported.</p> <p>Item 6</p> <p>A configuration that is combined with the FILESTREAM function or In-Memory OLTP function is not supported.</p>

*Table Continued*

Section	Before	After
<p>Preparation for using Application Agent</p> <p>Setting up operation of Application Agent</p> <p>Setting up restoration while cluster resources are online</p>	<p>Table Parameter in init.conf (setting up restoration when the cluster resources are in the online state)</p> <p>Parameter: CLU_MSCS_RESTORE</p> <p>Specify ONLINE if you want to perform restoration while the cluster resources are in the online state when the restore command is executed. If nothing or OFFLINE is specified, restoration will be performed while the cluster resources are in the offline state.</p> <p>For Windows Server 2012, cluster resources cannot be restored when they are in an online state. Specify this parameter to be OFFLINE.</p>	<p>Table Parameter in init.conf (setting up restoration when the cluster resources are in the online state)</p> <p>Parameter: CLU_MSCS_RESTORE</p> <p>Specify ONLINE if you want to perform restoration while the cluster resources are in the online state when the restore command is executed. If nothing or OFFLINE is specified, restoration will be performed while the cluster resources are in the offline state.</p> <p>Parameter: CLU_MSCS_RESTORE_RETRY_TIME</p> <ul style="list-style-type: none"> <li>• Specify the maximum number of times to retry checking whether the cluster disk was changed to the maintenance mode internally during restore processing.</li> <li>• Usually, using the default value is no problem. Change the value when restore processing fails with the error message KAVX0089-E</li> <li>• If 0 is set, the retry processing continues until it is confirmed that the cluster disk has changed to the maintenance mode.</li> <li>• This is valid when the CLU_MSCS_RESTORE parameter is ONLINE and when the OS is Windows Server 2012 or later.</li> </ul> <p>Parameter: CLU_MSCS_RESTORE_RETRY_WAIT</p> <ul style="list-style-type: none"> <li>• Specify the number of seconds for the retry interval to check whether the cluster disk was changed to the maintenance mode internally during restore processing.</li> <li>• Usually, using the default value is no problem. Change the value when restore processing fails with the error message</li> <li>• This is valid when the CLU_MSCS_RESTORE parameter is ONLINE and when the OS is Windows Server 2012 or later.</li> </ul>
Glossary	FILESTREAM data	<p>FILESTREAM data</p> <p>FILESTREAM data indicates the directory set for the FILESTREAM file</p>

Section	Before	After
	FILESTREAM data indicates the directory set for the FILESTREAM file group and all the files in that directory.	group and Memory optimization file group, and all the files in that directory.

## Important considerations

### Using Chrome

If you are using Replication Manager in Chrome, a dialog box may appear with an option\* allowing you to suppress the display of dialog boxes. Do not enable this option while you are using Replication Manager. If you enable this option, Replication Manager will no longer be able to display dialog boxes and, as a result, some windows will not work properly. If this happens, restart Chrome and then log in to Replication Manager again to re-enable the display of dialog boxes.

\*: The following is an example of the option that is displayed.

"Prevent this page from creating additional dialogs."

### Using Firefox or Chrome

If you are using Firefox or Chrome, the Close button of Replication Manager may not work. In such cases, close the browser.

### Deleting a copy pair associated with remote paths

Execution of the **Delete Related Pairs** function to delete a copy pair associated with remote paths may end with the KAVN00590-E or KAVN00558-E (RPM-00822) message.

#### Conditions

- If an operation ends with the KAVN00590-E message. This problem occurs if all of the following conditions are met:
  1. A copy group that contains a remote copy pair exists.
  2. The pair management server managing a copy group in (1) is in a redundant configuration.
  3. From the **Remote Paths** tab in the Storage System view, you select the remote path that the copy pair in (1) is using, and then click **Delete Related Pairs**.
  4. In the **Delete Related Pairs** dialog box, you click **Confirm** without selecting the **Do not delete the configuration definitions** option.
- If an operation ends with the KAVN00558-E (RPM-00822) message. This problem occurs if all of the following conditions are met:
  1. A copy group that contains a remote copy pair exists.
  2. In a copy topology that contains a copy group in (1), a copy group exists for which the number of copy pairs is different.
  3. From the **Remote Paths** tab in the Storage System view, you select the remote path that the copy pair in (1) is using, and then click **Delete Related Pairs**.
  4. In the **Delete Related Pairs** dialog box, you click **Confirm** without selecting the **Do not delete the configuration definitions** option.

#### Recovery/Temporary Solution

Delete the copy groups that meet the conditions of occurrence above by using the Pair Configuration Wizard.

After that, execute **Delete Related Pairs** again.

## Execution of a task that performs operations on copy pairs if a pair management server is equipped with two or more network interface cards (NIC)

If a pair management server is equipped with two or more network interface cards, execution of a task that performs operations on copy pairs may end with the RPM-03327, RPM-03328, or RPM-03329 error.

### Conditions

This problem occurs if all of the following conditions are met:

1. The pair management server managing the primary volumes is different from the pair management server managing the secondary volumes.
2. Either pair management server in Condition 1 has two or more NICs installed.
3. The OS of the pair management server in Condition 2 is Windows Server 2012 or Windows Server 2012 R2.
4. In the configuration definition file in the pair management server in Condition 1, in `ip_address` of the `HORCM_MON` parameter or the `HORCM_INST` parameter, the pair management server in Condition 5 is specified by its host name. When you perform the operation below from Replication Manager, the configuration definition file described in (4) is created.
  - In the **Create Group** dialog box or **Add Node** dialog box of the Pair Configuration Wizard, you set the host name to [Host name/IP address used in communications between server instances] of [\*primary volume server] and [\*secondary volume server].
5. Any of the tasks below, which perform operations on copy pairs, is executed.
  - modify file + create
  - create

In addition, if you change the configuration on the pair management server so that the result of name resolution performed by the OS changes, similar symptoms may occur with respect to the execution of all tasks that perform operations on copy pairs.

### Recovery

In `ip_address` of the `HORCM_MON` parameter and the `HORCM_INST` parameter in the configuration definition file generated by Replication Manager, change manually the host name (\*1) into the IP address of the subnet you are using.

(\*1) The host name of the local host is specified for the `ip_address` part of the `HORCM_MON` parameter, and the host name of the remote host is specified for the `ip_address` part of the `HORCM_INST` parameter.

### Configuration definition files that need to be edited:

Edit both of the configuration definition files below.

- The configuration definition file generated on the pair management server that manages the primary volumes
- The configuration definition file generated on the pair management server that manages the secondary volumes

### Configuration definition file storage location:

The configuration definition file is stored in the folder or the directory specified in the following property of the `server.properties` file of the Device Manager agent.

```
server.agent.rm.horcmSource
```

The default location of the configuration definition file is as follows.

- In Windows: The system folder indicated by the %WINDIR% environment variable
- In UNIX: The /etc directory

**Configuration definition file name:**

horcmXX.conf

**XX:** XX is the value specified in [instance] of [\*primary volume server] and [\*secondary volume server], in the **[Create Group]** or **[Add Node]** dialog box of the Pair Configuration wizard.

**Editing the configuration definition file**

```
# Edited by dvmraidinit on Mon Nov 17 11:37:58 2014
# Created by dvmraidinit on Wed Oct 15 14:32:39
HORCM_MON
#ip_address      service      poll(10ms)      timeout(10ms)
HostA(*1)        10100         1000             3000
(...)
HORCM_INST
#dev_group       ip_address     service
TestGroup        HostB(*2)     10200
```

(\*1) Edit the host name to change it to the IP address of the local host.

(\*2) Edit the host name to change it to the IP address of the remote host.

**Precautions**

After completing the manual editing described above, note that if you perform operations that meet both of the conditions below, the configuration definition file is regenerated, and the manually edited IP address is re-set to the host name.

1. Only one copy group is defined in the configuration definition file.
2. In the configuration definition wizard, you attempt to change all copy pairs included in the copy group in (1) at one time.

In such a case, set the IP address manually again after the operation. In addition, even if the configuration definition file meets the condition in (1), you can avoid regeneration of the configuration definition file by not changing all of the copy pairs at one time but dividing the operation into multiple operations.

**Creating Snapshot pools (P9500)**

Note the following concerning the micro version of the storage system when creating Snapshot pools for XP P9500 Storage.

To register pool volumes of different drive types while you are adding pools or editing existing pools, the micro version of the XP P9500 Storage storage system must be 70-01-62-XX/X X or later.

If you attempt to register pool volumes of different drive types when the micro version is earlier than 70-01-62-XX/XX, the attempt to add or edit pools does not succeed and the message below is displayed.

- Adding pools

```
KAVN00491-E An attempt to add a pool has failed.
03005 058473(W) An error occurred when setting the Pool. Check the
error message of the logical volume(s) in the Pool.

03005 078015(W) The operation cannot be executed, because RAID
levels of the specified logical volumes do not match. Check the specified
logical volumes, then retry the operation.
```

- Editing pools

```
KAVN00492-E An attempt to edit a pool has failed.
03005 058473(W) An error occurred when setting the Pool. Check the
error message of the logical volume(s) in the Pool.
03005 078015(W) The operation cannot be executed, because RAID levels
of the specified logical volumes do not match. Check the specified logical
volumes, then retry the operation.
```

## Creating Snapshot pools for XP24000/XP20000

Note the following concerning the micro version of the storage system while creating Snapshot pools for HPE XP24000/XP20000.

To register 513 or more pool volumes to a pool while you are adding pools or editing existing pools, the micro version of the XP24000/XP20000 storage system must be 60-03-XX-XX/XX or later.

If you attempt to register 513 or more pool volumes while the micro version is earlier than 60-03-XX-XX/XX, the attempt to add or edit pools does not succeed and the message below is displayed.

- Adding pools

```
KAVN00491-E An attempt to add a pool has failed.
3005 6036 (E2) An error occurred during SVP processing. If this problem
persists, call Hewlett Packard Enterprise technical support.
```

- Editing pools

```
KAVN00492-E An attempt to edit a pool has failed.
3005 6036 (E2) An error occurred during SVP processing. If this problem
persists, call Hewlett Packard Enterprise technical support.
```

## User authentication if using XP7 RAID Manager 01.32.xx or later

If both of the following conditions are met, user authentication for the storage system is required, in addition to user authentication for the virtual storage machine:

- XP7 RAID Manager 01.32.xx or later is used.
- SSL/TLS is not used between the Device Manager server and the Device Manager agent.

If both of the above conditions are met and if user authentication for the storage system is not performed, an operation to add a pair that uses virtual IDs may not be executed.

## Creating a copy pair for High Availability

There is a cautionary note on usage related to the secondary volume used when creating a copy pair for High Availability.

If a virtual storage machine uses a virtual serial number that is the same as the physical serial number of a physical storage system, and you use that virtual storage machine as the virtual storage machine of the secondary site, all of the following conditions must be met:

1. The virtual LDEV IDs of all volumes in the virtual storage machine that contains the secondary volume must not include the same LDEV ID as the virtual LDEV ID of the primary volume. If you use a command, such as the `raidcom` command, to deprive the volume that uses the same virtual LDEV ID as the primary volume of its virtual ID, you can create the configuration.
2. If the physical LDEV ID of the secondary volume is the same as the virtual LDEV ID of the primary volume, both of the following conditions must be met:



- a. The physical SSID of the secondary volume must correspond to the virtual SSID of the primary volume.
- b. The physical CVS information of the secondary volume must correspond to the virtual CVS information of the primary volume.

If the above conditions are not met, executing the task ends with the following error:

```
An error occurred during command execution in the Device Manager agent.
[RPM-03327]
```

## Creating a copy pair for High Availability with Replication Manager

If you use Replication Manager to create a copy pair for High Availability, the following windows may not display the most recent information for a volume used for the copy pair:

- Replication Manager GUI: The attributes displayed in the volume attribute column in the list of volumes
- Device Manager CLI: The `vEmulation`, `vSSID`, `vLUSE`, and `vCVS` attribute of a `VLDEV` instance The `guardMode` attribute of an `LDEV` instance
- Device Manager GUI: The attributes displayed in the volume attribute column in the list of volumes
- Tiered Storage Manager CLI: The `guardMode` attribute of an `LDEV` instance

### Conditions of Occurrence:

This problem occurs if both of the following conditions are met:

1. Different Device Manager instances manage the primary storage system and the secondary storage system that make up a High Availability copy pair.
2. Replication Manager registers both Device Manager instances in 1 as information sources.

### Recovery/Temporary Solutions:

Refresh the storage system that does not have the most recent information.

## Remote copy between the XP7 Disk Controller (DKC) and the DKC for another storage system using a virtual ID

The following task types are not available for remote copy between the XP7 DKC and the DKC for another storage system.

- If the Primary Volume (P-VOL) is an XP7 DKC`takeover-recovery(recreate)`
- If the Secondary Volume (S-VOL) is an XP7 DKC`createmodify file(create)` (If you add a pair to an existing copy group)

Hewlett Packard Enterprise recommends that you do not delete a copy pair where the relationship between P-VOL and S-VOL was reversed by using a swap operation. If you delete such a copy pair and re-create the copy pair, data stored in the volume cannot be maintained.

## Execution modes for copy pair operation tasks

If you execute a copy pair operation task without specifying quick mode, the execution mode that is used for the task may be different in version 8.0.0–00 than in earlier versions.

Applicable copy pair operation tasks include:

- Tasks that execute `paircreate` and `pairsplit` simultaneously
- Tasks that split, resync, or restore a copy pair

In version 8.0, a copy pair operation task is executed in Normal mode.

In versions earlier than 8.0, the copy pair operation mode for RAID Manager is set.

If the copy pair operation mode for RAID Manager is not set, the copy pair operation mode for the storage system is set.

## User scripts specified when executing backup commands for Application Agent or when creating a database replica

In a configuration that contains multiple database servers and one backup server, if you simultaneously execute backup operations or replication creation operations and the operations specify execution of a user script from multiple database servers, the user scripts are not executed in parallel. The user scripts are executed in order that the backup server receives a request.

## Naming the Fast Snap Snapshot group

If you create a Fast Snap Snapshot Group, you can use the following characters in the name of the Snapshot Group:

- 0-9
- A-Z
- a-z
- : (colon)
- - (hyphen)
- . (period)
- , (comma)
- @
- \_ (underline)
- space character

If the name of a Snapshot Group contains a character that is not specified in the list above, pair operations cannot be performed for that snapshot group, and the name of that Snapshot Group cannot be displayed.

---

### NOTE:

A Snapshot Group name cannot contain spaces before or after the name.

---

## Options for the copy pair operation

For a copy group, the “quick” mode settings (the **Quick Split**, **Quick Resync**, and **Quick Restore** options for the copy pair operation) must match the host's or the pair management server's RAID Manager copy pair environment variable settings. In addition, the array storage system option mode settings must be compatible with the Replication Manager and RAID Manager "quick" settings. If you execute a task for the copy pair operation when the “quick” settings do not match, the executed task may not complete, and the KAVN00455-E message or the KAVN00456-E message may be output.

## Using Internet Explorer 11.0

If you click a button or shortcut on the screen to open a new tab or new window, an extra blank window or transitional window may be displayed at the same time. In such a case, close the unnecessary window.

If this issue occurs repeatedly, create a new Windows user account, and then use the new user account to operate the browser.

## Replacing secondary volumes of Continuous Access Synchronous or Continuous Access Journal in a 3DC multi-target configuration (open systems)

To replace all the secondary volumes included in a Continuous Access Synchronous or XP7 Continuous Access Journal copy pair, launch the Pair Configuration Wizard more than once to replace the secondary volumes using the following procedure:

### Procedure

1. Generate and execute replacement tasks to replace half of the secondary volumes of the Continuous Access Synchronous or XP7 Continuous Access Journal copy pair.
2. Generate and execute replacement tasks for the other half of the secondary volumes not replaced in step 1.

If you use Pair Configuration Wizard only once to generate and execute replacement tasks for all of the secondary volumes in the Continuous Access Synchronous or XP7 Continuous Access Journal copy pair, task execution may not succeed.

## Site filter conditions in the Pair Configuration Wizard

**Site** and **Storage System** drop-down lists are empty, and you cannot select candidate volumes, if all of the following conditions are met:

### Conditions

### Procedure

1. In **Shared Views**, you create a site and then register a storage system in the site.
2. In the **Pair Association** page of the Pair Configuration Wizard, you perform the following operations in the following order:
  - a. Create a remote copy pair group.
  - b. In the **Volume Type** drop-down list, select a secondary volume.
  - c. In the **Site** drop-down list, select a site that contains an invalid storage system. The storage system is invalid because it cannot be used as a secondary volume for the specified combination of primary volume and copy type. For example, the license for the selected copy type is not registered.

### Recovery Procedure

On the **Criteria** tab of the **Candidate List** pane, perform these steps:

- Click **Clear** to clear the filter condition.
- Specify the filter conditions for the candidate volume you want to select.

## Adding command devices

When using the Add Command Devices Wizard, even though you cannot specify a pair volume as a command device, the **Candidate Devices** screen may show primary volumes of Snapshot copy pairs that are configured as V-VOLs without LUNs.

If you select such a volume and attempt to add a command device, an error occurs and the operation does not complete.

## Executing multiple tasks for the same copy pair

Some tasks may remain in the Executing status in the GUI or generate the RPM-00506, KAVN00454-E, or KAVN00456-E error, depending on the types and combinations of the tasks.

Each task internally completes successfully or unsuccessfully, depending on the order of the execution.

## Conditions

This behavior may occur if both of the following conditions are met:

- Multiple tasks for the same copy pair are executed simultaneously.
- The tasks include a task that changes the copy pair status. Multiple tasks that set the copy pair status do not cause this behavior because one of the tasks reserves the copy pair.

## Recovery procedure

For tasks that are frozen in the Executing status:

- Restart the XP7 Command View Advanced Edition Suite Common Component service to reset the tasks to the timed out status.
- Execute tasks that you need to complete again so that they are not executed simultaneously.

For tasks that generated an error:

- Execute tasks that you need to complete again after editing the uncompleted tasks so that they are not executed simultaneously.

## Pair relationships displayed for mainframe volumes in the Storage System view

The entry, *n/a*, may be displayed in the LDEV and Storage System columns of the Pair Relationship display in the Storage System view if the following conditions are met.

- Business Continuity Manager is registered in Replication Manager as an information source.
- The Business Continuity Manager in the first condition manages a volume of a storage system that is managed by a local Device Manager.
- In the Storage System view, you select a volume in a copy pair that is not managed by the Business Continuity Manager in the first condition and then display pair relationships.

## Removing and re-registering a Device Manager server as an information source

Do not re-register a Device Manager server as an information source for at least 24 hours after its removal, if there is a pair management server managed by the Device Manager server.

## Performing advanced operations per copy pair

If you execute a takeover-recovery (resync) operation per copy pair, the task may generate the KAVN02841-E (RPM-03351) error. If this error message appears, update the storage system information. Even if the task generates this error, the operation on the copy pair or copy group completes correctly.

## Performing advanced operations

If you perform advanced operations on a copy group while updating a storage system containing a volume in the copy group using a Device Manager server, or Refresh Configuration is being executed for a remote Device Manager, the copy group may not appear in the Replication Manager GUI after the operation is complete. If this happens, update the information of the storage system to which the advanced operation was performed.

## Managing application replicas

If the following tasks are scheduled, *n/a*, is displayed in the **Execution Type** column of the **Tasks** list:

- A task that creates a replica of an application database.
- A task that restores a replica of an application database.

## Task execution

After you edit a task that adds a copy pair to an existing copy group, if you then execute that task, the task may generate the KAVN00469-E (RPM-03327) message.

## Adding a copy pair to an XP Business Copy, Snapshot, or Fast Snap copy group

### Occurrence Condition

If you add the copy pair to an XP Business Copy, Snapshot, or Fast Snap copy group, the task may generate the KAVN00469-E (RPM-03327) message if all of the following conditions are met:

1. A copy group exists that meets both of the following conditions:
  - The copy type is one of following, and **Assign CTG for At-Time Split** is not set.
    - XP Business Copy
    - Snapshot
    - Fast Snap
  - The copy group contains a non-Simplex copy pair.
2. You select the copy group in condition 1, start the Pair Configuration Wizard, and then add the copy pair.
3. The task created in condition 2 meets either of the following conditions:
  - The task was created by specifying the execution time.
  - The task does not execute successfully.
4. You perform any of the following operations from the Task List:
  - You select the task listed in condition 3, open the **Edit Task** dialog box, and then click **OK** without selecting **Modify Pair Configuration File Only (Do not create Pair)** and without accessing the **Pair Setting** tab.
  - You select multiple tasks that include the task listed in condition 3, open the **Edit Task** dialog box, and then click **OK** without selecting **Modify Pair Configuration File Only (Do not create Pair)** and without accessing the **Pair Setting** tab.
  - You select multiple tasks that include the task listed in condition 3, and a task whose operation target is a copy group for which **Assign CTG for At-Time Split** is set, open the **Edit Task** dialog box, and then click **OK** without selecting **Modify Pair Configuration File Only (Do not create Pair)** and without accessing the **Pair Setting** tab.
5. You execute the task listed in condition 3.

### Recovery

If the Pair Configurations View does not display the target copy pair to be added, execute Refresh Configuration to refresh the latest configuration information. If the Device Manager installed on a local server manages the operation-target resource, refresh the storage system in Device Manager.

After that, refresh the storage system to apply the latest configuration information to Replication Manager.

If the copy pair to be added is a Simplex copy pair, use the Change Pair Status Wizard to execute the create operation for the copy pair.

### Temporary Solution

After you add a copy pair to an XP Business Copy, Snapshot, or Fast Snap copy group, do not simultaneously edit multiple tasks that include both of the following tasks:

- A task for which **Assign CTG for At-Time Split** is not set in the Pair Operation options.
- A task for which **Assign CTG for At-Time Split** is set in the Pair Operation options.

If you select a task for which **Assign CTG for At-Time Split** is not set in the Pair Operation options, and then open the **Edit Task** dialog box, access the **Pair Setting** tab before you click **OK** in the **Edit Task** dialog box.

## Changing WWN or iSCSIName for a pair management server

If you change the WWN or iSCSIName for a pair management server, the server name may not be displayed in Server Name list which is displayed after you create a group.

### Conditions

This problem occurs if all of the following conditions are met:

1. From the **Explorer** menu, in **Shared Views - Sites**, you register a pair management server for Pair Configurations on one of the sites.
2. You change the WWN or iSCSIName of the pair management server that you registered.
3. You select a pair management server as follows:
  - In the **Pair Configuration Wizard**, the **3. Group Management** page is displayed.
  - Open the **Create Group** dialog box.
  - From the Server Name list, you select a site for which the pair management server is registered.

### Recovery

Delete the pair management server for which you changed the WWN or iSCSIName, and then register the pair management server on the same site again.

If the pair management server is managed by a remote instance of Device Manager, execute a Refresh Configuration operation on the remote instance of Device Manager. Then, register the pair management server again.

### Temporary Solution

None

## Creating a 4x4 Continuous Access Journal copy group for a mainframe system

When creating a 4x4 Continuous Access Journal copy group for a mainframe system, in certain configurations, there are conditions for the specifiable EXCTG ID.

If you create a 4x4 Continuous Access Journal copy group for a mainframe system by using Replication Manager, Replication Manager does not check the specified EXCTG ID.

For details about the conditions for the specifiable EXCTG ID, see the *HPE XP7 Business Continuity Manager Release Notes* .

## Maintaining copy group consistency

For copy groups with consistency maintained between open systems and mainframe systems, you cannot perform the following copy pair status change operations:

- Operations on the open system:
  - takeover
  - swap
  - takeover-recovery (resync)
  - takeover-recovery (recreate)
- Operations on the mainframe system:
  - restore

Regarding copy groups maintaining their consistency, if you use a tool other than Replication Manager to perform a swap operation or takeover (Reverse Resync) operation for either only the copy group on the open system or only the copy group on the mainframe system, you cannot use Replication Manager to manage the relevant copy group.

## InPrivate Browsing in Internet Explorer 9.0

During InPrivate Browsing Mode, the browsing history may remain in the browser.

## VMware ESXi 5.0

The following configuration is not supported:

A configuration using a software FCoE adapter and FCoE to connect primary or secondary volumes to a database server, backup server, and pair management server on a guest OS running in VMware ESXi 5.0.

## Setting up resource groups

Before using the Change Pair Status Wizard, add the user to both of the following resource groups.

Also, before using Pair Configuration Wizard, add the user to both of the following resource groups for all the copy groups included in the copy topology that is the target of the operation.

- Resource groups set up for all the storage systems configured with the copy groups that are the target of the operation.
- Resource groups set up for all the pair management servers managing the copy groups that are the target of the operation.

## RAID Manager installation path for database servers and backup servers

If XP7 RAID Manager is installed on a non-system drive, you must change the *INSTALL\_PATH* parameter in the XP7 RAID Manager linkage definition file (*DEFAULT.dat*) or change the XP7 RAID Manager Installation Path setting in the **Application Agent Settings** window.

In addition, if you execute a VSS backup or manage a replica of Exchange Server, you must set the system environment variable, *VSHTCRMENVF*, on the backup server. For details, see the explanation about the settings necessary for using VSS in the *HPE XP7 Replication Manager Application Agent CLI Guide*.

## Editing the journal option settings

If the version of Device Manager installed at a remote site is 7.2.0 to earlier than 7.3.1, editing the journal option settings of an XP P9500 Storage journal group generates the following error messages:

```
An attempt to perform journal pool processing has failed. [KAVN00589-E]
An attempt to call the Device Manager server function has failed. (Device
Manager server's error code: KAIC05000, Device Manager server's
error message: An unidentified error has occurred.) [RPM-01004]
```

To edit the journal option settings, upgrade the Device Manager installed at a remote site to 7.3.1 or later.

## Using the GetTasks command

When the `GetTasks` command displays the task information on copy groups defined by device groups, a hyphen (-) is displayed in Host (Primary).

## Temporary shortcut folder after installation or removal (in Windows)

After an installation or removal, a temporary shortcut folder named `programs` may be created under the Windows **Start** menu. After you log off and log on to Windows, this temporary shortcut folder no longer appears.

## Upgrading XP P9000 Command View Advanced Edition Suite from 7.4.1 or earlier (in Windows)

In an environment where Host Data Collector (for Windows) v7.4.1 or earlier is installed, the **Fatal Application Error** dialog box may appear during an upgrade installation of XP P9000 Command View Advanced Edition. If this dialog box appears, click **OK** to ignore it and continue the upgrade installation. Even if this dialog box appears, XP P9000 Command View Advanced Edition Suite operations will continue.

## Using Replication Manager and viewing copy group information

From the Pair Configurations View in Replication Manager, the value for the number of viewable copy pairs appearing in the Visible/Total column of the Copy Group Summary is sometimes different from the actual number of copy pairs appearing in the **Pairs** tab.

The total number of copy pairs appearing in the **Pairs** tab is the actual number of viewable copy pairs.

This behavior occurs if all of the following conditions are met:

- No Replication Manager license is registered, and Replication Manager is started from Device Manager.
- From the Pair Configurations View (accessible through **Explore > ResourcesPair Configurations**), the Copy Pair Summary is viewed (accessible by selecting **Pair Configurations > Pair Management Servers > Config Files > Copy Groups**).
- Copy pairs that cannot be viewed are in the copy group selected in the previous condition.

## Prerequisites

See the *HPE XP7 Command View Advanced Edition Installation and Configuration Guide* for complete product requirements.

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### NOTE:

The XP7 Command View Advanced Edition products cannot be installed on a disk that has a logical sector size of 4,096 bytes (4K native).

If a disk that has a logical sector size of 4,096 bytes is used, change the logical sector size to 512 bytes, and then install the XP7 Command View Advanced Edition products.

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## Red Hat Enterprise Linux (RHEL) 7.0 prerequisite packages

If you use RHEL 7.0, apply the RPM packages below after a default installation of the OS.

- `glibc-2.17-55.el7.i686.rpm` or later
- `tcsh-6.18.01-7.el7.x86_64.rpm` or later
- `net-tools-2.0-0.17.20131004git.el7.x86_64.rpm` or later
- `perl-5.16.3-283.el7.x86_64.rpm` or later
- `net-snmp-5.7.2-18.el7.x86_64.rpm` or later
- `net-snmp-agent-libs-5.7.2-18.el7.x86_64.rpm` or later
- `net-snmp-devel-5.7.2-18.el7.x86_64.rpm` or later
- `net-snmp-libs-5.7.2-18.el7.x86_64.rpm` or later
- `net-snmp-utils-5.7.2-18.el7.x86_64.rpm` or later



## Red Hat Enterprise Linux (RHEL) 6.5 prerequisite libraries

The following library was added as a prerequisite library for RHEL 6.5. Apply this patch if you use RHEL 6.5.

`upstart-0.6.5-13.el6_5.3.x86_64` or later

## Upgrading XP7 Command View Advanced Edition products from version 8.0.0 or earlier

If following products are installed, upgrade them to 8.0.1 or later:

- Device Manager
- Tiered Storage Manager
- Replication Manager
- Tuning Manager
- Global Link Manager

## Installation instructions

For installation information, see the following manual sections:

Component	Manual
Management server	<i>HPE XP7 Command View Advanced Edition Installation and Configuration Guide</i>
Management client	<i>HPE XP7 Replication Manager Configuration Guide</i>
Application Agent	<i>HPE XP7 Command View Advanced Edition Installation and Configuration Guide</i>

For this version, refer to the manuals for 8.5.0-00.

## Upgrade Precautions

### About upgrade installation

Applied products: Replication Manager server

Applied OS: All

Before upgrade installation on a server that has the following product version installed, complete the procedure described.

#### Products:

- XP7 Replication Manager v8.0.0-00 to earlier than v8.4.0-01
- XP7 Command View Advanced Edition v8.0.0-00 to earlier than v8.4.0-01

Procedure:

#### For Windows:

1. If Device Manager is remotely linked with Tuning Manager, shut down the Tuning Manager server.
2. Log in to Windows as the administrator.
3. When installing XP7 Command View Advanced Edition in a cluster environment, take XP7 Command View Advanced Edition services offline. Then suppress failover of the resource group according to the following sections in the *HPE XP7 Command View Advanced Edition Installation and Configuration Guide* depending on the version from which you are upgrading.

- For v8.0.0-00 to earlier than v8.2.0-00: **Suppressing failover by using the cluster management application**
  - For v8.2.0-00 or later: **Taking XP7 Command View Advanced Edition services offline (Windows)**
4. Run the Command Prompt as the administrator and then execute the following commands in the order listed.
- a. `cd /d <installation-destination-path-for-XP7-CVAE>\Base64\bin`
  - b. `hcmds64srv /stop`
  - c. `hcmds64srv /statusall`
  - d. `hcmds64dbsrv /start`
  - e. `cd <installation-destination-path-for-XP7-CVAE>\Base64\sbin`
  - f. `hcmdsdbreclaim -k index -a -c dic`
  - g. `hcmdsdbreclaim -k index -j -c dic`
  - h. `hcmdsdbreclaim -k table -a -c dic`
  - i. `hcmdsdbreclaim -k table -j -c dic`

**For Linux:**

1. If Device Manager is remotely linked with Tuning Manager, shut down the Tuning Manager server.
2. Log in as root.
3. When installing XP7 Command View Advanced Edition in a cluster environment, delete the CVAE product services from the Red Hat High Availability service group according to the section **Deleting XP7 CVAE product services from the service group (Red Hat Enterprise Linux)** in the *HPE XP7 Command View Advanced Edition Installation and Configuration Guide*.
4. Start the terminal window and then execute the following commands in the order listed.
  - a. `cd /d <installation-destination-path-for-XP7-CVAE>\Base64\bin`
  - b. `./hcmds64srv -stop`
  - c. `./hcmds64srv -statusall`
  - d. `./hcmds64dbsrv -start`
  - e. `cd <installation-destination-path-for-XP7-CVAE>\Base64\sbin`
  - f. `hcmdsdbreclaim -k index -a -c dic`
  - g. `hcmdsdbreclaim -k index -j -c dic`
  - h. `hcmdsdbreclaim -k table -a -c dic`
  - i. `hcmdsdbreclaim -k table -j -c dic`

## About the lapse of time for upgrade installation (Manager server)

Applied products: Replication Manager server

Applied OS: All

When upgrading the version from 7.6.1 or earlier to 8.0.0 or later, the upgrade installation may take a long time to move the place of database from 32-bit to 64-bit. The estimated time for the upgrade installation depends on the size of the database. The following shows criterion of a configuration with which may take more than three hours for the installation of XP7 Command View Advanced Edition products.

An environment of installation:

- CPU: vCPU \* 2 (4 GHz)
- HDD: SATA drive 7200 rpm 1 TB

The estimate time for installation (upgrade from v7.6.1 to v8.0.0):

1. The estimated time for the installation is the total time of the Backup-time of every XP7 Command View Advanced Edition product that had already been installed and the Import-time of the installing product.

**NOTE:**

The first upgrade installation takes longer time because backup of every installed XP7 Command View Advanced Edition products have to take place.

- The estimated time for the products installation after item (1) above. The estimated time for the installation is the total time of the Import-time of the products.

**Table 14: Estimating time for installation (Windows)**

Product name	Composition	Backup	Import	etc
Device Manager Tiered Storage Manager Replication Manager	Volumes: 128,000 Paths: 512,000 Hosts: 1,000	11 minutes	35 minutes	49 minutes
Tuning Manager		14 minutes	-	48 minutes
Global Link Manager	Paths/hosts: 1,000 Hosts: 60 Pathstatuslog: 4 GB (total capacity)	2 minutes	7 minutes	43 minutes

**Table 15: Estimating time for installation (UNIX)**

Product name	Composition	Backup	Import	etc
Device Manager Tiered Storage Manager Replication Manager	Volumes: 128,000 Paths: 512,000 Hosts: 1,000	4 minutes	36 minutes	35 minutes
Tuning Manager		3 minutes	7 minutes	17 minutes

## Upgrade installation of the Application Agent

Applied products: Application Agent

Applied OS: Windows

When you perform an upgrade installation from Application Agent 8.1.0 or earlier to 8.1.1 or later:

- In Application Agent 8.1.1 and later, you can now specify the upper limit (response time-out time), in units of minutes, for the time period from when the Protection Manager service receives a processing request until a response. The purpose of this function is to stop processing if there is no response from the Protection Manager service unexpectedly, and to report the status to the server that made a processing request to the Protection Manager service. For details, see the *HPE Replication Manager Application Agent CLI User Guide*. To enable the server that made a processing request to the Protection Manager

service to detect that the response timed-out in the request destination server, specify the parameters to meet the following condition:

- The value of the *SERVICE\_TIMEOUT* parameter in the processing request source server is greater than the value of the *SERVICE\_TIMEOUT* parameter in the processing request destination server.

Therefore, if you are using Application Agent with the specified *SERVICE\_TIMEOUT* parameter for the processing request source server, it is recommended that you specify the *RESPONSE\_TIMEOUT* parameter for the processing request destination server after the upgrade installation. It is recommended that the value of the *RESPONSE\_TIMEOUT* be approximately 90% of the value of the *SERVICE\_TIMEOUT* parameter.

## Upgrading XP P9000 Command View Advanced Edition products from version 7.6.1 or earlier

Applied products: XP P9000 Command View Advanced Edition

Applied OS: All

If you upgrade XP P9000 Command View Advanced Edition products from 7.6.1 or earlier to 8.0.0 or later, confirm the following services are running in the Services window in Windows. If either or both services are not running, start them.

- HiRDB/EmbeddedEdition\_HD0
- HiRDB/EmbeddedEdition\_HD1

## System requirements

### System requirements for Replication Manager

This section describes the system requirements for hosts and pair management servers for which Replication Manager is supported. For information on the requirements for management servers, management clients (GUI), and storage systems, see the *HPE XP7 Command View Advanced Edition System Requirements*.

### System requirements for hosts and pair management servers (for open systems)

A host is a machine that uses the volumes of a storage system. A pair management server is a machine that collects and manages information about the configuration and status of copy pairs.

The following table shows the requirements for hosts and pair management servers.

**Table 16: Requirements for hosts and pair management servers (for open systems)**

Type	Operating system	Prerequisite programs
Host	The Device Manager agent must support the OS. For information on system requirements for the Device Manager agent, see the <i>HPE XP7 Command View Advanced Edition System Requirements</i> .	Device Manager agent 6.0 or later <sup>1, 2</sup>
Pair management server		<ul style="list-style-type: none"> <li>RAID Manager</li> <li>Device Manager agent 6.0 or later<sup>1, 2</sup></li> </ul>
<p>Notes:</p> <p><sup>1</sup>If the version of Device Manager agent used with Replication Manager is 6.4.0 or later, Hewlett Packard Enterprise strongly recommends that the version of RAID Manager running on the same host as the agent be 01.17.05 or later for Windows or 01.21.05 for Linux. If an earlier version of RAID Manager is used, an error will occur that requires a property file setting described below.</p> <p>When a host running Device Manager agent and RAID Manager is restarted, device information is updated. This update can render the configuration definition file used to identify command devices obsolete (because values referring to pre-update device information remain unchanged). This might make it impossible to gather pair, pool, and journal information from Replication Manager.</p> <p>To prevent this error, specify the following Device Manager agent property in the <code>server.properties</code> file:</p> <pre>server.agent.rm.optimization.userHorcmFile=true</pre> <p><sup>2</sup>If you want to link with a Device Manager agent running on a guest OS of VMware ESXi 5.x, use a Device Manager server and agent of version 7.2 or later.</p>		

**System requirements for hosts (for mainframe systems)**

The following table describes the requirements for hosts.

**Table 17: Requirements for hosts (for mainframe systems)**

Operating system	Prerequisite programs
Must support XP7 Business Continuity Manager or XP7 mainframe agent	<p>XP7 Business Continuity Manager 5.0, or XP7 mainframe agent 6.0 or later.</p> <p>For pair management: XP7 Business Continuity Manager 6.2 or later.</p> <p>For monitoring only: XP7 Business Continuity Manager (6.1 or earlier) or XP7 mainframe agent (6.0 or later).</p>

**NOTE:**

If you want to use an IPv6 connection or HTTPS (SSL) communication between RepMgr and BCM, you must set up the IBM HTTP Server (IHS).

For XP7 Business Continuity Manager requirements, see the *HPE XP7 Business Continuity Manager Installation Guide*. For the requirements for XP7 mainframe agent, see the *HPE XP7 Command View Advanced Edition Mainframe Agent Installation and Configuration Guide*.

## System requirements for Application Agent

This section describes system requirements for Application Agent.

### Hardware requirements

To install Application Agent on a machine, the machine must meet the hardware requirements described below.

### Machine requirements

The table below shows the machine requirements for using Application Agent.

**Table 18: Machine requirements**

Item	Minimum	Recommended
CPU clock speed	1 GHz	2 GHz or faster
Memory	1 GB	2 GB or more
Disk space	1 GB	2 GB or more

### Requirements for virtual memory

Application Agent requires virtual memory on the database and backup servers. If the virtual memory area is insufficient, program operation might become unstable. Use the formula below to calculate the amount of virtual memory required.

**Virtual memory** (unit: KB) =  $(8.0 + \text{number-of-databases} + \text{number-of-data-files} + \text{number-of-mounted-drives} * 2.0 + \text{number-of-physical-disks} + \text{number-of-secondary-volumes} * 0.2 + \text{number-of-paired-volumes} * 0.2 + \text{number-of-databases-to-be-backed-up} * 0.3 + \text{number-of-data-files-to-be-backed-up} * 4.0 + \text{number-of-drives-to-be-backed-up} * 0.3 + \text{number-of-files-or-directories-to-be-backed-up} * 4.0 + \text{number-of-paired-volumes-to-be-backed-up} * 0.1) * \text{number-of-backup-catalogs}$

The *number-of-backup-catalogs* is determined as follows:

- **For a database server:** The number of backup catalogs backed up from the P-VOLs to the S-VOLs. If a single P-VOL is defined to be paired with multiple S-VOLs, Application Agent can manage multiple backup generations. The number corresponds to the number of backups made in such a configuration.
- **For a backup server :** The number of backup catalogs backed up from the S-VOL to a tape.

### Database and backup server requirements

This section describes system requirements for database servers and backup servers on which Application Agent is to be installed. File systems are only supported using the Application Agent CLI.

#### CAUTION:

If you want to upgrade the OS, be sure to uninstall Application Agent before upgrading the OS. After the OS has been upgraded, install the version of Application Agent that corresponds to the upgraded OS. After installation is complete, create a replica (backup data) of that time. Restoration of a replica (backup data) that was created prior to upgrading the OS might not work properly.

---

**NOTE:**

When using IPv6, both IPv4 and IPv6 must be enabled on the database and backup servers. You can use IPv6 addresses only if they are global addresses.

---

**Table 19: Database and backup server requirements (Microsoft Exchange Server)**

Operating system	IPv6 support	Required programs
Windows Server 2008 R2 SP1 <sup>1</sup>	Y <sup>2</sup>	RAID Manager <sup>3</sup> Logical Volume Manager (the standard Windows LDM) <sup>4</sup> Application Agent v7.1 or later <sup>5</sup> RMXP Shadow Copy Provider (VSS Provider) 01.02.05 or later Device Manager agent <sup>6</sup>
Windows Server 2012 (no Service Pack) <sup>1</sup>	Y <sup>2</sup>	RAID Manager <sup>3</sup> Logical Volume Manager (the standard Windows LDM) <sup>4, 7</sup> Application Agent v7.6 or later <sup>5</sup> RMXP Shadow Copy Provider (VSS Provider) 01.04.06 or later Device Manager agent <sup>6</sup>
Windows Server 2012 R2 (no Service Pack) <sup>1</sup>	Y <sup>2</sup>	RAID Manager <sup>3</sup> Logical Volume Manager (the standard Windows LDM) <sup>4, 7</sup> Application Agent v8.0.1 or later <sup>5</sup> RMXP Shadow Copy Provider (VSS Provider) 01.04.07 or later Device Manager agent <sup>6</sup>

*Table Continued*

Operating system	IPv6 support	Required programs
Windows Server 2016 (no Service Pack) <sup>1</sup>	Y <sup>2</sup>	RAID Manager <sup>3</sup> Logical Volume Manager (the standard Windows LDM) <sup>4, 7</sup> Application Agent v8.5.1 or later <sup>5</sup> RMXP Shadow Copy Provider (VSS Provider) 01.04.07 or later Device Manager agent <sup>6</sup>
Notes: <sup>1</sup> Operation on Server Core is not supported. <sup>2</sup> Communication using IPv6 is supported even when using FTP with the CLI. For details, see the <i>HPE XP7 Replication Manager Application Agent CLI User Guide</i> . <sup>3</sup> The architecture of RAID Manager must match that of the OS. <sup>4</sup> LDM basic structure is supported. <sup>5</sup> Be sure to install the same version of Application Agent on the database and backup servers. <sup>6</sup> For information on the versions of the Device Manager agent that are supported for each OS, see the <i>HPE XP7 XP7 Command View Advanced Edition System Requirements</i> . If either of the following conditions apply when installing Device Manager agent: <ul style="list-style-type: none"> <li>• The version of Device Manager agent is earlier than v6.4</li> <li>• The version of RAID Manager is earlier than 01.17.05</li> </ul> You must configure the following setting in the Device Manager properties ( <code>server.properties</code> ) file: <pre>server.agent.rm.optimization.userHorcmFile=true</pre> If you do not add this value, Replication Manager might not be able to acquire pair, pool, and journal information. For details on editing the properties file, see the <i>HPE XP7 Command View Advanced Edition Installation and Configuration Guide</i> . <sup>7</sup> Configurations including storage pools are not supported.		

**⚠ CAUTION:**

If you execute a VSS backup for a GPT disk, registry keys related to the backup server GPT disk are added. If the VSS backup is repeated and too many device entries have accumulated in the registry, the backup might fail. Therefore, we do not recommend using Application Agent in an environment that uses GPT disks. If you want to execute a VSS backup for a GPT disk, follow the instructions in the Microsoft technical information note KB934234, and clean up the backup server registry after executing a VSS backup.

**NOTE:**

Make sure that both the HBA and HBA driver support VSS. Application Agent does not support Emulex Full Port drivers.



**Table 20: Database and backup server requirements (Microsoft SQL Server)**

Operating system	IPv6 support	Required programs
Windows Server 2008 R2 SP1 <sup>1</sup>	Y <sup>3</sup>	RAID Manager <sup>4</sup>
Windows Server 2008 R2 SP1 (IPF) <sup>1</sup>	Y	Logical Volume Manager (the standard Windows LDM) <sup>5</sup> Application Agent v7.1 or later <sup>6</sup> Device Manager agent <sup>7</sup>
Windows Server 2012 (no Service Pack) <sup>1, 2</sup>	Y <sup>3</sup>	RAID Manager <sup>4</sup> Logical Volume Manager (the standard Windows LDM) <sup>5, 8</sup> Application Agent v7.4 or later <sup>6</sup> Device Manager agent <sup>7</sup>
Windows Server 2012 R2 (no Service Pack) <sup>1, 2</sup>	Y <sup>3</sup>	RAID Manager <sup>4</sup> Logical Volume Manager (the standard Windows LDM) <sup>5, 8</sup> Application Agent v8.0.1 or later <sup>6</sup> Device Manager agent <sup>7</sup>

*Table Continued*

Operating system	IPv6 support	Required programs
Windows Server 2016 (no Service Pack) <sup>1, 2</sup>	Y <sup>3</sup>	RAID Manager <sup>4</sup> Logical Volume Manager (the standard Windows LDM) <sup>5, 8</sup> Application Agent v8.5.0 or later <sup>6</sup> Device Manager agent <sup>7</sup>
<p>Notes:</p> <p><sup>1</sup>The Server Core feature is not supported.</p> <p><sup>2</sup>Operation on Minimal Server Interface is not supported.</p> <p><sup>3</sup>Communication using IPv6 is supported even when using FTP with the CLI. For details, see the <i>HPE XP7 Replication Manager Application Agent CLI User Guide</i>.</p> <p><sup>4</sup>The architecture of RAID Manager must match that of the OS.</p> <p><sup>5</sup>LDM basic structure is supported. Dynamic disks are not supported.</p> <p><sup>6</sup>Be sure to install the same version of Application Agent on the database and backup servers.</p> <p><sup>7</sup>For information on the versions of the Device Manager agent that are supported for each OS, see the <i>HPE XP7 Command View Advanced Edition System Requirements</i>.</p> <p>If either of the following conditions apply when installing Device Manager agent:</p> <ul style="list-style-type: none"> <li>• The version of Device Manager agent is earlier than v6.4</li> <li>• The version of RAID Manager is earlier than 01.17.05</li> </ul> <p>You must configure the following setting in the Device Manager properties (<code>server.properties</code>) file:</p> <pre>server.agent.rm.optimization.userHorcmFile=true</pre> <p>If you do not add this value, Replication Manager might not be able to acquire pair, pool, and journal information. For details on editing the properties file, see the <i>HPE XP7 Command View Advanced Edition Installation and Configuration Guide</i>.</p> <p><sup>8</sup>Configurations including storage pools are not supported.</p>		

**Table 21: Database and backup server requirements (file systems)**

Operating system	IPv6 support	Required programs
Windows Server 2008 R2 SP1 <sup>1</sup>	Y <sup>4</sup>	RAID Manager <sup>5</sup>
Windows Server 2008 R2 SP1 (IPF) <sup>1, 2</sup>	Y	Logical Volume Manager (the standard Windows LDM) <sup>6</sup> Application Agent v7.1 or later (RM Shadow Copy Provider (VSS Provider) 01.02.05 or later) <sup>7</sup>

*Table Continued*

Operating system	IPv6 support	Required programs
Windows Server 2012 (no Service Pack) <sup>1, 3</sup>	Y <sup>4</sup>	RAID Manager <sup>5</sup> Logical Volume Manager (the standard Windows LDM) <sup>6, 8</sup> <ul style="list-style-type: none"> <li>not VSS: Application Agent v7.4 or later<sup>7</sup></li> <li>VSS: Application Agent v7.6 or later (RM Shadow Copy Provider (VSS Provider) 01.04.06 or later)<sup>7</sup></li> </ul>
Windows Server 2012 R2 (no Service Pack) <sup>1, 3</sup>	Y <sup>4</sup>	RAID Manager <sup>5</sup> Logical Volume Manager (the standard Windows LDM) <sup>6, 8</sup> Application Agent v8.0.1 or later (RM Shadow Copy Provider (VSS Provider) 01.04.06 or later) <sup>7</sup>
Windows Server 2016 (no Service Pack) <sup>1, 3</sup>	Y <sup>4</sup>	RAID Manager <sup>5</sup> Logical Volume Manager (the standard Windows LDM) <sup>6, 8</sup> Application Agent v8.5.0 or later (RM Shadow Copy Provider (VSS Provider) 01.04.06 or later) <sup>7</sup>
<p>Notes:</p> <p><sup>1</sup>The Server Core feature is not supported.</p> <p><sup>2</sup>Backups using VSS are not supported.</p> <p><sup>3</sup>Operation on Minimal Server Interface is not supported.</p> <p><sup>4</sup>Communication using IPv6 is supported even when using FTP with the CLI. For details, see the <i>HPE XP7 Replication Manager Application Agent CLI User Guide</i>.</p> <p><sup>5</sup>The architecture of RAID Manager must match that of the OS.</p> <p><sup>6</sup>LDM basic disks are supported. Dynamic disks are not supported.</p> <p><sup>7</sup>Be sure to install the same version of Application Agent on the database and backup servers.</p> <p><sup>8</sup>Configurations including storage pools are not supported.</p>		

**△ CAUTION:**

If you execute a VSS backup for a GPT disk, registry keys related to the backup server GPT disk are added. If the VSS backup is repeated and too many device entries have accumulated in the registry, the backup might fail. Therefore, we do not recommend using Application Agent in an environment that uses GPT disks. If you want to execute a VSS backup for a GPT disk, follow the instructions in the Microsoft technical information note KB934234, and clean up the backup server registry after executing a VSS backup.

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**NOTE:**

Make sure that both the HBA and HBA driver support VSS. Application Agent does not support Emulex Full Port drivers.

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## Host OS and database server requirements

The following tables list the operating systems, backup-server combinations, database versions, and programs required by Application Agent. The tables also indicate environments supported only by the Application Agent CLI.

**Table 22: Supported database and backup server combinations (Microsoft Exchange Server)**

Database server OS	Backup server OS	Exchange version
Windows Server 2008 R2 SP1	Windows Server 2008 R2 SP1	2007 SP3 2010 no Service Pack, SP1, SP2, SP3 2013 no Service Pack, SP1
Windows Server 2012 no Service Pack	Windows Server 2012 no Service Pack	2010 SP3 2013 no Service Pack, SP1 2016 no Service Pack
Windows Server 2012 no Service Pack	Windows Server 2012 R2 no Service Pack	2013 SP1 2016 no Service Pack
Windows Server 2012 R2 no Service Pack	Windows Server 2012 no Service Pack	2013 SP1 2016 no Service Pack
Windows Server 2012 R2 no Service Pack	Windows Server 2012 R2 no Service Pack	2013 SP1 2016 no Service Pack
Windows Server 2016 no Service Pack	Windows Server 2012 R2 no Service Pack Windows Server 2016 no Service Pack	2016 no Service Pack
Notes:		
<ul style="list-style-type: none"><li>• The same Service Pack should be applied on both the database and backup server operating systems.</li><li>• <i>The Exchange Management Tool is required on the database server and backup server. For details, see the HPE XP7 Replication Manager Configuration Guide.</i></li></ul>		

**Table 23: Supported database and backup server combinations (Microsoft SQL Server)**

Database server OS	Backup server OS	SQL Server version
Windows Server 2008 R2 (SP1)	Windows Server 2008 R2 (SP1)	2008 (no Service Pack <sup>1,2</sup> , SP1 <sup>2</sup> , SP2, SP3, SP4 <sup>1</sup> ) 2008 x64 (no Service Pack <sup>1,2</sup> , SP1 <sup>2</sup> , SP2, SP3, SP4 <sup>1</sup> ) 2008 R2 (no Service Pack <sup>2</sup> , SP1 <sup>1</sup> , SP2 <sup>1</sup> , SP3 <sup>1</sup> ) 2008 R2 x64 (no Service Pack <sup>2</sup> , SP1 <sup>1</sup> , SP2 <sup>1</sup> , SP3 <sup>1</sup> ) 2012 (no Service Pack, SP1, SP2, SP3) 2014 (no Service Pack, SP1, SP2) <sup>3</sup>
Windows Server 2012 (no Service Pack) Windows Server 2012 R2 (no Service Pack)	Windows Server 2012 (no Service Pack) Windows Server 2012 R2 (no Service Pack)	2012 (no Service Pack, SP1, SP2, SP3) 2014 (no Service Pack, SP1, SP2) <sup>3</sup> 2016 (no Service Pack, SP1) <sup>3</sup>
Windows Server 2016 (no Service Pack)	Windows Server 2012 R2 (no Service Pack) Windows Server 2016 (no Service Pack)	2016 (no Service Pack, SP1) <sup>3</sup>

Notes: A backup server is only mandatory for data backup to a tape or for secondary use of the data.

<sup>1</sup>Supported only for use with the Application Agent CLI.

<sup>2</sup>For SQL Server 2008 (no SP, SP1) or SQL Server 2008 R2 (no SP), processing might fail because the SQL Server does not respond when a backup command or creation of a replica is performed repeatedly (messages KAVX1212-E , KAVX0006-E/DRM-11017, or RPM10006/RPM-21017 are output and an error occurs). To resolve this problem, see the following technical information provided by Microsoft, and then operate Application Agent:

- For SQL Server 2008 (no SP, SP1): KB975860
- For SQL Server 2008 R2 (no SP): KB2545989

<sup>3</sup>If SQL Server 2014 (no SP, SP1) or SQL Server 2016 (no SP) are used, the following cluster configuration is not supported: A cluster shared volume (CSV) is used as a shared disk of the cluster configuration.

**Table 24: Supported database and backup server OS combinations (when using a file system and VSS)**

Database server OS	Backup server OS	File system type
Windows Server 2008 R2 SP1	Windows Server 2008 R2 SP1	NTFS
Windows Server 2012 (no Service Pack)	Windows Server 2008 R2 (SP1)	
	Windows Server 2012 (no Service Pack)	
Windows Server 2012 R2 (no Service Pack)	Windows Server 2012 R2 (no Service Pack)	
	Windows Server 2012 R2 (no Service Pack)	
Windows Server 2016 (no Service Pack)	Windows Server 2012 R2 (no Service Pack)	
	Windows Server 2016 (no Service Pack)	

**NOTE:**

When executing a backup using VSS, the same Service Pack should be applied on both the database and backup server operating systems.

**Table 25: Supported database and backup server OS combinations (when using a file system and VSS)**

Database server OS	Backup server OS	File system type
Windows Server 2008 R2 SP1	Windows Server 2008 R2 SP1	NTFS
Windows Server 2008 R2 IPF SP1	Windows Server 2008 R2 IPF SP1	
Windows Server 2012 (no Service Pack)	Windows Server 2012 (no Service Pack)	
	Windows Server 2012 R2 (no Service Pack)	

*Table Continued*

Database server OS	Backup server OS	File system type
Windows Server 2012 R2 (no Service Pack)	Windows Server 2012 (no Service Pack) Windows Server 2012 R2 (no Service Pack)	
Windows Server 2016 (no Service Pack)	Windows Server 2012 R2 (no Service Pack) Windows Server 2016 (no Service Pack)	

## Cluster support

Application Agent can be linked to cluster software to increase the availability of the system. The following tables summarize the cluster software configurations that can be used with Application Agent.

**Table 26: Database server requirements for cluster environment (Exchange Server 2007)**

Database server OS	Cluster software
Windows Server 2008 R2 SP1	Windows Server Failover Clustering

**Table 27: Database server requirements for cluster environment (SQL Server and file systems)**

Database server OS	Cluster software
Windows Server 2008 R2 SP1	Windows Server Failover Clustering
Windows Server 2008 R2 IPF SP1	
Windows Server 2012 no Service Pack <sup>1, 2</sup>	
Windows Server 2012 R2 no Service Pack <sup>1, 2</sup>	
Windows Server 2016 no Service Pack <sup>1, 2</sup>	
Notes:	
<sup>1</sup> Be sure to install <b>FailoverCluster-CmdInterface</b> (an optional component of WSFC). For details about optional components, see the Microsoft documentation.	
<sup>2</sup> The following cluster configuration is not supported: A cluster shared volume (CSV) is used as a shared disk of the cluster configuration.	

## Virtual environments supported by Application Agent

This section describes the virtual environments supported by Application Agent.

## VMware ESX/ESXi Server

Application Agent supports a Windows environment that functions as a guest OS. If provided as a guest OS of the virtual server products, VMware ESX/ESXi Server 5.5 and 6.0 are also supported.

**Table 28: Guest Operating systems and VMware ESX/ESXi version**

VMware ESX/ESXi version	Guest OS
ESXi 5.5 (no update, Update 1, Update 2 ) <sup>1, 2, 4</sup>	Windows Server 2008 R2, Windows Server 2012 <sup>3</sup> , Windows Server 2012 R2 <sup>3</sup> , Windows Server 2016 <sup>3</sup>
ESXi 6.0 (no update) <sup>1, 2, 5</sup>	Windows Server 2008 R2, Windows Server 2012 <sup>3</sup> , Windows Server 2012 R2 <sup>3</sup> , Windows Server 2016 <sup>3</sup>
ESXi 6.5 (no update) <sup>1, 2, 5</sup>	Windows Server 2008 R2, Windows Server 2012 <sup>3</sup> , Windows Server 2012 R2 <sup>3</sup> , Windows Server 2016 <sup>3</sup>

Notes:

<sup>1</sup>Do not run VMware Live Migration (VMware vMotion) and Application Agent at the same time. If you run them simultaneously, Application Agent might fail. In such a case, please take action according to message shown in the troubleshooting information.

<sup>2</sup>Application Agent does not support VMware FT (Fault Tolerance).

<sup>3</sup>Only SQL Server is supported.

<sup>4</sup>Windows Server 2012 or later is supported.

<sup>5</sup>Application Agent does not support VMware VVol (Virtual Volume).

The following considerations apply to Application Agent and VMware ESX/ESXi Server operations:

- Application Agent can only perform backups of RAW LUNs to which RAW device mapping has been applied by using the physical compatibility mode).
- For VMware ESXi 5.x, configurations are not supported in which a software FCoE adapter is used to connect a primary or secondary volume to a database server, backup server, or pair management server on a guest OS.
- Depending on the connection method used by the guest OS, the VMware ESX/ESXi support status varies. The support status for each connection method used by the guest OS of VMware ESX/ESXi Server 5.x and 6.0 described in the next table.

**Table 29: VMware ESX/ESXi support status for each connection method used by the guest OS**

Physical connection	Disk type	Compatible mode	Supported/Not Supported
FC	Raw device mapping	Physical	Yes <sup>1</sup>
		Virtual	No
	Virtual disk	—	No
iSCSI	Raw device mapping	Physical	Yes <sup>1</sup>

*Table Continued*



Physical connection	Disk type	Compatible mode	Supported/Not Supported
		Virtual	No
	Virtual disk	—	No
	Directly connected to a guest OS	—	Yes

Notes:

<sup>1</sup>Database servers that are configured on a guest OS are supported. Backup servers that are configured on a guest OS are supported if all of the following conditions are satisfied:

- The backup target is a file system or SQL Server.
- The secondary volume is a single generation.
- The backup is not made with VSS.
- In the Setup Application Agent dialog box when making settings for the backup server, on the **Replica Options** tab, the **Prohibit backup server from accessing unmounted replicas** check box is not selected (default setting). If you want to use the Application Agent CLI to disable **Prohibit backup server from accessing unmounted replicas**, you must disable the dynamic recognition of secondary volumes. For details about how to disable dynamic recognition of the secondary volumes, see the *HPE XP7 Command View Advanced Edition Replication Manager Application Agent CLI User Guide*.
- If any of the conditions above is not satisfied, do not configure the server in a virtual environment.

Required virtual memory when running Application Agent on a VMware ESX/ESXi virtual machine

See [Requirements for virtual memory](#) on page 30 for information on virtual memory requirements.

## Windows Server Hyper-V

Application Agent supports a Windows environment that is run as a guest OS of Windows Server 2008 Hyper-V and Windows Server 2012 Hyper-V. The following tables list the scope of support for each Application Agent product.

**Table 30: Guest OS of Windows Server Hyper-V supported by Application Agent**

Windows Server Hyper-V version	Guest OS of Windows Server Hyper-V	Application Agent					
		Exchange Server 2007	Exchange Server 2010	Exchange Server 2013	Exchange Server 2016	SQL Server <sup>1</sup>	File system
Windows Server 2008 Hyper-V	Windows Server 2008 R2 (SP1)	Y	Y	N	N	Y <sup>2</sup>	Y
Windows Server 2012 Hyper-V	Windows Server 2008 R2 (SP1)	N	Y	N	N	N	N
	Windows Server 2012 (no Service Pack)	N	N	N	Y	Y <sup>2, 3</sup>	Y

Table Continued

Windows Server Hyper-V version	Guest OS of Windows Server Hyper-V	Application Agent					
		Exchange Server 2007	Exchange Server 2010	Exchange Server 2013	Exchange Server 2016	SQL Server <sup>1</sup>	File system
Windows Server 2012 R2 Hyper-V	Windows Server 2012 R2 (no Service Pack) <sup>4</sup>	N	N	N	Y	Y <sup>2, 5</sup>	N
Windows Server 2016 Hyper-V	Windows Server 2016 (no Service Pack) <sup>4</sup>	N	N	N	Y	Y <sup>2, 5</sup>	N

Legend:

Y: Supported

--: Not supported.

Notes:

<sup>1</sup>If your environment meets the following requirements and you use the Application Agent CLI, then Live Migration (such as Hyper-V Live Migration) is supported:

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**NOTE:**

Note: If the requirements are not met, ensure that the guest OS where Application Agent is installed is not a target of Live Migration.

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- If you use Windows Server 2008 Hyper-V, the host OS is Windows Server 2008 R2, and the SQL Server version is either of the following:
  - SQL Server 2008 SP1 or later
  - SQL Server 2008 R2
- If you use Windows Server 2012 Hyper-V, the SQL Server version is SQL Server 2012 or later
- The cluster configuration is set up for the host OS
- The command device is used in either of the following configurations:
  - The command device is connected to the guest OS. You must perform operations on the host OS to disconnect the command device's drive from the guest OS prior to live migration and reconnect it after completion. For details about these disconnection and connection operations, see the Microsoft documentation related to Windows Server Hyper-V.
  - The virtual command device is used. For details about how to set up a virtual command device, see the RAID Manager documentation.
- The configuration is used where the system drive of the guest OS is positioned in the VHD format on the drive managed as a cluster shared volume (CSV) by the WSFC of the host OS Replication Manager does not support configurations where the system drive of the guest OS is positioned on a drive that is used as a normal physical disk resource of a WSFC.
- The period of executing Live Migration does not overlap with the period of executing Application Agent CLI. (If they overlap, Application Agent CLI may fail.)

<sup>2</sup>When the disk used is an iSCSI direct connect, the SQL Server cluster configuration on multiple guest operating systems is supported.

<sup>3</sup>SQL Server 2012 or later is supported.

<sup>4</sup>When you install a guest OS on Windows Server 2012 R2 Hyper-V, you can choose a first or second generation virtual machine. However, Application Agent only supports the first generation.

<sup>5</sup>SQL Server 2012 SP1 or later and SQL Server 2014 or later are supported.

**Table 31: Windows Server Hyper-V support based on the guest OS connection method**

Physical connection	Guest OS connection method	Supported
Fibre Channel	Pass through	Y <sup>1, 2, 3</sup>
	VHD/VHDX	N
	Virtual FC4	N
iSCSI	Pass through	Y <sup>1, 2, 3</sup>
	VHD/VHDX	N
	Direct connection	N

Notes: <sup>1</sup>The backup server does not support operation in a virtual environment if the secondary volume is concealed. In that case, you must configure the backup server without virtualization servers.

<sup>2</sup>The backup server does not support operation in a virtual environment if you perform VSS backup using the Application Agent CLI. In that case, you must configure the backup server without virtualization servers.

<sup>3</sup>SQL Server cluster configurations are not supported on guest operating systems. In these configurations, you must use drives that are directly connected to iSCSI.

<sup>4</sup>Applicable for Windows Server 2012 Hyper-V or Windows Server 2012 R2 Hyper-V.

See [Requirements for virtual memory](#) on page 30 for information on virtual memory requirements.

### Tape backup management software that can be linked with Application Agent

By using the Application Agent CLI to link Application Agent to tape backup management software, you can automate operations to back up data to tape. The types of tape backup management software that can be linked with Application Agent are shown below.

**Table 32: Tape backup management software that can be linked with Application Agent**

OS	Tape backup management software	Version
Windows Server 2008 R2 (SP1)	NetBackup <sup>1</sup>	7.0.X
		7.5.X
		7.6.X
		7.7.0

*Table Continued*

OS	Tape backup management software	Version
		7.7.1
		7.7.2 <sup>2</sup>
		7.7.3 <sup>2</sup>
		8.0.0 <sup>2</sup>
	Backup Exec	2010
Windows Server 2012 (no Service Pack)	NetBackup <sup>1</sup>	7.6.X
		7.7.0
		7.7.1
		7.7.2 <sup>2</sup>
		7.7.3 <sup>2</sup>
		8.0.0 <sup>2</sup>
Windows Server 2012 R2 (no Service Pack)	NetBackup <sup>1</sup>	7.7.0
		7.7.1
		7.7.2 <sup>2</sup>
		7.7.3 <sup>2</sup>
		8.0.0 <sup>2</sup>
Windows Server 2016 (no Service Pack)	NetBackup	8.0.0 <sup>2, 3</sup>
<p>Notes:</p> <p><sup>1</sup>The network configuration of NetBackup is supported.</p> <p><sup>2</sup>Before the Application Agent command is executed, the following two paths must be set for the BPCD_WHITELIST_PATH option in NetBackup.</p> <ul style="list-style-type: none"> <li>• <i>&lt;Replication-Manager-Application-Agent-installation-directory&gt;\DRM\log</i></li> <li>• <i>&lt;Replication-Manager-Application-Agent-installation-directory&gt;\DRM\conf\tape</i></li> </ul> <p><sup>3</sup> Only the network configuration of NetBackup is supported.</p> <p>For details on how to use the Application Agent CLI to link Application Agent to tape backup management software and automate operations to back up data to tape, see the <i>HPE XP7 Replication Manager Application Agent CLI User Guide</i>.</p>		

## Storage systems requirements

Application Agent supports the following storage systems:

**Table 33: Storage systems for which Application Agent is supported**

Storage system	Prerequisite DKC software	Microcode version
XP7	<ul style="list-style-type: none"><li>• Business Copy</li><li>• Fast Snap</li><li>• Continuous Access Synchronous</li><li>• Continuous Access Journal</li></ul>	80-01-xx/xx or later
P9500	<ul style="list-style-type: none"><li>• Business Copy</li><li>• Snapshot</li><li>• Fast Snap</li><li>• Continuous Access Synchronous</li><li>• Continuous Access Journal</li></ul>	70-01-xx/xx or later When using Fast Snap: 70-05-xx/xx or later When the OS of the database server or backup server is Windows Server 2012 (no SP) or Windows Server 2012 R2 (no SP): 70-05-xx/xx or later
XP20000/XP24000 <sup>1</sup>	<ul style="list-style-type: none"><li>• XP Business Copy</li><li>• XP Fast Snap</li><li>• XP Continuous Access Synchronous</li></ul>	60-01-72 or later
Notes:		
1. Supported when the OS of the database server or backup server is Windows Server 2008 R2 SP1.		

## Compatibility/interoperability

No issues.

## Documentation feedback

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