



External Storage Support Matrix

Hitachi Virtual Storage Platform G1x00, F1500, F900,G900,F800,G800, F700,G700,F600,G600,F400,G400,F370,G370,F350,G350,G200, VSP, HUS-VM, USP-V

Note: Configurations added since the last matrix will be shown in red text.

Introduction

Use this interoperability matrix to check whether a proposed customer configuration is supported. Each tab contains a set of components that together comprise an HDS-supported solution.

Please note that the switch and firmware support only indicates Hitachi support from the RAID800 to the indicated switches.

It does not imply support all the way through the switch to the external storage subsystem.

The customer must consult with the External Storage vendor to determine if that vendor also supports the same switch/firmware combination connected to their external storage device.

If you need information regarding SW/Extender or firmware version not provided in this list, Switch and Extender supported for TrueCopy will apply to UVM link as well.

The connection between the local G1x00 subsystem and external storage subsystem uses FC and FCoE and ISCSI.

The connection between the local Gxx0 subsystem and external storage subsystem uses FC and ISCSI.

The connection between the local VSP, HUS-VM,USP-V subsystems and external storage subsystem uses FC interface only.

If a combination does not appear on the OS support matrix, the customer's Hitachi Data Systems Sales Engineer (SE) or other HDS field service employee must submit an Interoperability Support Request in order to gain support for the new configuration.

Note that in some cases a component (HBA, driver, switch, switch firmware version) may no longer be supported (end of service life, EOSL) in which case the customer should choose components that are already supported from the matrix. Click on a tab to view associated components.

Gxx0 refers to : G900,G800,G700, G600, G400,G370,G350 and G200

Fxx0 refers to: F900,F800,F700,F600,F400,F370,F350

G1x00 refers to : G1500 and G1000

Legal Disclaimer

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VSP G1x00. F1500. Gxx0. Fxx0 VSP. HUS-VM. USP-V External Storages support for FC/FCoE* connected Hitachi Arrays

Hitachi Products Supported as External Storages		G1x00 F1500 VSP	HUS-VM	Gxx0 Fxx0 USP-V	Notes
External storage Model	External storage f/w	Path Mode	Displayed as	Path #	
VSP G1x00	-	Active/Active	HITACHI VSP G1000	Multi	If virtualized behind the VSP, use 70-06-16-00/00 or later If virtualized behind the HUS-VM, use 73-03-50-00/00 or later
VSP F1500	-	Active/Active	HITACHI VSP	Multi	
VSP Gxx0	-	Active/Active	HITACHI VSP Gxx0	Multi	If virtualized behind the HUS-VM, use 73-03-36-00/00 or later If virtualized behind the VSP, use 70-06-28-00/00 or later If virtualized behind the G1000, use 80-02-41-00/00 or later
VSP Fxx0	-	Active/Active	HITACHI VSP Fxx0	Multi	
HUS VM	-	Active/Active	HITACHI HUS VM	Multi	Mainframe emulation can not be virtualized as external volumes If virtualized behind the VSP, use 70-04-51-00/00 or later
USP V	-	Active/Active	HITACHI USP V	Multi	
USP VM	-	Active/Active	HITACHI USP VM	Multi	
USP	-	Active/Active	HITACHI USP	Multi	
NSC	-	Active/Active	HITACHI NSCS5	Multi	
HUS110/130/150	-	Active/Active	HITACHI HUS	Multi	Emulation Type of mapped volumes must be set "OPEN-V".
AMS2010 DF800E-XS	0890/A-W or later	Active/Active	HITACHI AMS	Multi	
AMS2100/2300/2500	-	Active/Active	HITACHI AMS	Multi	
AMS200/500/1000	-	Active/Passive	HITACHI AMS	Single	
WMS 100	-	Active/Passive	HITACHI WMS	Single	
Lightning 9900V Series	-	Active/Active	HITACHI 9970V/9980V	Multi	
Lightning 9900 Series	-	Active/Active	HITACHI 0400/0401	Multi	
Lightning 7700 Series	-	Active/Active	HITACHI 300	Multi	
TMS1000	-	Active/Passive	HITACHI AMS	Single	
Thunder 9530V/9570V/9580V/9585V	0658(1658) or later	Active/Passive	HITACHI 9500V	Single	
SMS100	-	Active/Active	HITACHI SMS	Multi	
Thunder 9200	-	Active/Passive	HITACHI 1000	Single	supported DF400-emulation (with a PID of DF400)
General notes	<p>All models' serial numbers are displayed unless noted otherwise ALLUA is not supported Refer to the configuration tab for connectivity details G1000: minimum microcode version is 80-01-01-00/00 G1500: minimum microcode version is 83-04-01-00/00 VSP: minimum microcode version: 70-01-01-00/00 HUS-VM: Minimum microcode version: 73-01-01-00/00 Gxx0/Fxx0: Minimum Microcode version: 83-01-01-00/00 / 88-01-01-x0/00 * Note only the G1000 supports connectivity to external storage both via its FC and FCoE interfaces. However, the FCoE interface does not support the direct connection</p>			<p>On Platforms that support Generic Profile, users can connect and virtualize most FC/FCoE attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory). Platforms that support Generic Profile: G1000: GA microcode G1500: 80-05-01-00/00 and higher VSP: V04 and higher HUS VM: V02 and Higher Gxx0/Fxx0: GA microcode</p>	

VSP G1x00, F1500, Gxx0, Fxx0 VSP, HUS-VM, USP-V External Storages support for FC/FCoE* connected 3PARdata Arrays

3PARdata Products Supported as External Storages		G1x00 F1500 VSP	HUS-VM Gxx0 Fxx0	USP-V	Notes
External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
S400	2.2.2.126 or later	Active/Active	3PARdata VV	Multi	
S400X	2.3.1 (MU3) or later	Active/Active	3PARdata VV	Multi	HUS-VM does not support this array.
T800/F400	from 2.3.1 (MU2) to 3.1.1 *	Active/Active	3PARdata VV	Multi	
T400	2.3.1 (MU2) or later	Active/Active	3PARdata VV	Multi	
V800/V400	2.3.1 (MU2) or later	Active/Active	3PARdata VV	Multi	
StoreServ 10000 series	2.3.1 (MU2) or later	Active/Active	3PARdata VV	Multi	
StoreServ 7000 series	2.3.1 (MU2) or later	Active/Active	3PARdata VV	Multi	
StoreServ 7450	3.1.2 or later	Active/Active	3PARdata VV	Multi	
StoreServ 8000 series	3.1.2 or later	Active/Active	3PARdata VV	Multi	
StoreServ 20000 series	3.1.2 or later	Active/Active	3PARdata VV	Multi	

General notes	<p>All models: serial numbers is NOT displayed</p> <p>ALUA is not supported unless otherwise noted</p> <p>Refer to the configuration tab for connectivity details</p> <p>G1000: minimum microcode version is 80-01-01-00/00</p> <p>G1500: minimum microcode version is 83-04-01-00/00</p> <p>VSP: minimum microcode version 70-05-14-XX/XX or later</p> <p>HUS-VM: Minimum microcode version: 73-01-01-00/00</p> <p>Gxx0/Fxx0: Minimum Microcode version: 83-01-01-00/00, 88-01-01-x0/00</p> <p>All models: Do NOT map volumes when "Dynamic optimization" or "Adaptive optimization" is enabled at these external storages.</p> <p>All models: Host mode of all 3PARdata external storages must be "generic-legacy".</p> <p>"Dynamic optimization" and "Adaptive optimization" of these external storages must NOT be used.</p>	<p>On Platforms that support Generic Profile, users can connect and virtualize most FC/FCoE attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory).</p> <p>Platforms that support Generic Profile:</p> <p>G1000: GA micro-code</p> <p>G1500: 80-05-01-00/00 and higher</p> <p>VSP: V04 and higher</p> <p>HUS VM: V02 and Higher</p> <p>Gxx0/Fxx0: GA microcode</p>
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VSP G1x00, F1500, Gxx0, Fxx0, VSP, HUS-VM, USP-V External Storages support for FC/FCoE* connected EMC Arrays

EMC Products Supported as External Storages		G1x00 F1500 VSP HUS-VM Gxx0 Fxx0 USP-V	Notes		
External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
Symmetrix 3830/3930/8530/8730/8830	-	Active/Active	EMC SYMMETRIX	Multi	SC3 flag needs must be enabled and SPC2 flag must be disabled.
DMX-3/DMX-4	-	Active/Active	EMC SYMMETRIX	Multi	Port mode "Volume Set Addressing" must be turned off in order to see any LUN. SC3 flag needs must be enabled and SPC2 flag must be disabled.
DMX 800/1000/2000/3000	-	Active/Active	EMC SYMMETRIX	Multi	SC3 flag needs must be enabled and SPC2 flag must be disabled.
V-MAX series	-	Active/Active	EMC SYMMETRIX	Multi	SC3 flag needs must be enabled and SPC2 flag must be disabled.
Clarix CX-3/CX-4/ CX200/300/400/500/600/700	-	Active/Passive	DGC RAID	Single	"ArrayCommPath" must be disabled. "Failover Mode" of ports must be set to "2". Set 'trespass' bit is set in the CX Series GUI, so a second controller can takeover for a failed primary controller on a per-LU basis. Volumes created with the RAID0 level or Individual Disk Units (iBOD disks) are not supported.
VNX series	-	Active/Passive	DGC RAID	Single	"ArrayCommPath" must be disabled. "Failover Mode" of ports must be set to "2". Set 'trespass' bit is set in the CX Series GUI, so a second controller can takeover for a failed primary controller on a per-LU basis. Volumes created with the RAID0 level or Individual Disk Units (iBOD disks) are not supported.
Xtrem IO	-	Active/Active	EMC	Multi	serial number is not displayed. USP-V does not support Xtrem IO
Compellent S40 Compellent SC8000	5.5.3 - 6.5 6.6 or later	Active/Passive	DELL Compellent	Single	Serial Number is NOT displayed Do not apply the profile tool for Dell Compellent firmware 6.6 or later. Doing so, might result in mapping failure, losing access to the external storage and DP-Vol blockage. when upgrading the Compellent S40 firmware to 6.6 or later, you must follow the 6 steps outlined in the footnote below. Failure to do so, will result in loss of access and DP-Vol blockage. Set mode 563 to ON before applying the profile tool for Dell Compellent firmware version 6.6 or later. And then set mode 563 to OFF after having applied the custom profile tool for Dell firmware version 6.6 or later Refer to [Additional Restrictions] noted below.
Unity 450F	4.3.0	Active/Passive	DGC RAID	Single	Direct connection using Fibre Channel speed 8Gbps or lower is not supported. Online Firmware upgrade on the external storage is not supported. If firmware upgrade on the external storage is required, disconnect Unity 450F used as the external storage, execute firmware upgrade, and then reconnect it.

General notes	All models' serial numbers are displayed unless noted otherwise ALUA is not supported unless otherwise noted Refer to the configuration tab for connectivity details G1000: minimum microcode version is 80-01-01-00/00 G1500: minimum microcode version is 83-04-01-00/00 VSP: minimum microcode version: 70-01-01-00/00 HUS-VM: Minimum microcode version: 73-01-01-00/00 Gxx0/Fxx0: Minimum Microcode version: 83-01-01-00/00, 88-01-01-x0/00	On Platforms that support Generic Profile, users can connect and virtualize most FC/FCoE attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory). Platforms that support Generic Profile: G1000: GA micro-code G1500: 80-05-01-00/00 and higher VSP: V04 and higher HUS VM: V02 and Higher Gxx0/Fxx0 : GA microcode
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<p>Important Instructions when upgrading the Dell Compellent firmware to version 6.6 from versions 6.5 and older.</p> <p>Please note, failure to follow these steps will result in mapping failures, access loss in the Dell Compellent external storage, and DP-VOL blockage.</p> <ol style="list-style-type: none"> 1 Disconnect the Dell Compellent external storage. 2 Remove all external volumes on which the Dell Compellent external storage is mapped. 3 Set mode 563 to ON. 4 Apply the profile tool for Dell Compellent firmware version 6.6 or later. 5 Set mode 563 to OFF. 6 Map the Dell Compellent external storage. 	<p>[Additional Restrictions]</p> <p>If the currently running microcode does not support the SC40/SC8000 natively (i.e 83-01-01-xx/00 or later), any of the following actions will cause access loss to the external storages.</p> <ol style="list-style-type: none"> (i) Microcode upgrade/downgrade to the version that does not support the fw of this external storage. (ii) Controller replacement (iii) A power-cycle (iv) A power-outage <p>Install the profile tool again to restore.</p>
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VSP G1x00. F1500. Gxx0. Fxx0. VSP. HUS-VM. USP-V External Storages support for FC/FCoE* connected Fujitsu Arrays

Fujitsu Products Supported as External Storages		G1x00 F1500 VSP HUS-VM Gxx0 Fxx0 USP-V	Notes		
External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
ETERNUS3000	-	Active/Passive	FUJITSU E3000	Single	
ETERNUS8000	-	Active/Active	FUJITSU E8000	Multi	
ETERNUS4000	-	Active/Passive	FUJITSU E4000	Single	
ETERNUS4000(Model80)	-	Active/Passive	FUJITSU E4000	Single	
ETERNUS DX400	-	Active/Active	FUJITSU ETERNUS_DX400	Multi	
ETERNUS DX8000	-	Active/Active	FUJITSU ETERNUS_DX8000	Multi	
ETERNUS DX60/80/90	-	Active/Active	FUJITSU ETERNUS_DXL	Multi	
ETERNUS DX400 S2	-	Active/Active	FUJITSU ETERNUS_DX400	Multi	"Inquiry VPD ID Type" in "Setup Host Response" screen must be set to "Type1 + Type3". "Load Balance Response" in "Setup Host Response" screen must be set to "Busy".
ETERNUS DX60/80/90 S2	-	Active/Active	FUJITSU ETERNUS_DXL	Multi	"Inquiry VPD ID Type" in "Setup Host Response" screen must be set to "Type1 + Type3". "Load Balance Response" in "Setup Host Response" screen must be set to "Busy".
ETERNUS DX100/200 S3	-	Active/Active	FUJITSU ETERNUS_DXL	Multi	"Inquiry VPD ID Type" in "Setup Host Response" screen must be set to "Type1 + Type3". "Load Balance Response" in "Setup Host Response" screen must be set to "Busy".
ETERNUS DX500/600 S3	-	Active/Active	FUJITSU ETERNUS_DXM	Multi	"Inquiry VPD ID Type" in "Setup Host Response" screen must be set to "Type1 + Type3". "Load Balance Response" in "Setup Host Response" screen must be set to "Busy".
FibreCAT CX3-80	-	Active/Passive	DGC RAID	Single	"Initiator Type" needs to be set to "CLARiiON Open". "Failover Mode" of ports on the CX Series needs to be set to "2". Set 'trespass' bit in the CX Series GUI, so a second controller can takeover for a failed primary controller on a per-LU basis. Volumes created with the RAID0 level or Individual Disk Units (JBOD disks) of Fujitsu FibreCAT CX3-80 series are not supported.
ETERNUS AF250		Active/Active	FUJITSU ETERNUS_DXL	Multi	
ETERNUS DX60/100 S4		Active/Active	FUJITSU ETERNUS_DXL	Multi	
ETERNUS DX200 S4		Active/Active	FUJITSU ETERNUS_DXL	Multi	
ETERNUS AF250 S2		Active/Active	FUJITSU ETERNUS_DXL	Multi	
ETERNUS AF650		Active/Active	FUJITSU ETERNUS_DXM	Multi	
ETERNUS DX500/600 S4		Active/Active	FUJITSU ETERNUS_DXM	Multi	
ETERNUS AF650 S2		Active/Active	FUJITSU ETERNUS_DXM	Multi	

General notes	<p>All models' serial numbers are displayed unless noted otherwise ALUA is not supported unless otherwise noted Refer to the configuration tab for connectivity details G1000: minimum microcode version is 80-01-01-00/00 G1500: minimum microcode version is 83-04-01-00/00 VSP: minimum microcode version: 70-01-01-00/00 HUS-VM: Minimum microcode version: 73-01-01-00/00 Gxx0/Fxx0: Minimum Microcode version: 83-01-01-00/00, 88-01-01-x0/00</p>	<p>On Platforms that support Generic Profile, users can connect and virtualize most FC/FCoE attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory). Platforms that support Generic Profile: G1000: GA micro-code G1500: 80-05-01-00/00 and higher VSP: V04 and higher HUS VM: V02 and Higher Gxx0/Fxx0: GA microcode</p>
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VSP G1x00, F1500, Gxx0, Fxx0, VSP, HUS-VM, USP-V External Storages support for FC/FCoE* connected HP Arrays

HP Products Supported as External Storages		G1x00 F1500 VSP HUS-VM Gxx0 Fxx0 USP-V	Notes		
External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
XP7/VX7	-	Active/Active	HP XP7	Multi	For VSP, 70-06-09-00/60 or later is required
P9500	-	Active/Active	HP P9500	Multi	
XP24000 H24000	-	Active/Active	HP 24000	Multi	
XP20000 H20000	-	Active/Active	HP 20000	Multi	
XP12000 H12000	-	Active/Active	HP 12000	Multi	
XP10000 H10000	-	Active/Active	HP 10000	Multi	
XP256 H256	-	Active/Active	HP 256	Multi	
XP48/XP512 H48/H512	-	Active/Active	HP 48/512	Multi	
XP128/XP1024 H128/H1024	-	Active/Active	HP 128/1024	Multi	
SVS200	-	Active/Active	HP SVS200	Multi	
EVA3000	4.000 or later	Active/Passive(AAA)(*)	HP HSV	Single	
EVA5000	4.000 or later	Active/Passive(AAA)(*)	HP HSV	Single	ALUA is supported when virtualized behind the G1000
EVA4000/4100/4400	5.031 or later	Active/Passive(AAA)(*)	HP HSV	Single	
EVA6000/6100	5.031 or later	Active/Passive(AAA)(*)	HP HSV	Single	
EVA6400	5.031 or later	Active/Passive(AAA)(*)	HP HSV	Single	
EVA8000/8100	5.031 or later	Active/Passive(AAA)(*)	HP HSV	Single	
EVA8400	5.031 or later	Active/Passive(AAA)(*)	HP HSV	Single	
P6300/6500 EVA	-	Active/Passive(AAA)(*)	HP HSV	Single	
MSA1040	-	Active/Active	HPE MSA 1040 SAN	Multi	Serial number display is not supported.
MSA2040	-	Active/Active	HPE MSA 2040 SAN	Multi	Serial number display is not supported.

General notes	<p>All models' serial numbers are displayed unless noted otherwise</p> <p>ALUA is not supported unless otherwise noted</p> <p>Refer to the configuration tab for connectivity details</p> <p>G1000: minimum microcode version is 80-01-01-00/00</p> <p>G1500: minimum microcode version is 83-04-01-00/00</p> <p>VSP: minimum microcode version: 70-01-01-00/00</p> <p>HUS-VM: Minimum microcode version: 73-01-01-00/00</p> <p>Gxx0/Fxx0: Minimum Microcode version: 83-04-20-00/00, 88-01-01-x0/00</p> <p>Profile tool is not needed unless noted otherwise.</p> <p>(*)Active/Passive(AAA) is Asymmetrical Active – Active. G1000, Gxx0 models treats "Asymmetrical Active-Active" as "Active/Passive"</p>	<p>On Platforms that support Generic Profile, users can connect and virtualize most FC/FCoE attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory).</p> <p>Platforms that support Generic Profile:</p> <p>G1000: GA micro-code</p> <p>G1500: 80-05-01-00/00 and higher</p> <p>VSP: V04 and higher</p> <p>HUS VM: V02 and Higher</p> <p>Gxx0/Fxx0: GA microcode</p>
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VSP G1x00. F1500. Gxx0. Fxx0. VSP. HUS-VM. USP-V External Storages support for FC/FCoE* connected IBM Arravs

IBM Products Supported as External Storages		G1x00 F1500 VSP HUS-VM Gxx0 Fxx0 USP-V			Notes
External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
TotalStorage ESS 2105	-	Active/Active	IBM2105	Multi	
DS4700	-	Active/Passive	IBM1814	Single	To enable alternate paths configuration across controllers/clusters, set host-type on the port to "Linux".
DS4100(FASt100)/ DS4300(FASt600)/ DS4400(FASt700)/ DS4500(FASt900)/ DS3400	6.10.11.00 or later	Active/Passive	IBM17XX	Single	To enable alternate paths configuration across controllers/clusters, set host-type on the port to "Linux".
DS3500	-	Active/Passive	IBM17XX	Single	To enable alternate paths configuration across controllers/clusters, set host-type on the port to "Linux".
DS4800	-	Active/Passive	IBM18XX	Single	To enable alternate paths configuration across controllers/clusters, set host-type on the port to "Linux".
DS5020	-	Active/Passive	IBM1814	Single	To enable alternate paths configuration across controllers/clusters, set host-type on the port to "Linux".
DS5100/5300	-	Active/Passive	IBM18XX	Single	To enable alternate paths configuration across controllers/clusters, set host-type on the port to "Linux".
DS6000	-	Active/Passive	IBM17XX	Single	Serial number display is not supported.
DS8000	-	Active/Active	IBM2107	Multi	
SVC	4.3.1.7 or later	Active/Passive	IBM SVC	Single	Host type must be set to "Generic". NL-port Direct Connection is not supported (Config 1, Config 3)
V7000	6.1.0.6 or later	Active/Passive	IBMSVC	Single	Host type must be set to "Generic". NL-port Direct Connection is not supported (Config 1, Config 3)
V9000/V5000/V3000/V840	6.1.0.6 or later	Active/Passive	IBMSVC	Single	Host type must be set to "Generic". NL-port Direct Connection is not supported (Config 1, Config 3)
XIV	10.1.0.a or later	Active/Active	IBM XIV	Multi	LUN#0 must be enabled in IBM XIV volume setting. If LUN#0 is disabled, SSB EC=ACF0 will occur when discovery operation is attempted. XIV serial number is displayed in hex at the last five digits of serial number in UVM device operation tree. XIV device serial number is displayed in hex as characteristic 1 in UVM device operation list. NL-port Direct Connection is not supported (Config 1, Config 3)
Flash System 840	1.1.2.2 or later	Active/Active	IBM FlashSystem-9840	Multi	Serial number display is not supported. If virtualized behind the G1000, use 80-02-20-00/00 or later
Flash System 900	1.1.2.2 or later	Active/Active	IBM FlashSystem-9840	Multi	If virtualized behind the HUS VM, use 73-03-37-00/00 or later If virtualized behind the VSP, use 70-06-29-00/00 or later If virtualized behind the G1000, use 80-02-24-00/00 or later
General notes	<p>All models' serial numbers are displayed unless noted otherwise ALUA is not supported unless otherwise noted Refer to the configuration tab for connectivity details G1000: minimum microcode version is 80-01-01-00/00 G1500: minimum microcode version is 83-04-01-00/00 VSP: minimum microcode version:70-02-03-00/00 HUS-VM: Minimum microcode version:73-01-01-00/00 Gxx0/Fxx0: Minimum Microcode version: 83-01-01-00/00, 88-01-01-x0/00</p>			<p>On Platforms that support Generic Profile, users can connect and virtualize most FC/FCoE attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory). Platforms that support Generic Profile: G1000:GA micro-code G1500: 80-05-01-00/00 and higher VSP: V04 and higher HUS VM: V02 and Higher Gxx0/Fxx0 :GA microcode</p>	

VSP G1x00. F1500. Gxx0. Fxx0. VSP. HUS-VM. USP-V External Storages support for FC/FCoE* connected SUN Arravs

SUN Products Supported as External Storages		G1x00 F1500 VSP HUS-VM Gxx0 Fxx0 USP-V	Notes		
External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
StorEdgeT3B (T3BES and T3BWG)	-	Active/Passive	SUN T3	Single	* SE3910, SE3960, SE6910, and SE6960 are not supported Serial number display is not supported
StorEdge6120/6320	-	Active/Passive	SUN T4	Single	Fibre channel Speed must be set to 2GB fixed setting is supported. Serial number display is not supported
StorEdge3511	-	Active/Passive	SUN StorEdge3511	Single	
StorEdge3510	-	Active/Passive	SUN StorEdge3510	Single	
StorEdge6130	-	Active/Passive	SUN CSM100_R_FC	Single	Serial number display is not supported
StorEdge6140	-	Active/Passive	SUN CSM200_R	Single	Serial number display is not supported
StorEdge6540	-	Active/Passive	STK FLEXLINE380	Single	Serial number display is not supported
StorEdge6580/6780	-	Active/Passive	SUN STK6580_6780	Single	Serial number display is not supported
D178	-	Active/Passive	STK D178	Single	Serial number display is not supported
D240	-	Active/Passive	STK FLX240	Single	Serial number display is not supported
D280	-	Active/Passive	STK D280	Single	Serial number display is not supported
BC82	-	Active/Passive	STK BC82	Single	Serial number display is not supported
FLEXLINE 240	-	Active/Passive	STK FLX240	Single	Serial number display is not supported
FLEXLINE 280	-	Active/Passive	STK D280	Single	Serial number display is not supported
FLEXLINE 380	-	Active/Passive	STK FLEXLINE380	Single	For Switch connection configuration(config3, config4), Fibre connection link up may take some time to establish. Serial number display is not supported
ST9960/9910	-	Active/Active	HITACHI 0400/0401	Multi	
ST9980/9970	-	Active/Active	HITACHI 9980V/9970V	Multi	
ST9990/9985	-	Active/Active	HITACHI USP/NSC55	Multi	
ST9990V	-	Active/Active	HITACHI USP V/USP VM	Multi	
ST2540	-	Active/Passive	SUN LCSM100_F	Single	The host type of each port on ST2540 needs to be set to "Windows 2K non Clustered DIMP". Serial number display is not supported
ST V2X2 (SVA)	-	Active/Passive	SUN V2X	Single	Alternate paths configuration is NOT supported.. Only config 1 and Config 2 are supported.
ZFS Storage 7120	2013.06.05.1.11,1-1.1 or later	Active/Active	SUN ZFSStorage7120	Multi	Serial number display is not supported. Requires VSP G1000 m/c 80-02-20-00/00 or newer
ZFS Storage ZS4-4	-	Active/Active	SUN ZFS Storage7430	Multi	Serial number display is not supported. If virtualized behind the HUS-VM use 73-03-37-00/00
ZFS Storage ZS3-2	-	Active/Active	SUN ZFS Storage7330	Multi	Serial number display is not supported. If virtualized behind the HUS-VM use 73-03-37-00/00
ZFS Storage ZS3-4	-	Active/Active	SUN ZFS Storage7420	Multi	Serial number display is not supported. If virtualized behind the HUS-VM use 73-03-37-00/00
ZFS Storage 7320	-	Active/Active	SUN ZFS Storage7320	Multi	Serial number display is not supported. If virtualized behind the HUS-VM use 73-03-37-00/00
ZFS Storage 7420	-	Active/Active	SUN ZFSStorage7420	Multi	Serial number display is not supported. If virtualized behind the HUS-VM use 73-03-37-00/00
General notes	<p>All models' serial numbers are displayed unless noted otherwise ALUA is not supported unless otherwise noted Refer to the configuration tab for connectivity details G1000: minimum microcode version is 80-01-01-00/00 G1500: minimum microcode version is 83-04-01-00/00 VSP: minimum microcode version: 70-01-01-00/00 HUS-VM: Minimum microcode version: 73-01-01-00/00 Gxx0/Fxx0: Minimum Microcode version: 83-01-01-00/00, 88-01-01-x0/00</p>			<p>On Platforms that support Generic Profile, users can connect and virtualize most FC/CoE attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory). Platforms that support Generic Profile: G1000: GA micro-code G1500: 80-05-01-00/00 and higher VSP: V04 and higher HUS VM – V02 and Higher Gxx0/Fxx0: GA microcode</p>	

VSP G1x00, F1500, Gxx0, Fxx0, VSP, HUS-VM, USP-V External Storages support for FC/FCoE* connected NetApp, Nexan & XioTech Arrays

XioTech Products Supported as External Storages		G1x00 F1500 VSP HUS-VM Gxx0 Fxx0 USP-V			Notes
External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
Emprise5000	V1.2 or later	Active/Active	XIOTECH ISE1400	Multi	Serial Number is NOT displayed Direct connection, config 1 & 2, are NOT supported.
Hyper ISE	v2.2.0 or later	Active/Active	XIOTECH ISE2400	Multi	Serial Number is NOT displayed Direct connection, config 1 & 2, are NOT supported.
ISE-2	-	Active/Active	XIOTECH ISE2400	Multi	Serial Number is NOT displayed Direct connection, config 1 & 2, are NOT supported.
NetApp Products Supported as External Storages		G1000 VSP HUS-VM Gxx0 Fxx0 USP-V			Notes
External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
FAS3000/6000/8000	7.2.5.1 or later	Active/Passive	NETAPP LUN	Single	"cfmode" on the FAS Series needs to be set to "single_image" for both controllers in a cluster . Serial Number is NOT displayed
FAS6200	7.2.5.1 or later	Active/Passive	NETAPP LUN	Single	
E5400 series	07.80.55.00 or later	Active/Passive	LSI INF-01-00	Single	
V3100 series V3200 series V6000 series V6200 series	7.2.5.1 or later	Active/Passive	NETAPP LUN	Single	Restrictions on ALUA only : After firmware update of Netapp A200, Asymmetric Access State may not be automatically restored. When it occurs, please recover by reconnecting after a certain time.
A200	9.2 or later	Active/Passive	NETAPP LUN	Single	Direct connection using Fibre Channel speed 8Gbps or lower is not supported.
Nexsan Products Supported as External Storages		G1000 VSP HUS-VM Gxx0 Fxx0 USP-V			Notes
External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
SATABeast	-	Active/Active	NEXSAN SATABeast	Multi	Switch connection configuration is NOT supported. Only config 1 & 2 are supported. Firmware version NwXX upgrade is not supported
SATABeast2	-	Active/Active	NEXSAN SATABeast	Multi	Switch connection configuration is NOT supported. Only config 1 & 2 are supported. Firmware version CwXX upgrade is not supported
SASBeast	-	Active/Active	NEXSAN SATABeast	Multi	Switch connection configuration is NOT supported. Only config 1 & 2 are supported. Firmware version CwXX upgrade is not supported
ATABeast	-	Active/Passive	NEXSAN ATABeast	Single	Switch connection configuration is NOT supported. Only config 1 & 2 are supported
Eseries	-	Active/Active	NEXSAN E-series	Multi	Direct connection, config 1 & 2, are NOT supported.
General notes	<p>All models' serial numbers are displayed unless noted otherwise ALUA is not supported unless otherwise noted Refer to the configuration tab for connectivity details G1000: minimum microcode version is 80-01-01-00/00 G1500: minimum microcode version is 83-04-01-00/00 VSP: minimum microcode version: 70-06-01-00/00 HUS-VM: Minimum microcode version: 73-01-01-00/00 Gxx0/Fxx0: Minimum Microcode version: 83-01-01-00/00, 88-01-01-x0/00</p>				<p>On Platforms that support Generic Profile, users can connect and virtualize most FC/FCoE attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory). Platforms that support Generic Profile: G1000: GA micro-code G1500: 80-05-01-00/00 and higher VSP: V04 and higher HUS VM: V02 and Higher Gxx0/Fxx0: GA microcode</p>

VSP G1x00, F1500, Gxx0, Fxx0, VSP, HUS-VM, External Storages support for FC/FCoE* connected Other Vendor Arrays

Other Products Supported as External Storages			G1x00 F1500 VSP HUS-VM Gxx0 Fxx0 USP-V	Notes		
Manufacturer	External storage Models	External storage f/w	Path Mode	Displayed as	Path #	
ADTX	Array MasStor L	-	Active/Passive	ADTX AXRR-L	Single	
DDN	SFA10000	v.1.4.3.1 or later	Active/Passive	DDN SFA 10000	Single	Serial Number is NOT displayed
Gateway	840FC	-	Active/Passive	Gateway 840FC	Single	Serial Number is NOT displayed. Only config 1 & 2 are supported
NEC	iStorage M series	-	Active/Passive	NEC M series	Single	Serial Number is NOT displayed
SGI	IS4600	-	Active/Passive	SGI IS600	Single	Serial Number is NOT displayed. For alternate paths configuration across different controllers/clusters, set the host-type to "Linux".
Violin Memory	Violin 3000 series	VMOS 5.5.1	Active/Active	VIOLIN	Multi	Supported via generic profile Load Balance Mode must be set "Extended Round-robin" or "Normal Round-robin". Serial Number is NOT displayed. Only Config 1 & 3 are supported
Promise	Vtrak E610f	3.33.0000.00	Active/Active	Promise	Multi	Supported via generic profile Load Balance Mode must be set "Extended Round-robin" or "Normal Round-robin". Only Config 1 & 3 are supported
Pillar	Axiom300/500/600	02.07.00 or later	Active/Passive	Pillar Axiom	Single	Important configuration notes: 1-Register the Hitachi Storage Port WWN to the Axiom which will discover and recognize them as a host. 2-Define Lun 0 on all the ports seen as hosts by the Axiom storages in step1. If the above procedure is not followed, the Axiom storage will be virtualized behind the Hitachi storage. After establishing the external storage, Do not change the Lun 0, or manage Luns on the Axiom. 3- If further problems, check the path status on the connected port. 4-On the Axio, delete all the Luns defined on the port. 5-On the Axiom, Delete the WWN of the port. 6-Register the WWN of the port. 7-Define the Luns on the hosts discovered on step 6.
PURE	FlashArray	4.5.5 or later	Active/Active	PURE FlashArray	Multi	USP-V is not supported
UIT	SV3000G2	3.0.1 build 29024 or later	Active/Passive	UIT SV3000G2	Single	
Huawei	OceanStor5500 V3	V300R003C10SPC100 or later	Active/Active	HUAWEI XSG	Multi	ALUA is supported Config 1 and 3 are not supported Profile tool available with 80-06-02-00/00 or later for G1x00/F1500 and 83-05-02-X0/00 for G/Fxx0
	OceanStor 2200/2600/2800/5300/5600/5800/6800/18500/18800 V3	-	Active/Active	HUAWEI XSG	Multi	
	OceanStor 2600F/5500F/5600F/5800F/6800F/18500F/18800F V3	-	Active/Active	HUAWEI XSG	Multi	
	OceanStor Dorado5000/6000/18000 V3	V300R001C00SPC100 or later	Active/Active	HUAWEI XSG	Multi	
	OceanStor 5300/5500/5600/5800/6800/18500/18800 V5	-	Active/Active	HUAWEI XSG	Multi	
	OceanStor 5300F/5500F/5600F/5800F/6800F/18500F/18800F V5	-	Active/Active	HUAWEI XSG	Multi	

General notes	<p>All models' serial numbers are displayed unless noted otherwise</p> <p>ALUA is not supported unless otherwise noted</p> <p>Refer to the configuration tab for connectivity details</p> <p>G1000: minimum microcode version is 80-01-01-00/00</p> <p>G1500: minimum microcode version is 83-04-01-00/00</p> <p>VSP: minimum microcode version: 70-06-01-00/00</p> <p>HUS-VM: Minimum microcode version: 73-01-01-00/00</p> <p>Gxx0/Fxx0: Minimum Microcode version: 83-01-01-00/00, 88-01-01-x0/00</p>	<p>On Platforms that support Generic Profile, users can connect and virtualize most FC/FCoE attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory).</p> <p>Platforms that support Generic Profile:</p> <p>G1000: GA micro-code</p> <p>G1500: 80-05-01-00/00 and higher</p> <p>VSP: V04 and higher</p> <p>HUS VM: V02 and Higher</p> <p>Gxx0/Fxx0: GA microcode</p>
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VSP G1x00. F1500. Gxx0. Fxx0. External Storages support for ISCSI connected Arravs

Hitachi Products Supported as External Storages		G1000 F1500 Gxx0 Fxx0			Notes
External storage Model	External storage f/w (use latest unless specified)	Path Mode	Displayed as	Path #	
VSP G1x00	-	Active/Active	HITACHI VSP G1000	Multi	
VSP Gxx0/Fxx0	-	Active/Active	HITACHI VSP Gxx0	Multi	
HUS110/130/150	-	Active/Active	HITACHI HUS	Multi	1Gbps is not supported with HUS150.
AMS2010 DF800E-XS	-	Active/Active	HITACHI AMS	Multi	
AMS2100/2300/2500	-	Active/Active	HITACHI AMS	Multi	
AMS200/500/1000	-	Active/Passive	HITACHI AMS	Single	
XP7/VX7	-	Active/Active	HP XP7	Multi	
3PARdata StoreServ 10000 series	-	Active/Active	3PARdata VV	Multi	IPv6 is NOT supported serial number is not displayed.
3PARdata StoreServ 7000 series	-	Active/Active	3PARdata VV	Multi	IPv6 is NOT supported. serial number is not displayed.
3PARdata StoreServ 7450	-	Active/Active	3PARdata VV	Multi	IPv6 is NOT supported. serial number is not displayed.
3PARdata StoreServ 8000 series	-	Active/Active	3PARdata VV	Multi	IPv6 is NOT supported. serial number is not displayed.
3PARdata StoreServ 20000 series	-	Active/Active	3PARdata VV	Multi	IPv6 is NOT supported. serial number is not displayed.
Linux ISCSI Target Framework in CentOS	2.6.32 or later	Active/Passive	IET VIRTUAL-DISK	Single	Do NOT change vendor_id and product_id of LUN1 or later from the default value (vendor_id=IET, product_id=VIRTUAL=DISK) The external volume is for GAD quorum disk only. Do NOT use the external volume as normal data disk. serial number is not displayed. / Profile tool is supported G/Fxx0: Use 83-04-40-00/00 or later, G1x00/F1500: use 80-05-40-00/00 or later
Windows 2012 server Windows 2012 R2 server	-	Active/Passive	MSFT		Supported with generic profile only: use 80-05-20-00/00 or later serial number is not displayed
OverLand Storage SnapSAN 1000	2.1.3 or later	Active/Active	OverLand		Supported with generic profile only: use 83-03-27-X0/00 or later serial number is not displayed IPv4 support only. No IPv6. must use DW-F800-2HS10B 10Gbps Base-T 2port module.

General notes	<p>All models' serial numbers are displayed unless noted otherwise</p> <p>ALUA is not supported</p> <p>Refer to the configuration tab for connectivity details</p> <p>G1000: minimum microcode version is SVOS 6.4.1</p> <p>G1500: minimum microcode version is 83-04-01-00/00</p> <p>Gxx0/Fxx0: Minimum Microcode version is 83-01-21-00/00 or later, 88-01-01-x0/00</p>	<p>On Platforms that support Generic Profile, users can connect and virtualize most ISCSI attached External Storages without the need of a Custom Profile pertaining to that particular External Storage. It is recommended that users provide Hitachi Vantara with information regarding these connections so that Hitachi Vantara can list these ES in this Support matrix (not mandatory).</p> <p>Platforms that support Generic Profile:</p> <p>G1000: 80-04-21-00/00 or later</p> <p>G1500: 80-05-01-00/00 and higher</p> <p>Gxx0/Fxx0: 83-03-21-00/00 or later, 88-01-01-x0/00 or later</p>
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Additional Notes for Linux ISCSI target framework in CentOS:

The product_id of LUN0 needs to be set to "VIRTUAL-DISK" in external storage.

[Command example(case of tid=1)]

tgtdm -tid 1 --lun 0 --op update --mode logicalunit --params

vendor_id=IET,product_id=VIRTUAL-DISK

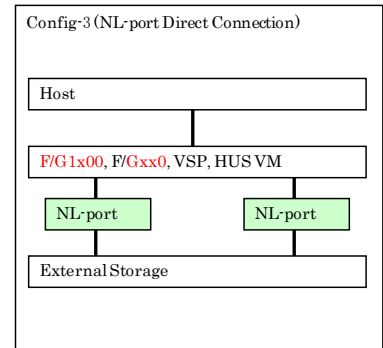
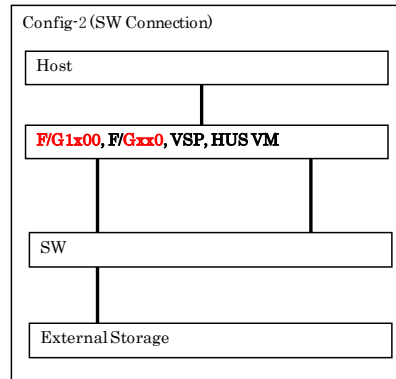
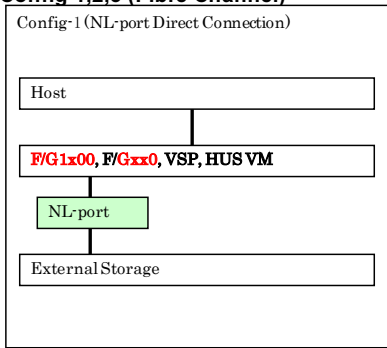
FC, FCoE & iSCSI switch support for external storage connection

FC Storage Interface			
FC Switches			
Manufacturer	Models	Firmware Versions	Notes
Brocade	7500	v6.4.0 - v6.4.3h	
	300, 5100, 5300, 7800, DCX, DCX-4s	v6.4.0 - v6.4.3h, v7.0.0 - v7.0.2e, v7.1.0a - v7.1.2b, v7.2.0a - v7.2.1g, v7.3.0 - v7.3.2b, v7.4.0 - v7.4.2a, v7.4.2c	Brocade FOS v7.1.0 and v7.2.0 are not supported.
	6505, 6510, 6520, DCX8510	v7.0.0 - v7.0.2e, v7.1.0a - v7.1.2b, v7.2.0a - v7.2.1g, v7.3.0 - v7.3.2b, v7.4.0 - v7.4.2a, v7.4.2c, v8.0.1 - v8.0.2e, v8.1.0a - 8.1.2b, v8.2.0a	Brocade FOS v7.1.0 and v7.2.0 are not supported.
	G620, X6 G630	v8.0.1 - v8.0.2e, v8.1.0a - v8.1.2b, v8.20a v8.2.0a	Brocade FOS v8.0.0, v8.2.0 are not supported. Brocade FOS v8.2.0 is not supported.
Cisco	9124, 9134	v5.2(2d) - v5.2(8h)	Cisco OS v5.2(1) is not supported. Cisco NX-OS v6.2(x) and above is not supported on this platform
	9148, 9222i, 9506 (4Gb), 9506 (8Gb), 9509 (4Gb), 9509 (8Gb), 9513, 9513 (8Gb)	v5.2(1) - v5.2(8h), v6.2(1) - v6.2(13b), v6.2(17) - v6.2(21), v8.1(1), v7.3(0)D1(1) - v7.3(1)D1(1), v7.3(0)DY(1)	Cisco OS v6.2(15) is no longer supported.
	9132T	v8.2(1)	
	9148S, 9706	v6.2(9a) - v6.2(13b), v6.2(17) - v6.2(21), v8.1(1)	Cisco OS v6.2(15) is no longer supported.
	9250i	v6.2(5) - v6.2(13b), v6.2(17) - v6.2(21), v7.3(0)D1(1) - v7.3(1)D1(1), v8.1(1)	Cisco OS v6.2(15) is no longer supported.
	9396S	v6.2(13) - v6.2(13b), v6.2(17) - v6.2(21), v8.1(1)	Cisco OS v6.2(15) is no longer supported.
	9710	v6.2(1) - v6.2(13b), v6.2(17) - v6.2(21), v7.3(0)D1(1) - v7.3(1)D1(1), v7.3(0)DY(1), v8.1(1)	Cisco OS v6.2(15) is no longer supported.
	9718	v7.3(0)D1(1) - v7.3(1)D1(1), v7.3(0)DY(1), v8.1.1	

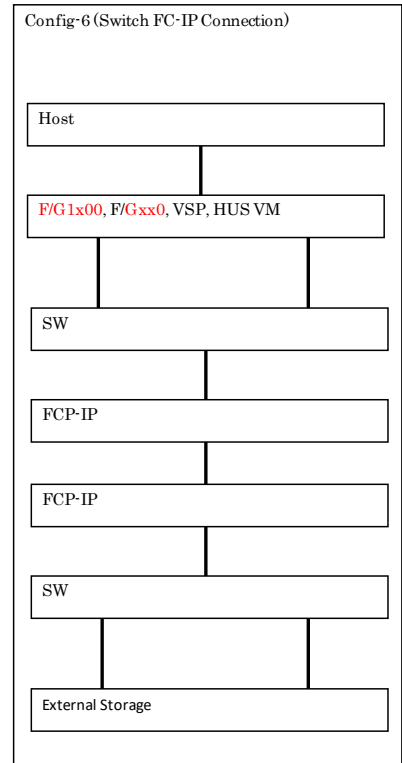
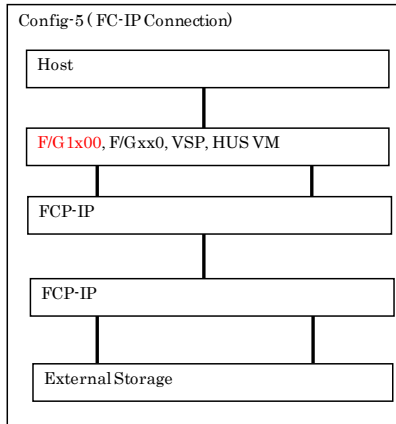
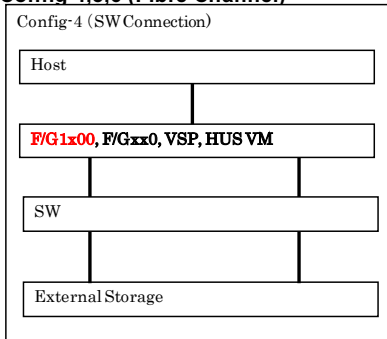
FCOE Storage Interface				
FCOE Switches				
Manufacturer	Models	Firmware Versions	Notes	
Any	Generic DCB IP Switch	Any DCB 10GigE FW	VSP G1x00 only	
Brocade	8000 (FCoE)	v7.0.0 - v7.0.2e, v7.1.0a - v7.1.2a	VSP G1x00 only	
	DCX (FCoE)	v7.2.0a - v7.2.1b, v7.3.0 - v7.3.2	VSP G1x00 only	
Cisco	9250i (FCoE)	v6.2(5) - v6.2(13b), v6.2(17) - v6.2(19), v7.3(0)D1(1) - v7.3(1)D1(1)	VSP G1x00 only	
	9513 (FCoE)	v6.2(1) - v6.2(13b), v6.2(17) - v6.2(19), v7.3(0)D1(1) - v7.3(1)D1(1)	VSP G1x00 only	
	9706 (FCoE)	v6.2(9a) - v6.2(13b), v6.2(17) - v6.2(19), v7.3(0)D1(1) - v7.3(1)D1(1)	VSP G1x00 only	
	9710 (FCoE)	v6.2(7) - v6.2(13b), v6.2(17) - v6.2(19), v7.3(0)D1(1) - v7.3(1)D1(1)	VSP G1x00 only	
	9718 (FCoE)	v7.3(0)D1(1), v8.1.1		
	Nexus 5010-2232pp, 5020, 5548p, 5548up, 5548up-2232pp, 5596up, 5596T, 5596T-2232TM-E	v5.1(3)N1(1) - v5.1(3)N2(1c), v5.2(1)N1(1) - v5.2(1)N1(9), v6.0(2)N1(2), v6.0(2)N1(2a), v6.0(2)N2(1) - v6.0(2)N2(6), v7.0(0)N1(1) - v7.0(8)N1(1), v7.1(0)N1(1a) - v7.1(4)N1(1), v7.2(0)N1(1) - v7.2(1)N1(1), v7.3(0)N1(1) - v7.3(1)N1(1)		VSP G1x00 only
	Nexus 5672up, 5672up-2248pq	v7.0(0)N1(1) - v7.0(8)N1(1), v7.1(0)N1(1a) - v7.1(4)N1(1), v7.2(0)N1(1) - v7.2(1)N1(1), v7.3(0)N1(1) - v7.3(1)N1(1)		VSP G1x00 only
	Nexus 6001P, 6001p-2248pq, 6001T, 6004	v6.0(2)N1(2), v6.0(2)N1(2a), v6.0(2)N2(1) - v6.0(2)N2(4), v7.0(0)N1(1) - v7.0(7)N1(1)		VSP G1x00 only

10 Gbps iSCSI Storage Interface			
iSCSI Switches			
Manufacturer	Models	Firmware Versions	Notes
Any	Generic 10GigE Switch	Any 10GigE FW	VSP G1x00, Gxx0 only
Brocade	8000	v6.3.2e, v7.1.1	VSP G1x00, Gxx0 only
	VDX 6730	v4.1.2, v4.1.3a	VSP G1x00, Gxx0 only
Cisco	Nexus 5010-2232pp, 5020, 5548p, 5548up, 5548up-2232pp, 5596up, 5596T, 5596T-2232TM-E	v7.0(0)N1(1) - v7.0(7)N1(1)	VSP G1x00, Gxx0 only
	Nexus 6001P, 6001p-2248pq, 6001T, 6004	v7.0(0)N1(1) - v7.0(7)N1(1)	VSP G1x00, Gxx0 only

2-1. Config 1,2,3 (Fibre Channel)

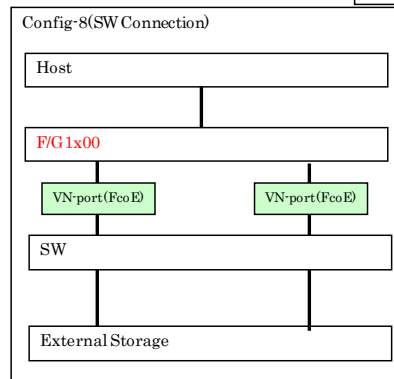
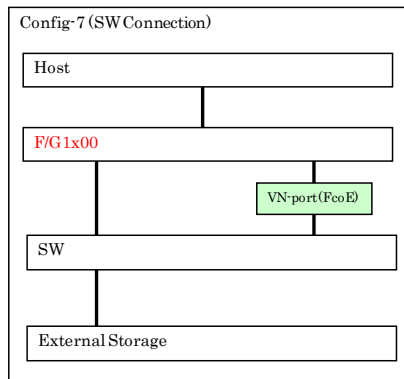


2-2. Config 4,5,6 (Fibre Channel)



Notes:
The F/G1x00 supports connectivity to external storage both via its FC and FCoE interfaces.
However, the FCoE interface does not support the direct connection.
External connection with 16Gbps Fibre and FCoE is supported in V02 or later

2-3. Config 7,8



2-4. Config 9,10,11,12 (iSCSI) G1x00, F1500, Gxx0 only

