HP StorageWorks EVA software compatibility reference

This series of tables describes the compatible hardware, operating systems, and software for all HP StorageWorks Enterprise Virtual Array (EVA) software:

— HP StorageWorks Business Copy EVA

— HP StorageWorks Command View EVA

— HP StorageWorks Continuous Access EVA

— HP StorageWorks Replication Solutions Manager (RSM)

Note: Use of HP Business Copy EVA and HP Continuous Access EVA is described with and without HP Replication Solutions Manager, where noted.

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EVA software version compatibility

This table shows the compatibility of EVA software versions (controller, management, and replication). A bullet (•) indicates compatibility and a blank cell indicates no compatibility.

	EVA3000/5000		EVA4000/6000/8000			HP Command View EVA		HP Replication Solutions Manager	
	VCS 3.028	VCS 4.0x	XCS 5.03x	XCS 5.1x	XCS 6.0x	5.0.x	6.0.x	2.0	2.1
HP Command View EVA									
5.0.x (EVAPerf 1.2) (SMI-S EVA 5.0) (SSSU 5.0)	•	•	•	•				•	•
6.0.x[1] (EVAPerf 6.0) (SMI-S EVA 6.0) (SSSU 6.0)	•	•	•[2]	•	•				•
HP replication software versions									
HP Business Copy EVA 2.3.1	•							•	•
HP Replication Solutions Manager 2.0[1]	•	•	•	•		•			
HP Replication Solutions Manager 2.1[1]	•	•		•	•	•	•		
HP replication media kit and software compatibility									
HP Business Copy EVA 2.3.1	•							•	•
HP Business Copy EVA 3.0 (05/05)									
HP Business Copy EVA 3.0 (09/05)	•		•						
HP Business Copy EVA 3.1	•	•	•						
HP Business Copy EVA 3.2	•	•	•	•		•		•	
HP Continuous Access EVA 2.0[3]									
HP Continuous Access EVA 2.1 (05/05)[2]									
HP Continuous Access EVA 2.1 (09/05)[1]	•		•						
HP Continuous Access EVA 2.2[3]	•	•	•						
HP Continuous Access EVA 2.3[3]	•	•	•	•		•		•	
Storage Management Appliance software									
2.1	•	•	•	•	•	•	•	•	•
iSCSI connectivity									
mpx100 firmware 2.0.1.1, 2.0.1.4, 2.0.5.1						•			
mpx100 firmware 2.0.5.x							•		

[1]Supported on non-English versions of Windows.

[2]XCS 5.03x is only supported with HP Command View EVA 6.0 during the controller software upgrade to XCS 5.1x.

[3]Not supported with Brocade firmware 5.0.3.

Controller software version support in remote replication environments

This table shows support between controller software versions in remote replication environments, meaning the controller software versions that are running on the source and destination arrays. A bullet (•) indicates support and a blank cell indicates that the remote replication environment is not supported when the source and destination arrays are running the controller software versions listed.

	Controller software version (destination array)					
	VCS 3.028	VCS 4.0x	XCS 5.03x	XCS 5.1x	XCS 6.0x[2]	
Controller software version (source array)						
VCS 3.028	•	•[1]	•	•	•	
VCS 4.0x	•[1]	•	•	•	•	
XCS 5.03x	•	•	•	•[1]		
XCS 5.1x	•	•	•[1]	•	•[1]	
XCS 6.0x	•	•	•[1]	•[1]	•	

[1]Supported during the seven day upgrade window only, meaning the source and destination arrays can be running these different controller software versions while you are upgrading the arrays and the upgrades must be completed within seven days. You can only upgrade one controller software family (either VCS or XCS) at a time and only allow two versions within that family.

[2]Before upgrading your storage system to XCS 6.0x firmware, all source and destination DR groups must be in Synchronous mode. Check each DR group to verify this setting, before proceeding with the firmware upgrade process. Enhanced asynchronous replication is only available when both arrays are running XCS 6.0x or later.

HP StorageWorks EVA software deployment options

You can install HP StorageWorks EVA management and replication software on a management server. The management servers are:

General-purpose server: A server other than the HP OpenView Storage Management Appliance that runs customer applications, such as file and print services

HP OpenView Storage Management Appliance (SMA): A centralized, dedicated monitoring and management hardware-software solution for the storage area network (SAN)

Dedicated management server: A Windows host that is intended solely for HP storage software, such as HP OpenView Storage Node Manager, HP OpenView Storage Area Manager add-on software modules, or HP StorageWorks EVA software

HP ProLiant Storage Server: A server similar to the general-purpose server; it can be used for managing EVAs in the SAN as well as traditional NAS-based applications.

Required hardware	
General-purpose server Dedicated management server	Recommended servers: HP ProLiant DL145, DL360 G4, and DL560 Processor: 1.26 GHz (minimum) Memory: 2 GB (minimum) Disk space requirements: — 200 MB for HP Command View EVA installation — 2 GB for HP Command View EVA log files (During heavy management command activity, the required space for logs may increase sharply in a 72-hour period.) — 10 MB for each managed array — 350 MB for HP Replication Solutions Manager installation — Additional 300–400 MB for HP Replication Solutions Manager installation to accommodate log and database growth — 10/100 Mps for RSM server to RSM host agent connectivity
Storage Management Appliance	G1, G2, G3
HP ProLiant Storage Server	HP ProLiant DL380 G4 Storage Server (base model) HP ProLiant DL380 G4 Storage Server (SAN model) HP ProLiant DL585 Storage Server HP ProLiant DL585 Dual Core Storage Server **Note:** In most configurations, the HP ProLiant DL380 SAN model is preferred.

Supported software for management server types

This table lists the software that is supported on each management server. Although multiple software products are compatible with a management server, it does not mean these software products are compatible with each other. A bullet (•) indicates compatibility, a blank cell indicates no compatibility, and "N/A" indicates the software is not applicable to the management server.

	General-purpose server	Dedicated management server	Storage Management Appliance	ProLiant Storage Server
HP Business Copy EVA 2.3 and later	•	•	•	•
HP Command View EVA 4.0 and later[1]	•	•	•	•
HP Command View EVA Cluster Failover on a Windows server				
HP Command View EVA 6.0 and Command View XP 2.2B and/or Command View XP AE 5.0 coexistence on same Windows server	•	•		•
HP StorageWorks Command View for Tape Libraries 1.8 and later and HP Command View EVA 6.0 software coexistence[2]	•			
HP StorageWorks Command View for Tape Libraries 1.5.05 and later and HP Command View EVA 5.0 software coexistence	•			
HP Replication Solutions Manager 1.0 and later[3]	•	•	•	•
HP StorageWorks Secure Path (required for multipath configurations)	•	N/A	N/A	•
HP StorageWorks Secure Path Manager[4]	•	•	•	•
HP Storage Essentials (Enterprise Edition)[5]		•		
HP OpenView Storage Area Manager	•		•	
HSG Element Manager 1.0f	N/A	N/A	•	N/A
ISEE Remote Support (HP platforms only)	•	•	•	•
Microsoft Operations Manager support (MOM)[6]	•	•	•	•
Number of HP StorageWorks Enterprise Virtual Arrays supported	16	16	16[7]	16
Operating system connectivity 3.0e and later OR Storport Driver	•	N/A	N/A	•
Operating systems[3]	Microsoft Windows Server 2003 Standard and Enterprise Editions SP1 or Rel 2 (32-bit) Microsoft Windows 2000 Server or Advanced Server SP3, SP4 (32-bit)	Microsoft Windows Server 2003 Standard and Enterprise Editions SP1 or Rel 2 (32-bit) Microsoft Windows 2000 Server or Advanced Server SP3, SP4 (32-bit)	HP Storage Management Appliance software 2.1 (based on Microsoft Windows 2000)	Microsoft Windows Storage Server 2003[3]
WEBES 4.5 (HP Services obligation required)	•	•	•	•

[1]Software must be installed on the C:\ drive. Do not install HP Command View EVA and either Storage Essentials or Systems Insight Manager on the same server.

[2]Currently, only one SMI-S provider (or CIMOM) can be installed on the management server. When HP Command View for Tape Libraries and HP Command View EVA are installed on the same management server, either the SMI-S Tape provider or the SMI-S EVA provider (but not both) can be installed.

[3]Do not install HP StorageWorks Command View SDM 1.09 and HP Replication Solutions Manager 1.1 or 1.2 on the same management server. Do not install HP Command View XP and HP Replication Solutions Manager on the same management server.

[4]SmartStart 7.2 requires HP Secure Path Manager 4.0C SP2.

[5]A dedicated management server is required for HP Storage Essentials. Do not install HP Command View EVA and Storage Essentials on the same server.

[6]Supported with HP StorageWorks Management Pack for MOM 2005.

[7]When running HP Replication Solutions Manager or HP Business Copy EVA 2.3 on the SMA G1, the maximum number of EVAs supported is four.

Supported EVA software operating environments

This table lists the supported servers, operating systems and application integration for EVA software. A bullet (•) indicates support on all EVA models, an EVA model indicates support with that EVA model only, and a blank cell indicates no support. The environments are:

HP Business Copy EVA Basic I/O—The ability for HP Business Copy EVA (independent of HP Replication Solutions Manager) to work with this operating system. There may or may not be support through HP RSM on that operating system, as indicated in this table.

HP Continuous Access EVA Basic I/O—The ability for HP Continuous Access EVA (independent of HP Replication Solutions Manager) to work with this operating system. There may or may not be support through HP RSM on that operating system, as indicated in this table.

HP RSM host agent—The HP RSM host agent is installed on servers running this operating system. The CLUI client is also supported on this operating system if the HP RSM host agent is installed.

HP RSM Server—The ability for HP Replication Solutions Manager to work with this operating system.

HP StorageWorks DButil—The command line utility that facilitates application-consistent replication of Microsoft SQL Server 2000 databases.

HP DButil is installed automatically with the HP RSM host agent on Windows servers.

HP CV EVA and EVAPerf—The ability for HP Command View EVA and HP Command View EVAPerf to work with this operating system.

HP SSSU–The ability for HP StorageWorks Storage Scripting Utility to be installed on and work with this operating system.

Server, OS, or application type	HP Business Copy EVA I/O	HP Continuous Access EVA I/O	HP RSM host agent[1] 2.0	2.1	HP RSM server 2.1	HP DBUtil	HP CV EVA 6.0 & EVAPerf 6.0	HP SSSU 5.0	6.0	Processor	Memory (in MB)	/opt	/etc	/var
Server														
Dedicated management server					•		•							
General-purpose server			•		•	•	•	•	•					
ProLiant Storage Server			•		•	•	•	•	•					
Storage Management Appliance					•		•							
Storage Management Appliance with HP OpenView Storage Area Manager					•		•							
Operating system														
HP HP-UX PA-RISC 11.11 / 11iv1 (64b)	All HP Business Copy EVA functions are supported on all EVA-supported operating systems.	•	•					•	•	256 Mhz	256	15	0.1	N/A
HP HP-UX 11.23 PI / 11iv2 (PA-RISC)		•	•					•	•	1 Ghz	512	19	0.1	N/A
HP HP-UX 11.23 PI / 11iv2 (Intel)		•	•					•	•	1 Ghz	512	19	0.1	N/A
HP OpenVMS 7.2.2		EVA3000/5000												
HP OpenVMS 7.3-1		EVA3000/5000									53 (Install) 57 KB (SYS$LIBRARY) 2 KB (SYS$STARTUP)			
HP OpenVMS 7.3-2		•	•[3]					•	•		256			
HP OpenVMS 8.2 on Alpha servers		•	•[4]					•	•					
HP OpenVMS 8.2-1 on Integrity servers				•[5,6]					•					
HP Tru64 5.1a		EVA3000/5000												
HP Tru64 5.1b		•		•[7]				•	•	1000 Mhz	1024	500	2	150
IBM AIX 5.1		EVA3000/5000												
IBM AIX 5.2		•	•[8,9]					•	•	340 MHz	256	106	<1	N/A
IBM AIX 5.3		•	•[8,9]					•	•	340 MHz	256	106	<1	N/A

[1]See the "Mounting host volumes" table for host volume mounting restrictions. The HP RSM 2.1 host agent is applicable to HP OpenVMS 8.2-1 and HP Tru64 5.1b only. Version 2.0 still applies for all other host agents.

[2]These are the minimum host agent requirements. Log files will require additional space.

[3]The HP RSM 2.0 host agent requires that the following patches be installed on the host server running this operating system: PCSI V1.0, SYS V8.0, Update V4.0, and FIBRE_SCSI V7.0. You can download these patches from the following web site: http://www.itrc.hp.com.

[4]The HP RSM 2.0 host agent requires that the FIBRE_SCSI V1.0 patch be installed on the host server running this operating system. You can download this patch from the following web site: http://www.itrc.hp.com.

[5]The HP RSM 2.1 host agent requires that the HP I64VMS VMS821I_UPDATE V3.0, HP I64VMS VMS821I_SYS V3.0, HP I64VMS VMS821I_PCSI V1.0, HP I64VMS VMS821I_FIBRE_SCSI V2.0, and HP I64VMS VMS821I_ICXXL V1.0 patches be installed on the host server running this operating system.
You can download these patches from the following web site: http://www.itrc.hp.com.

[6]Only QLogic host bus adapters are supported with this operating system.

[7]The HP RSM 2.1 host agent requires that CXX 7.1 runtime libraries be installed on the host server running this operating system.
Download the CXXLIB710 kit from the following URL: <ftp://ftp.compaq.com/pub/products/C-CXX/tru64/cxx/CXXREDIST710.tar>. This kit includes the CXX shared libraries.

[8]The HP RSM 2.0 host agent requires that either the IBM XL C/C++ Enterprise Edition 7.0 Compiler or the IBM C++ Runtime Environment (RTE) Components for AIX is installed on the host server running this operating system.
To download the current version of IBM C++ RTE, go to the following web site:
http://www-1.ibm.com/support/docview.wss?rs=32&context=SSEP5D&dc=D400&uid=swg24009788&loc=en_US&cs=UTF-8&lang=en.

[9]On IBM AIX 5.2, the HP RSM 2.0 host agent requires Maintenance Level 4 or later, however Maintenance Level 7 is recommended. On IBM AIX 5.3, the HP RSM 2.0 host agent requires Maintenance Level 3.

Supported EVA software operating environments (cont'd)

Server, OS, or application type	HP Business Copy EVA I/O	HP Continuous Access EVA I/O	HP RSM host agent[1] 2.0	HP RSM host agent[1] 2.1	HP RSM server 2.1	HP DBUtil	HP CV EVA 6.0 & EVAPerf 6.0	HP SSSU 5.0	HP SSSU 6.0	Processor	Memory (in MB)	Disk /opt	Disk /etc	Disk /var
Operating system														
Microsoft Windows 2000 Server		EVA3000/5000						•	•	600 MHz	512	47.454		
Microsoft Windows 2000 Advanced Server SP4 (32-bit)	All HP Business Copy EVA functions are supported on all EVA-supported operating systems.	•	•[10]		•	•	•	•	•					
Microsoft Windows Server 2003 Standard Edition SP1 or Rel 2		•	•[10]		•	•	•	•	•					
Microsoft Windows Server 2003 Enterprise Edition SP1 or Rel 2 (32-bit)		•	•[10]		•	•	•	•	•					
Microsoft Windows Server 2003 Enterprise Edition SP1 (64-bit Itanium)		•	•[10]			•				633 MHz	1024	84.266		
Microsoft Windows Server 2003 Datacenter Edition (64-bit Itanium)		•	•											
Microsoft Windows Server 2003 Extended Systems Standard Edition (x64-bit AMD)		•	•			•								
Microsoft Windows Server 2003 Extended Systems Enterprise Edition (64-bit)		•	•			•								
Microsoft Windows XP					•[11]									
Novell NetWare 5.1								•						
Novell Netware 6.5 SP5		•						•						
Red Hat Linux AS & ES 2.1 (32-bit) Update 5, 6								•		600 Mhz	512	30	1	N/A
Red Hat Linux AS & ES 2.1 (64-bit) Update 6, 7		•						•						
Red Hat Linux AS & ES 3.0 (32-bit) Update 7		•		•				•	•					
Red Hat Linux AS & ES 3.0 (64-bit) Update 7		•						•	•					
Red Hat Linux AS & ES 4.0 (32-bit) Update 3		•		•				•	•					
Red Hat Linux AS & ES 4.0 (x64-bit AMD) Update 3		•		•					•					
Red Hat Linux AS & ES 4.0 (64-bit Itanium) Update 3		•						•	•					
Sun Solaris 8		EVA3000/5000						•	•	250 Mhz	256	220	2	40
Sun Solaris 9		•	•[10,12]					•	•					
Sun Solaris 10		•	•[10]					•	•					

[10]The host agent on this operating system depends on SNIA libraries that are delivered with HP's SAN Infrastructure offerings. If you have not already done so, go to the Fibre Channel Host Bus Adapters section on the following web site and download the software for your HBA: http://h18006.www1.hp.com/storage/saninfrastructure.html.

[11]HP RSM server on Windows XP is supported for simulation mode only.

[12]The host agent on this operating system does not support VERITAS DMP when accessing an EVA4000, EVA6000, or EVA8000.

Supported EVA software operating environments (cont'd)

Server, OS, or application type	HP Business Copy EVA I/O	HP Continuous Access EVA I/O	Environment								HP RSM host agent resource requirements				
			HP RSM host agent[1]		HP RSM server 2.1	HP DBUtil	HP CV EVA 6.0 & EVAPerf 6.0	HP SSSU		Processor	Memory (in MB)	Disk space (in MB)			
			2.0	2.1				5.0	6.0			/opt	/etc	/var	
Operating system															
SuSE Linux 8 (32-bit) SP4		•						•	•	600 MHz	512	320	5	120	
SuSE Linux 8 (64-bit) SP4	All HP Business Copy EVA functions are supported on all EVA-supported operating systems.	•						•	•						
SuSE Linux SLES 9.0 (32-bit AMD) SP3		•	•												
SuSE Linux SLES 9.0 (32-bit Intel) SP3		•	•					•	•						
SuSE Linux SLES 9.0 (64-bit AMD) SP3		•	•												
SuSE Linux SLES 9.0 (64-bit Itanium) SP3		•						•	•						
VMware ESX Server 2.5		EVA3000/5000													
VMware ESX Server 2.5.2		•							•						
VMware ESX Server 2.5.3		•													
Application															
Oracle 9i, 10G R2			•[13]												

[13]Oracle application integration is supported on Windows hosts only and works in Real Application Clusters (RAC) environments. There is no ASM support for Oracle.

RSM host agent support

This table describes RSM host agent support for:

— Volume Manager

— Mounting host volume copies on the same host

— Multipath solutions

— Cluster software

Host operating system	Supported Volume Manager	Mounting a host volume copy on the same host as the source	Compatible multipath solution[3]		Supported cluster software
			EVA3000/5000	EVA4000/6000/8000	
HP HP-UX	Native Logical Volume[2]	Y	Secure Path 3.0F	Secure Path 3.0F, PVlinks (no VERITAS DMP)	Serviceguard
HP OpenVMS	No support for replication of volume groups	Y	Native multi-pathing is part of base OS	Native multi-pathing is part of base OS	Native clustering is part of base OS
HP Tru64 5.1b	Replication of LSM volumes are not supported	Y	Native multi-pathing in OS	Native multi-pathing in OS	TruCluster software
IBM AIX	Native Logical Volume	Y (EVA3000/5000 only)	Secure Path 2.0D SP2 or SP3[4]	MPIO 1.0.0.2 (Antemeta basic HP Business Copy EVA support only, no host agent support)	HACMP 5.3
Microsoft Windows	Replication of Windows dynamic disks and VERITAS Volume Manager are not supported	Y, except copies of Windows Cluster Quorum disks in the same cluster	Secure Path 4.0C SP2-1 MPIO Basic Failover 1.01	Full featured MPIO DSM for EVA 1.00.02	Microsoft Cluster Server
Red Hat Linux AS & ES 3.0 Update 7	Sistina 1.08-13	N	QLogic failover driver 7.07.03-fo (no Secure Path)		
Red Hat Linux AS & ES 4.0 Update 2, 3	Sistina 2.01.14		QLogic failover driver 8.01.03-fo (no Secure Path)		Serviceguard 11.16.01
Sun Solaris[1]	VERITAS Volume Manager 4.1	Y, except copies of Solaris disk groups	Secure Path 3.0D SP1[5]	MPxIO[6] and VERITAS DMP[7]	
SuSE Linux SLES 9.0 SPE	Sistina 2.01.14	N	QLogic failover driver 8.01.03-fo (no Secure Path)		

[1]The HP RSM host agent on the Solaris 9 operating system does not support VERITAS Volume Manager when accessing an EVA4000, EVA6000, or EVA8000.

[2]Replication manager host volume job commands are supported only on HP-UX disks with Logical Volume Manager.

[3]These solutions apply to HP Continuous Access EVA in general.

[4]Secure Path 2.0D SP3 is the minimum required version for AIX 5.3.

[5]To display host properties correctly, the HP RSM server software requires the QLA2310F/FCA2257P, QLA2342, QLA2340, or LP10000DC host bus adapter when running the Secure Path multipath solution.

[6]To display host properties correctly, the HP RSM server software requires the QLA2342 (SUN) host bus adapter when running the MPxIO multipath solution.

[7]To display host properties correctly, the HP RSM server software requires the ASL libraries on the host for QLA2310F/FCA2257P, QLA2342, or QLA2340 host bus adapter when running the VERITAS multipath solution.

Browser and JRE support

This table lists the supported browsers and JRE versions you can use to access HP EVA software and Storage Management Appliance user interfaces from the corresponding operating system. A supported JRE is required on the server from which you browse to HP Replication Solutions Manager and from which you run the remote CLUI client.

Operating system	Required browser	Supported JRE
HP HP-UX PA-RISC 11.11/11iv1 (64-bit)	Mozilla 1.7.3, Firefox 1.5	1.5.0_02 and later
HP HP-UX PA-RISC 11.23 PI 64	Mozilla 1.7.3, Firefox 1.5	1.5.0_02 and later
HP OpenVMS 8.2	Mozilla 1.7	1.4.2_02 and later
HP Tru64 5.1b[1]	Mozilla 1.7.5	1.4.5_02 and later
IBM AIX 5.3[1]	Mozilla 1.7.3	1.4.2_02 and later
Microsoft Windows 2000 Server	Internet Explorer 6.0 SP1	1.5.0_04 and later
Microsoft Windows Advanced Server SP4 (32-bit)	Internet Explorer 6.0 SP1	1.5.0_04 and later
Microsoft Windows 2000 Professional	Internet Explorer 6.0 SP1	1.5.0_04 and later
Microsoft Windows Server 2003 Standard Edition SP1 & Rel 2	Internet Explorer 6.0 SP1	1.5.0_04 and later
Microsoft Windows Server 2003 Enterprise Edition SP1 & Rel 2 (32-bit)	Internet Explorer 6.0 SP1	1.5.0_04 and later
Microsoft Windows XP Professional	Internet Explorer 6.0 SP1	1.5.0_04 and later
Red Hat Linux AS & ES 3.0 (32-bit) Update 7	Firefox 1.07, Firefox 1.5	1.5.0_04 and later
Red Hat Linux AS & ES 4.0 (x64-bit AMD & Itanium) Update 4	Firefox 1.0.8	1.4.1and later
Sun Solaris 9	Mozilla 1.7.3	1.5.0_04 and later

[1]Browsing to HP Replication Solutions Manager on this operating system is not supported.

EVA host connectivity

For the supported operating systems of hosts accessing EVA storage, see the OS-specific connectivity installation guides and connectivity release notes. You can find these documents from the Manuals page of the HP Business Support Center web site: http://www.hp.com/support/manuals. In the Storage section, click **Storage array systems** and then select the EVA model.

For supported switch information, see *HP StorageWorks SAN design reference guide* . In the Storage section of the Manuals page, select **SAN infrastructure** and then select **HP StorageWorks SAN**.

Supported array management features

An HP Command View EVA instance is defined as the active manager in the fabric. For each HP Command View EVA instance, the following features are supported across all arrays (up to 16 arrays) being managed:

— 1,024 DR groups (counting source-destination pairs together)

— 1,024 source-destination pairs

— 2,048 visible virtual disks

Supported local replication features by controller software version

Local replication features depend on the controller software version.						
Feature	**EVA controller software version**					
	VCS 3.028	**VCS 4.0x**	**XCS 5.02x**	**XCS 5.03x**	**XCS 5.1x**	**XCS 6.0x**
Direct connect	Not supported in HP Replication Solutions Manager environments, except with certain restrictions for Windows hosts. Specifically, you cannot mount snapshots or snapclones on a Windows host that is running the Replication Solutions Manager host agent and is directly attached to an EVA running XCS controller software.					
Mirrorclones						
Create mirrorclones						•
Resynchronize data from source virtual disk to mirrorlcone						•
Restore data from mirrorclone to source virtual disk						•
Snapclones						
Create containers (for snapclones)		•	•	•	•	•
Create snapclones in preallocated containers		•	•	•	•	•
Instant restore of virtual disks		•	•	•	•	•
Set disk group (for snapclones)		•	•	•	•	•
Set Vraid in copy	•	•	•	•	•	•
Snapshots						
Controller software enforced cross Vraid guidelines		•	•	•	•	•
Create snapshots in preallocated containers					•	•
Restore data from snapshot to source virtual disk						•
Set Vraid in copy	•	•	•	•	•	•
Maximum number of snapshots per source virtual disk	7	7	7	7	16[1]	16[1]
[1]16 TB maximum across the parent and all active snapshots of that parent.						

Supported remote replication features by controller software version

Remote replication features depend on the controller software version.

The following general rules apply to remote replication between an array with XCS controller software and an array with VCS controller software:

— If a feature is supported differently in the source and destination arrays, such as the maximum members of a DR group, the more restrictive value applies to the source-destination DR group pair.

— If a feature is not available in both controller software versions, the feature cannot be used in a source-destination DR group pair.

IMPORTANT: Testing of FC-IP support with HP Continuous Access EVA is ongoing. For the latest information, see *Part 4, SAN extension and bridging* of *HP StorageWorks SAN design reference guide*.

Feature	EVA controller software version					
	VCS 3.028	**VCS 4.0x**	**XCS 5.02x**	**XCS 5.03x**	**XCS 5.1x**	**XCS 6.0x**
Maximum number of single-member DR groups per array[1]	128	128	128	128	256	256[2]
Maximum number of virtual disk members of all DR groups per array[1]	128	128	128	128	256	256[2]
Maximum number of virtual disk members per DR group (16 TB maximum)	8	32	8	32	32	32
Maximum number of snapshots or snapclones per DR group (16 TB maximum per array)	8	8	8	8	16	16
Cabling scheme	Cross-cabling required	Even-numbered ports on both controllers to one fabric, odd-numbered ports on both controllers to the other fabric				
Maximum DR group log disk size	2x the combined size of DR group members (cannot be changed)	1x the combined size of DR group members (can be changed during DR group creation)				
	Absolute maximum is whichever of the following comes first: —Limit of free space in the disk group (containing the log) **OR** —1,966,079 MB					
Host failover on clusters running MetroCluster EVA and Cluster Extensions EVA	Supported					
Source and destination pair size	1 GB to 2 TB (in 1 GB increments)					
Boot from SAN	If the operating system supports Boot from SAN, replication of the boot disk is supported if the boot disk is in a standalone DR group.					
Direct connect	Not supported in HP Continuous Access EVA environments in which any ports are directly connected to a server.					
Host HBAs per array	The maximum depends on an array's platform/operating system rules. See *Part 3, Host and storage systems rules* of *HP StorageWorks SAN design reference guide* and the *Quickspecs* for HP Continuous Access EVA and the applicable array model.					
Dynamic load balancing with HP Continuous Access EVA	Dynamic load balancing (including adaptive path selection) is not supported in any HP Continuous Access EVA configuration.					
SAN extensions	For topics such as switch types, Wavelength Division Multiplexing (WDM) and Fibre Channel over Synchronous Optical Network (FC-SONET), see *Part 4, SAN extension and bridging* of *HP StorageWorks SAN design reference guide*.					
Switches per fabric	See *Part 2, Fabric infrastructure rules* of *HP StorageWorks SAN design reference guide*.					

[1]For best performance when using HP Replication Solutions Manager, do not exceed 512 single-member DR groups and 512 source-destination pairs across all arrays.

[2]When using enhanced asynchronous replication (between arrays running XCS 6.0x and later), the maximum is 96.

Other limits may apply.

Supported links and bandwidths

This table show the link technologies and bandwidths that HP Continuous Access EVA supports for intersite links. HP Continuous Access EVA supports bandwidths from 2 Mb/s to 4 GB.	
Technology	**Bandwidth (Mb/s)**
4 Gb/s Fibre Channel	4000
2 Gb/s Fibre Channel	2000
1 Gb/s Fibre Channel	1000
1 GbE (Gigabit Ethernet) IP	1000
OC3 IP	155.5
E4 IP	139.3
100 Mb/s IP	100
T3 IP	44
E3 IP	34.304
10 Mb/s IP	10
E1 IP	2.048 (minimum supported bandwidth)
T1 IP	1.54 (not supported)