

Technical Support Matrix

Serviceguard Disaster Recovery Products Compatibility and Feature Matrix (Metrocluster with EMC SRDF) - HPUX and Linux (RedHat & SLES)

Version 3.0, Oct 25th, 2016



Serviceguard Disaster Recovery Products Compatibility and Feature Matrix (Metrocluster with EMC SRDF) - HPUX

NOTE: The tables on the following pages contain compatibility and features information for released versions of the HP Metrocluster with EMC SRDF product.

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDR Enabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
A.09.01 (September '10) Documentation for this product version: www.hpe.com/info/hpux-serviceguard-docs	11i v2 or 11i v3	For HP-UX 11i v2: A.11.19 For HP-UX 11i v3: A.11.19 and A.11.20	A.10.0x	HP-UX 11i v2 Update 2 or later, and HP-UX 11i v3: Symmetrix VMAX Series - microcode 5874 - microcode 5875 - microcode 5876 - microcode 5977 (only 11i v3) Symmetrix "7" (DMX3 and DMX4 Series) - microcode 5771 - microcode 5772 - microcode 5773 Symmetrix "6" (DMX Series) - microcode 5670 - requires 5671 or later for SRDF/A For Consistency Group support: - microcode 5267.42.29 or later For R1/R2 personality swap: - microcode 5567.52.29 or later	HP-UX 11i v2: V7.0, V7.0.x, V.7.1.x, V 8.x (April 2011 patch additionally supports) V.7.2.x to V7.6.x HP-UX 11i v3: V 8.0.x, V7.0, V7.0.x, V7.1.x (April 2011 patch additionally supports) V.7.2.x to V7.6.x	Enhancements with this revision: 1. Support for Oracle 11gR2 (single instance and RAC) 2. DRD support 3. Support for Manual Site switching ⁴ 4. Oracle ASM support for Metrocluster for RAC 5. Manageability improvements for Metrocluster with Serviceguard Manager 6. SADTA support of CVM/CFS 5.0.1 (Serviceguard Storage Management Suite A.03.01) April 2011 patch features: 7. Easy Deployment using Serviceguard Manager 8. Metrocluster verification using cmcheckconf or Serviceguard Manager 9. SADTA support of CVM/CFS 5.1 SP1 (Serviceguard Storage Management Suite A.04.00) 10. Support for HP Integrity Virtual Machines v4.3 as a Serviceguard package 11. Support multiple CFS Mount Points and CVM Disk Groups configured in a single modular package

¹ Note: All four Metrocluster products share the same MCDREnabler fileset. Different Metrocluster products can be installed and configured in the same cluster. Only Metrocluster products with the same MCDREnabler version can coexist on the same node and cluster.

² Note: This table represents what has been certified and is supported. If other storage, microcode or Solution Enabler versions are available but not indicated in this table, it is currently not supported by Metrocluster with EMC SRDF. The table will be updated when new versions are certified.

³ Note: Supports mixed clusters, where the cluster nodes can be HP 9000 and HP Integrity servers. The same restrictions/guidelines as Serviceguard will apply. Refer to the White Paper "Configuration Rules for a Mixed HP 9000 / Integrity Serviceguard Cluster" at www.hpe.com/info/hpux-serviceguard-docs -> Serviceguard.

⁴ Note: Manual site switching is supported with Serviceguard A.11.20 only when PHSS_41225 or later is installed.

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
						<p>12. Support for RDF (Remote Data Facility) group numbers > 64</p> <p>13. Support for HP Virtual Partitions v6.0 – vPar as a Serviceguard Node</p> <p>14. Support for HP vPar and Integrity VM v6.1, v6.1.5, v6.2, v6.3 – vPar / VM as a Serviceguard Package and vPar / VM as a ServiceguardNode</p> <p>15. Support for HP Integrity Virtual Machines v4.3 (with January 2012 patch) as a Serviceguard Node</p> <p>16. Support for Smart Quorum with Serviceguard A.11.20 patch PHSS_44549 and Serviceguard Quorum Server A.04.00 patch PHSS_44550.</p> <p>17. Support for configuration of asymmetric node count across sites using Smart Quorum in all Metrocluster deployments (including SADTA, CFS and SGeRAC).</p> <p>Current Features:</p> <ul style="list-style-type: none"> □ Modular package support⁵ (legacy packages also supported) □ SRDF Synchronous and Asynchronous data replication on DMX, DMX-3, DMX-4 and VMAX series (Asynchronous replication on Symmetrix DMX requires microcode level 5671 or higher) □ SRDF Consistency Groups (for M by N configurations), Synchronous and Asynchronous data replication □ HP Integrity Virtual Machines (VMs) 3.0 and 3.5 support with VM's configured as Serviceguard packages in HP-UX 11i v2 host environments □ HP Integrity Virtual Machines (VMs) 4.0, 4.1 and 4.2 support with VM's configured as Serviceguard packages in HP-UX 11i v3 host environments <ul style="list-style-type: none"> o Backing store types: <ul style="list-style-type: none"> Whole disk⁶ Files inside logical volumes (LVM, VxVM) Raw logical volumes (LVM, VxVM) □ SRDF Control Operations: <ul style="list-style-type: none"> o Disaster restart – failover, Disaster recovery – failback □ SRDF Swap: <ul style="list-style-type: none"> o R1/R2 personality swap on static and dynamic RDF devices

⁵ Note: For migration of legacy packages to Modular packages, the following Serviceguard patches are required. PHSS_39613 for HP-UX 11i v2, PHSS_39614 for HP-UX 11i v3 which will be available by October 2009.

⁶ Note: Whole disk is supported only when the HPVM guest is configured with a modular style Metrocluster package.

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
						<ul style="list-style-type: none"> ☐ SRDF Domino mode ☐ Use of BCV protection ☐ DWDM upto 300km ☐ Support for Data Replication Storage Failover ☐ Support for controlled failback. ☐ Support of Package startup in split state at R1. ☐ Support for Cross-Subnet Configurations ☐ Support for VxVM 5.0 on HP-UX 11i v2 and HP-UX 11i v3 ☐ Support for LVM 2.0 Volume Groups ☐ Support for SONET/SDH as heartbeat and SRDF links ☐ Support for IPv6 Configurations ☐ Support for Oracle ASM (with Single Instance Database) ☐ Support for Virtual Provisioning Volumes ☐ Rolling Upgrade for Site Aware Disaster Tolerant Architecture (SADTA) Configurations ☐ Support for Veritas CVM Standalone Software in SADTA ☐ Support for Complex workloads using Site Aware Disaster Tolerant Architecture. ⁷ <ul style="list-style-type: none"> o Serviceguard A.11.18 and Serviceguard A.11.19 o supports CVM/CFS 4.1 (on HP-UX 11i v2) with up to 16 node clusters (8 nodes per site), o supports CVM/CFS 5.0 on HPUX 11iv2 (on microcodes 5773 or later and 5874 or later) with upto 16 node clusters (8 nodes per site) o supports CVM/CFS 5.0 (HP-UX11i v3) with up to 16 node clusters (8 nodes per site) o must be implemented as a Site Aware Disaster Tolerant Architecture o patches required ^{8,9} ☐ Metrocluster for RAC Support for Oracle 10gR2 and 11gR1

⁷ Note: Applications configured using multiple interdependent failover and multi-node packages (e.g., Apache over CFS)

⁸ Note: On HP-UX 11i v2, Metrocluster configurations using Site Aware Disaster Tolerant Architecture require the following patches: PHSS_39046 (Serviceguard A.11.18.00), PHSS_38399 (CFS), PHSS_39629 (Metrocluster DREnabler A.08.00) PHSS_39613 (Serviceguard A.11.19.00).

⁹ Note: On HP-UX 11i v3, Metrocluster configurations using Site Aware Disaster Tolerant Architecture require the following patches: PHSS_39047 (Serviceguard A.11.18.00), PHSS_38400 (Serviceguard A.11.18.00 for CVM/CFS 5.0 support), (CVM/CFS 4.1 not supported), PHSS_39630 (Metrocluster DREnabler A.08.00) PHSS_39614 (Serviceguard A.11.19.00).

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
						<p>RAC</p> <ul style="list-style-type: none"> o Serviceguard A.11.18 and 11.19 o supports CVM/CFS 4.1 (on HP-UX 11i v2) with up to 16 node clusters (8 nodes per site), o supports CVM/CFS 5.0 (on HP-UX 11i v3) with up to 16 node clusters (8 nodes per site) o supports SLVM (on HP-UX 11i v2 and 11i v3) with up to 16 node clusters (8 nodes per site) o must be implemented as a Site Aware Disaster Tolerant Architecture o patches required ^{10 11} <p>Notes:</p> <ul style="list-style-type: none"> a. MxN configurations not supported with Symmetrix 3 b. R1/R2 swapping not supported with Symmetrix 3, 4, 4.8 c. M by N configurations cannot be used with R1/R2 swapping
<p>A.09.00 (September '09)</p> <p>Documentation for this product version: www.hpe.com/info/hpux-serviceguard-docs</p>	<p>11i v2 or 11i v3</p>	<p>For HP-UX 11i v2: A.11.18 and A.11.19</p> <p>For HP-UX 11i v3: A.11.18 and A.11.19</p>	<p>A.09.00</p>	<p>HP-UX 11i v2 Update 2 or later, and HP-UX 11i v3:</p> <p>Note: microcode versions listed below are supported with HP-UX 11i v2 and v3 unless stated explicitly</p> <p>Symmetrix VMAX Series -microcode 5874</p> <p>Symmetrix "7" (DMX3 and DMX4 Series)</p> <ul style="list-style-type: none"> - microcode 5771 - microcode 5772 -microcode 5773 <p>Symmetrix "6" (DMX Series)</p> <ul style="list-style-type: none"> - microcode 5670 - requires 5671 or later for SRDF/A 	<p>HP-UX 11i v2: V6.4.x, V6.5.x, V7.0, V7.0.1</p> <p>HP-UX 11i v3: V6.4.x, V6.5.x, V7.0, V7.0.1</p>	<p>Enhancements with this revision:</p> <ol style="list-style-type: none"> 1. Modular package support¹² (legacy packages also supported) 2. Support for HP Integrity Virtual Machines 4.1 and 4.2 <ul style="list-style-type: none"> o Backing store types: <ul style="list-style-type: none"> Whole disk¹³ Files inside logical volumes (LVM, VxVM) Raw logical volumes (LVM, VxVM) 3. Support for Oracle ASM (with Single Instance Database) 4. Support for Virtual Provisioning Volumes 5. Rolling Upgrade for Site Aware Disaster Tolerant Architecture (SADTA) Configurations 6. Support for Veritas CVM Standalone Software in SADTA 7. Support for Oracle ASM with Metrocluster for RAC (added)

¹⁰ Note: On HP-UX 11i v2, Metrocluster for RAC requires the following patches: PHSS_39046 (Serviceguard A.11.18.00), PHSS_37927 (Serviceguard eRAC A.11.18.00), PHSS_38399 (CFS), PHSS_39629 (Metrocluster DR Enabler A.08.00).

¹¹ Note: On HP-UX 11i v3, Metrocluster for RAC requires the following patches: PHSS_39047 (Serviceguard A.11.18.00), PHSS_37928 (Serviceguard eRAC A.11.18.00), PHSS_38400 (Serviceguard A.11.18.00 for CVM/CFS 5.0 support), (CVM/CFS 4.1 not supported), PHSS_39630 (Metrocluster DR Enabler A.08.00).

¹² Note: For migration of legacy packages to Modular packages, the following Serviceguard patches are required. PHSS_39613 for HP-UX 11i v2, PHSS_39614 for HP-UX 11i v3 which will be available by October 2009.

¹³ Note: Whole disk is supported only when the HPVM guest is configured with a modular style Metrocluster package.

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
				Symmetrix "5" (8000 Series – HP-UX 11i v2 only) - microcode 5264.57.47 - microcode 5266 or later required For Consistency Group support: - microcode 5267.42.29 or later For R1/R2 personality swap: - microcode 5567.52.29 or later		Sept'10) Current Features: <ul style="list-style-type: none"> ☐ SRDF Synchronous and Asynchronous data replication (Asynchronous replication on Symmetrix DMX and VMAX Series only) ☐ SRDF Consistency Groups (for M by N configurations), Synchronous and Asynchronous data replication ☐ HP Integrity Virtual Machines (VMs) 3.0 and 3.5 support with VM's configured as Serviceguard packages in HP-UX 11i v2 host environments ☐ HP Integrity Virtual Machines (VMs) 4.0 and 4.1 support with VM's configured as Serviceguard packages in HP-UX 11i v3 host environments ☐ SRDF Control Operations: <ul style="list-style-type: none"> o Disaster restart – failover o Disaster recovery – failback ☐ SRDF Swap: <ul style="list-style-type: none"> o R1/R2 personality swap on static and dynamic RDF devices ☐ SRDF Domino mode ☐ Use of BCV protection ☐ DWDM up to 300km ☐ Support for Data Replication Storage Failover ☐ Support for controlled failback. ☐ Support of Package startup in split state at R1. ☐ Support for Cross-Subnet Configurations ☐ Support for VxVM 5.0 on HP-UX 11i v2 and HP-UX 11i v3 ☐ Support for LVM 2.0 Volume Groups ☐ Support for SONET/SDH as heartbeat and SRDF links ☐ Support for IPv6 Configurations ☐ Support for Complex workloads using Site Aware Disaster Tolerant Architecture ¹⁴

¹⁴ Note: Applications configured using multiple interdependent failover and multi-node packages (e.g., Apache over CFS)

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
						<ul style="list-style-type: none"> o Serviceguard A.11.18 and Serviceguard A.11.19 o supports CVM/CFS 4.1 (on HP-UX 11i v2) with up to 16 node clusters (8 nodes per site), o supports CVM/CFS 5.0 on HP-UX 11i v2 (on microcodes 5773 and 5874) with up to 16 node clusters (8 nodes per site) o supports CVM/CFS 5.0 (HP-UX11i v3) with up to 16 node clusters (8 nodes per site) o must be implemented as a Site Aware Disaster Tolerant Architecture o patches required ^{15 16} □ Metrocluster for RAC Support for Oracle 10gR2 and 11gR1 RAC o Serviceguard A.11.18 and 11.19 o supports CVM/CFS 4.1 (on HP-UX 11i v2) with up to 16 node clusters (8 nodes per site), o supports CVM/CFS 5.0 (on HP-UX 11i v3) with up to 16 node clusters (8 nodes per site) o supports SLVM (on HP-UX 11i v2 and 11i v3) with up to 16 node clusters (8 nodes per site) o must be implemented as a Site Aware Disaster Tolerant Architecture o patches required ^{17 18} <p>Notes:</p> <ul style="list-style-type: none"> a. MxN configurations not supported with Symmetrix 3 b. R1/R2 swapping not supported with Symmetrix 3, 4, 4.8 c. M by N configurations cannot be used with R1/R2 swapping d. Metrocluster with EMC SRDF does not support CFS 5.0 on HP-UX 11i v2

¹⁵ Note: On HP-UX 11i v2, Metrocluster configurations using Site Aware Disaster Tolerant Architecture require the following patches: PHSS_39046 (Serviceguard A.11.18.00), PHSS_38399 (CFS), PHSS_39629 (Metrocluster DREnabler A.08.00) PHSS_39613 (Serviceguard A.11.19.00).

¹⁶ Note: On HP-UX 11i v3, Metrocluster configurations using Site Aware Disaster Tolerant Architecture require the following patches: PHSS_39047 (Serviceguard A.11.18.00), PHSS_38400 (Serviceguard A.11.18.00 for CVM/CFS 5.0 support), (CVM/CFS 4.1 not supported), PHSS_39630 (Metrocluster DREnabler A.08.00) PHSS_39614 (Serviceguard A.11.19.00).

¹⁷ Note: On HP-UX 11i v2, Metrocluster for RAC requires the following patches: PHSS_39046 (Serviceguard A.11.18.00), PHSS_37927 (Serviceguard eRAC A.11.18.00), PHSS_38399 (CFS), PHSS_39629 (Metrocluster DREnabler A.08.00).

¹⁸ Note: On HP-UX 11i v3, Metrocluster for RAC requires the following patches: PHSS_39047 (Serviceguard A.11.18.00), PHSS_37928 (Serviceguard eRAC A.11.18.00), PHSS_38400 (Serviceguard A.11.18.00 for CVM/CFS 5.0 support), (CVM/CFS 4.1 not supported), PHSS_39630 (Metrocluster DREnabler A.08.00).

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
<p>A.08.00 (March '09)</p> <p>Documentation for this product version: www.hpe.com/info/hpux-serviceguard-docs</p>	<p>11i v2 or 11i v3</p>	<p>For HP-UX 11i v2: A.11.18 and A.11.19</p> <p>For HP-UX 11i v3: A.11.18 and A.11.19</p>	<p>A.08.00</p>	<p>HP-UX 11i v2 Update 2 or later, and HP-UX 11i v3:</p> <p>Note: microcode versions listed below are supported with HP-UX 11i v2 and v3 unless stated explicitly</p> <p>Symmetrix "7" (DMX3 and DMX4 Series)</p> <ul style="list-style-type: none"> - microcode 5771 - microcode 5772 - microcode 5773 <p>Symmetrix "6" (DMX Series)</p> <ul style="list-style-type: none"> - microcode 5670 - requires 5671 or later for SRDF/A <p>Symmetrix "5" (8000 Series – HP-UX 11i v2 only)</p> <ul style="list-style-type: none"> - microcode 5264.57.47 - microcode 5266 or later required <p>For Consistency Group support:</p> <ul style="list-style-type: none"> - microcode 5267.42.29 or later <p>For R1/R2 personality swap:</p> <ul style="list-style-type: none"> - microcode 5567.52.29 or later 	<p>HP-UX 11i v2: V6.4.x, V6.5.x</p> <p>HP-UX 11i v3: V6.4.x, V6.5.x</p>	<ol style="list-style-type: none"> 1. Support for HP Integrity Virtual Machines 4.0 2. Support for SNET/SDH as heartbeat and CA links 3. Support for Complex workloads using Site Aware Disaster Tolerant Architecture ¹⁹ <ul style="list-style-type: none"> o Serviceguard A.11.18 and Serviceguard A.11.19 o supports CVM/CFS 4.1 (on HP-UX 11i v2) with up to 16 node clusters (8 nodes per site), o supports CVM/CFS 5.0 (HP-UX 11i v2 on microcode 5773) with upto16 node clusters (8 nodes per site) o supports CVM/CFS 5.0 (HP-UX11i v3) with up to 16 node clusters (8 nodes per site) o must be implemented as a Site Aware Disaster Tolerant Architecture o patches required ^{20 21} 4. Metrocluster for RAC Support for Oracle 10gR2 and 11gR1 RAC <ul style="list-style-type: none"> o Serviceguard A.11.18 and 11.19 o supports CVM/CFS 4.1 (on HP-UX 11i v2) with up to 16 node clusters (8 nodes per site), o supports CVM/CFS 5.0 (on HP-UX 11i v3) with up to 16 node clusters (8 nodes per site) o supports SLVM (on HP-UX 11i v2 and 11i v3) with up to 16 node clusters (8 nodes per site) o must be implemented as a Site Aware Disaster Tolerant Architecture o patches required ^{22 23} <p>Current Features:</p> <ul style="list-style-type: none"> □ SRDF Synchronous and Asynchronous data replication (Asynchronous replication on Symmetrix DMX Series only)

¹⁹ Note: Applications configured using multiple interdependent failover and multi-node packages (e.g, Apache over CFS)

²⁰ Note: On HP-UX 11i v2, Metrocluster configurations using Site Aware Disaster Tolerant Architecture require the following patches: PHSS_39046(Serviceguard A.11.18.00), PHSS_38399 (CFS), PHSS_39629 (Metrocluster DREnabler A.08.00).

²¹ Note: On HP-UX 11i v3, Metrocluster configurations using Site Aware Disaster Tolerant Architecture require the following patches: PHSS_39047(Serviceguard A.11.18.00), PHSS_38400 (Serviceguard A.11.18.00 for CVM/CFS 5.0 support), (CVM/CFS 4.1 not supported), PHSS_39630 (Metrocluster DREnabler A.08.00).

²² Note: On HP-UX 11i v2, Metrocluster for RAC requires the following patches: PHSS_39046 (Serviceguard A.11.18.00), PHSS_37927 (Serviceguard eRAC A.11.18.00), PHSS_38399 (CFS), PHSS_39629 (Metrocluster DREnabler A.08.00).

²³ Note: On HP-UX 11i v3, Metrocluster for RAC requires the following patches: PHSS_39047 (Serviceguard A.11.18.00), PHSS_37928 (Serviceguard eRAC A.11.18.00), PHSS_38400 (Serviceguard A.11.18.00 for CVM/CFS 5.0 support), (CVM/CFS 4.1 not supported), PHSS_39630 (Metrocluster DREnabler A.08.00).

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
						<ul style="list-style-type: none"> ☐ SRDF Consistency Groups (for M by N configurations), Synchronous and Asynchronous data replication ☐ HP Integrity Virtual Machines (VMs) 3.0 and 3.5 support with VM's configured as Serviceguard packages in HP-UX 11i v2 host environments ☐ HP Integrity Virtual Machines (VMs) 4.0 support in HP-UX 11i v3 host environments ☐ SRDF Control Operations: <ul style="list-style-type: none"> o Disaster restart – failover o Disaster recovery – failback ☐ SRDF Swap: <ul style="list-style-type: none"> o R1/R2 personality swap on static and dynamic RDF devices ☐ SRDF Domino mode ☐ Use of BCV protection ☐ DWDM upto 300km ☐ Support for Data Replication Storage Failover ☐ Support for controlled failback. ☐ Support of Package startup in split state at R1. ☐ Support for Cross-Subnet Configurations ☐ Support for VxVM 5.0 on HP-UX 11i v2 and HP-UX 11i v3 ☐ Support for LVM 2.0 Volume Groups ☐ Support for SONENT/SDH as heartbeat and SRDF links ☐ Metrocluster for RAC support (Oracle 10gR2 RAC) ☐ Support for IPv6 Configurations <p>Notes:</p> <ul style="list-style-type: none"> a. MxN configurations not supported with Symmetrix 3 b. R1/R2 swapping not supported with Symmetrix 3, 4, 4.8 c. M by N configurations cannot be used with R1/R2 swapping d. Metrocluster with EMC SRDF does not support CFS 5.0 on HP-UX 11i v2
A.07.00 (September'08)	11i v2 or 11i v3	For HP-UX 11i v2: A.11.16, A.11.17 or	A.07.00	HP-UX 11i v2 Update 2 or later, and HP-UX 11i v3: Note: microcode versions listed below are supported with HP-UX 11i v2 and v3	HP-UX 11i v2: V6.4.1, V6.4.2, V6.4.3, V6.5.x	Enhancements with this revision: 1. Support for IPv6 Configurations 2. Metrocluster for RAC,

²⁴ Note: On HP-UX 11i v2, Metrocluster for RAC requires the following patches: PHSS_37601 (Serviceguard A.11.18.00), PHSS_36928 (Serviceguard eRAC A.11.18.00), PHSS_37432 (CFS), PHSS_39633 (Metrocluster DREnabler A.07.00). For 16 node support when using CFS/CVM the following additional patches are required on HP-UX 11i v2: SG1118_1123 PHSS_38423, and CFS1118_1123 PHSS_38399

²⁵ Note: On HP-UX 11i v3, Metrocluster for RAC requires the following patches: PHSS_37602 (Serviceguard A.11.18.00), PHSS_36929 (Serviceguard eRAC A.11.18.00), PHSS_36690 (Serviceguard A.11.18.00 for CVM/CFS 5.0 support), (CVM/CFS 4.1 not supported), PHSS_39634 (Metrocluster DREnabler A.07.00). For 16 node support when using CFS/CVM the following additional patches are required on HP-UX 11i v3: SG1118_1131 PHSS_38424, and CFS1118_1131 PHSS_38400

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<p>Documentation for this product version:</p> <p>www.hpe.com/info/hpux-serviceguard-docs</p>		<p>A.11.18</p> <p>For HP-UX 11i v3: A.11.17.01 or A.11.18</p>		<p>unless stated explicitly</p> <p>Symmetrix "7" (DMX3, DMX4)</p> <ul style="list-style-type: none"> - microcode 5771 - microcode 5772 - microcode 5773 <p>Symmetrix "6" (DMX) - -</p> <ul style="list-style-type: none"> - microcode 5669 (HP-UX 11i v1) - microcode 5670 (HP-UX 11i v2, HP-UX 11i v3) - requires 5671 or later for SRDF/A <p>Symmetrix "5"</p> <ul style="list-style-type: none"> - microcode 5264.57.47 - microcode 5266 or later required <p>Symmetrix "4"</p> <ul style="list-style-type: none"> - microcode 5772 <p>For MxN support:</p> <ul style="list-style-type: none"> - microcode 5x67 or later <p>For R1/R2 personality swap:</p> <ul style="list-style-type: none"> - microcode 5567.xx.xx or later 	<p>HP-UX 11i v3: V6.4.1, V6.4.2, V6.4.3, V6.5.x</p>	<ul style="list-style-type: none"> □ supports Oracle 10gR2 RAC, □ requires Serviceguard and SGeRAC A.11.18, □ supports SLVM 1.0 (on HP-UX 11i v2 and 11i v3) <ul style="list-style-type: none"> and SLVM 2.0 (on HP-UX 11i v3 only) with up to 16 node clusters (8 nodes per site), □ supports CVM/CFS 4.1 (on HP-UX 11i v2) with up to 16 node clusters (8 nodes per site), □ supports CVM/CFS 5.0 (HP-UX 11i v2 on microcode 5773) with upto 16 node clusters (8 nodes per site) □ supports CVM/CFS 5.0 (on HP-UX 11i v3) with up to 16 node clusters (8 nodes per site), <p>Note: CVM/CFS 5.0 on HP-UX 11i v2 support is suspended pending defect resolution (refer to CR # QXCR1000890425 for more information)</p> <ul style="list-style-type: none"> □ must be implemented as a Site Aware Disaster Tolerant Architecture □ patches required ^{24 25} <ol style="list-style-type: none"> 3. Added HP Integrity Virtual Machines (VMs) 4.0 support with VM's configured as Serviceguard packages in HP-UX 11i v3 host environments (late Sept'08) 4. Support for SNET/SDH as heartbeat and SRDF links (Oct'08) <p>Current Features:</p> <ul style="list-style-type: none"> □ SRDF Synchronous and Asynchronous data replication (Asynchronous replication on Symmetrix DMX Series only) □ SRDF Consistency Groups (for M by N configurations), Synchronous and Asynchronous data replication □ HP Integrity Virtual Machines (VMs) 3.0 and 3.5 support with VM's configured as Serviceguard packages in HP-UX 11i v2 host environments □ SRDF Control Operations: <ul style="list-style-type: none"> o Disaster restart – failover

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
						<ul style="list-style-type: none"> o Disaster recovery – failback □ SRDF Swap: <ul style="list-style-type: none"> o R1/R2 personality swap on static and dynamicRDF devices □ SRDF Domino mode □ Use of BCV protection □ DWDM upto 300km □ Support for Data Replication Storage Failover □ Support for controlled failback. □ Support of Package startup in split state at R1. □ Support for Cross-Subnet Configurations □ Support for VxVM 5.0 on HP-UX 11i v2 and HP-UX 11i v3 □ Support for LVM 2.0 Volume Groups <p>Notes:</p> <ul style="list-style-type: none"> a. MxN configurations not supported with Symmetrix 3 b. R1/R2 swapping not supported with Symmetrix 3, 4, 4.8 c. M by N configurations cannot be used with R1/R2 swapping d. Modular packages introduced with Serviceguard A.11.18 not supported (only legacy packages supported)²⁶
<p>A.06.00 (December'07 with HP-UX 11i v2 and March'08 with HP-UX 11i v3)</p> <p>Documentation for this product version: www.hpe.com/info/hpux-serviceguard-docs</p>	<p>11i v2 or 11i v3</p>	<p>For HP-UX 11i v2: A.11.16, A.11.17 or A.11.18</p> <p>For HP-UX 11i v3: A.11.17.01 or A.11.18</p>	<p>A.06.00</p>	<p>HP-UX 11i v2 Update 2 or later, and HP-UX 11i v3:</p> <p>Symmetrix “7” (DMX3, DMX4)</p> <p>Symmetrix “6” (DMX)</p> <p>Symmetrix “5”</p> <p>Symmetrix “7” (DMX3, DMX4)</p> <ul style="list-style-type: none"> - microcode 5771 - microcode 5772 <p>Symmetrix “6” (DMX) - -</p> <ul style="list-style-type: none"> - microcode 5669 (HP-UX 11i v1) - microcode 5670 (HP-UX 11i v2, HP-UX 11i v3) 	<p>HP-UX 11i v2: V6.4.1, V6.4.2, V6.4.3</p> <p>HP-UX 11i v3: V6.4.1, V6.4.2, V6.4.3</p>	<p>Enhancements with this revision:</p> <ol style="list-style-type: none"> 1. Data Replication Storage Failover Preview 2. SRDF Consistency Groups (for M by N configurations), Asynchronous data replication. 3. Support for controlled failback. 4. Support of Package startup in split state at R1. 5. Support for cross-subnet configurations (Requires Serviceguard A.11.18 and Jan'08 patch) 6. Added support for HP-UX 11i v3 (March'08) (Requires HP-UX 11i v3 0803 fusion release) 7. Added support for VxVM 5.0 on HP-UX 11i v2 (March'08) 8. Added support for VxVM 5.0 on HP-UX 11i v3 (July'08) 9. Added HP Integrity Virtual Machines (VMs) 3.5 support with

²⁶ Note: Site Controller packages of Site Aware Disaster Tolerant Architecture are the only supported modular packages.

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
				<p>- requires 5671 or later for SRDF/A</p> <p>Symmetrix "5" - microcode 5264.57.47 - microcode 5266 or later required</p> <p>Symmetrix "4" - microcode 5772</p> <p>For MxN support: - microcode 5x67 or later</p> <p>For R1/R2 swapping: - 5567.xx.xx or later</p>		<p>VM's configured as Serviceguardpackages in HP-UX 11i v2 host environments (March'08)</p> <p>10. Added support for LVM 2.0 on HP-UX 11i v3 (May'08)</p> <p>Current Features:</p> <ul style="list-style-type: none"> <input type="checkbox"/> SRDF Synchronous and Asynchronous data replication (Asynchronous replication on Symmetrix DMX Series only) <input type="checkbox"/> SRDF Consistency Groups (for M by N configurations), Synchronous data replication <input type="checkbox"/> HP Integrity Virtual Machines (VMs) 3.0 support with VM's configured as Serviceguardpackages in HP-UX 11i v2 host environments <input type="checkbox"/> SRDF Control Operations: <ul style="list-style-type: none"> o Disaster restart – failover o Disaster recovery – failback <input type="checkbox"/> SRDF Swap: <ul style="list-style-type: none"> o R1/R2 personality swap on static and dynamic RDF devices <input type="checkbox"/> SRDF Domino mode <input type="checkbox"/> Use of BCV protection <input type="checkbox"/> DWDM upto 300km <p>Notes:</p> <ul style="list-style-type: none"> a. MxN configurations not supported with Symmetrix 3 b. R1/R2 swapping not supported with Symmetrix 3, 4, 4.8 c. M by N configurations cannot be used with R1/R2 swapping d. Modular packages introduced with Serviceguard A.11.18 not supported (only legacy packages supported)
<p>A.05.01 (December '06 with HP-UX 11i v2) and (June '07 with HP-UX 11i v1)</p>	11i v1	A.11.16	A.04.20, A.05.00	<p>Symmetrix "7" (DMX3, DMX4)</p> <p>Symmetrix "6" (DMX)</p> <p>Symmetrix "5"</p> <p>Symmetrix "4","4.8"</p> <p>Symmetrix "3"</p> <p>Minimum microcode version required is 5x67</p>	<p>HP-UX 11iv1: V6.2.x or V6.3.0 or V6.3.2</p> <p>With PHSS_41308(HP-UX 11iv1 only) V7.0.x or V7.1.x</p>	<p>Enhancements with PHSS_41308 (HP-UX 11iv1 only)</p> <ol style="list-style-type: none"> 1. Support for Asynchronous Data Replication with SRDF Multi Session Consistency Feature 2. Support for Controlled Failback 3. Support for Package Startup in Split State 4. Support for Consistency Groups using RDF Engineuity Consistency Assist

Metrocluster with EMC SRDF Version	HP-UX Version	SG Version	MCDREnabler fileset Version ¹	Symmetrix Platform & Microcode ²	Supported Solution Enabler Versions	Feature(s)
Documentation for this product version: www.hpe.com/info/hpux-serviceguard-docs				If you are using the following microcodes: 5567: Upgrade to 5567.29 5267: Upgrade to 5267.22 For Dynamic R1/R2 swap: requires a minimum microcode version 5567 For SRDF/A requires: a minimum microcode version 5670 With PHSS_41308 (HP-UX 11iv1 only) Symmetrix "VMAX" Symmetrix "7" (DMX3, DMX4) Symmetrix "6" (DMX) Symmetrix "5"		5. Support for Virtual Provisioning Enhancements with this revision: 1. Metrocluster with EMC SRDF product communicates with Symmetrix devices using SYMAPI calls instead of SYMCLI commands (not customer visible) 2. Support VxVM/DMP 4.1 (CVM/CFS not supported) 3. Added HP-UX 11i v1 support with this revision (June'07) 4. Added HP Integrity Virtual Machines (VMs) 3.0 support with VM's configured as Serviceguard packages in HP-UX 11i v2 host environments (Oct'07) Current Features: <input type="checkbox"/> SRDF Synchronous and Asynchronous data replication (Asynchronous replication on Symmetrix DMX Series only) <input type="checkbox"/> SRDF Consistency Groups (for M by N configurations), Synchronous data replication <input type="checkbox"/> SRDF Control Operations: o Disaster restart – failover o Disaster recovery – fallback <input type="checkbox"/> SRDF Swap: o R1/R2 personality swap on static and dynamic RDF devices <input type="checkbox"/> SRDF Domino mode <input type="checkbox"/> Use of BCV protection <input type="checkbox"/> DWDM upto 300km Notes: a. MxN configurations not supported with Symmetrix 3 b. R1/R2 swapping not supported with Symmetrix 3, 4, 4.8 c. M by N configurations cannot be used with R1/R2 swapping d. Modular packages introduced with Serviceguard A.11.18 not supported (only legacy packages supported)
	11i v2	A.11.16, A.11.17 and A.11.18		HP-UX 11i v2 Update 2 or later: Symmetrix "7" (DMX3, DMX4) Symmetrix "6" (DMX) Symmetrix "5" Symmetrix "7" (DMX3, DMX4) - microcode 5771 Symmetrix "6" (DMX) - - - microcode 5669 (HP-UX 11i v1) - microcode 5670 (HP-UX 11i v2) - requires 5671 or later for SRDF/A Symmetrix "5" - microcode 5264.57.47 For MxN support: - microcode 5266 or later required For R1/R2 swapping: - requires 5567.34.19A	HP-UX 11iv2: V6.2.x or V6.3.0 or V6.3.2	

Serviceguard Disaster Recovery Products Compatibility and Feature Matrix (Metrocluster with EMCSRDF) - Linux

NOTE: The tables contain compatibility and features information for released versions of the HP Metrocluster with EMC SRDF.

Metrocluster with EMC SRDF Version	Linux Version	Serviceguard Version	Metrocluster Add-ons Version	Symmetrix Platform & Microcode Version	Solution Enabler Versions	Feature(s)
B. 12.00.50 SGLX_00531 www.hpe.com/info/hpux-serviceguard-docs	RHEL 7 7.0 to 7.2 RHEL 6 6.1 to 6.8 RHEL 5 5.7 to 5.11 SLES12, SLES 12 SP1 SLES11 SP1 to SP4	A.12.00.50	B.12.00.30	Note: microcode versions listed below are supported unless stated explicitly Symmetrix VMAX Series - microcode 5874 - microcode 5875 - microcode 5876 Symmetrix "7" (DMX3 and DMX4 Series) - microcode 5771 - microcode 5772 - microcode 5773 Symmetrix "6" (DMX Series) - microcode 5670 For SRDF/A - microcode 5671 or later For Consistency Group support: - microcode 5267.42.29 or later For R1/R2 personality swap: - microcode 5567.52.29 or later	V 8.x V.7.6.1.0	<ul style="list-style-type: none"> • Bundled with Serviceguard for Linux Enterprise Edition A.12.00.50. No more available as standalone product for Serviceguard for Linux Base and Advanced Editions. • Support for RHEL 7 and SLES 12 • Support for SADTA • Cluster Verification • Cluster Analytics • 32 node support • Support for Smart Quorum. • Support for configuration of asymmetric node count across sites using Smart Quorum. • All features as supported by B.01.00.00 <p>Features not supported with Metrocluster with EMC SRDF B.01.00.00:</p> <ul style="list-style-type: none"> • Managing Metrocluster Packages using Serviceguard Manager • Cannot be deployed on Virtual Machines (VMware, KVM, RHEV)

Metrocluster with EMC SRDF Version	Linux Version	Serviceguard Version	MCDR Enabler Version	Symmetrix Platform & Microcode Version	Solution Enabler Versions	Feature(s)
B.01.00.00 (Jan 2014) Documentation for this product version: www.hpe.com/info/hpux-serviceguard-docs	RHEL 6 6.1 to 6.5 RHEL 5 5.7 – 5.10 SLES11 SP1 to SP3	SG/LX A.11.20.20 or later	B.01.00.20	Note: microcode versions listed below are supported unless stated explicitly Symmetrix VMAX Series - microcode 5874 - microcode 5875 - microcode 5876 Symmetrix "7" (DMX3 and DMX4 Series) - microcode 5771 - microcode 5772 - microcode 5773 Symmetrix "6" (DMX Series) - microcode 5670 For SRDF/A - microcode 5671 or later For Consistency Group support: - microcode 5267.42.29 or later For R1/R2 personality swap: - microcode 5567.52.29 or later	V 8.x V.7.6.1.0	<ul style="list-style-type: none"> • SRDF Synchronous & Asynchronous data replication on DMX, DMX-3, DMX-4 and VMAX series (Asynchronous replication on Symmetrix DMX requires microcode level 5671 or higher) • Support for RDF (Remote Data Facility) group numbers > 64 • SRDF Consistency Groups (for M by N configurations), Synchronous and Asynchronous data replication • SRDF Control Operations: Disaster restart – failover, Disaster recovery – failback • SRDF Swap : R1/R2 personality swap on static and dynamic RDF devices • SRDF Domino mode • Use of BCV protection • DWDM up to 300km • Support for Data Replication Storage Failover • Support for controlled failback. • Support for Cross-Subnet Configurations • Support for LVM Volume Groups • Support for SONET/SDH as heartbeat and SRDF links • Support for Virtual Provisioning Volumes Persistent Reservations (PR) • Device Mapper Multipathing • Persistent reservations support with device mapper multipathing • Cluster Verification support Features not supported with Metrocluster with EMC SRDF B.01.00.00: <ul style="list-style-type: none"> • Management of Metrocluster Packages using Serviceguard Manager • cmpreparestg command over SRDF Device Group disks • RHEL 6 KVM – Guest as Serviceguard Metrocluster Node • Support for VMWare virtual machines as Metrocluster nodes Notes: <ol style="list-style-type: none"> a. MxN configurations not supported with Symmetrix 3 b. R1/R2 swapping not supported with Symmetrix 3, 4, 4.8 c. M by N configurations cannot be used with R1/R2 swapping

Revision History

Date	Page Count	Details of Change	Version Number
April 29, 2011	15 pages	Added April 2011 patch enhancements	2.0
September 2, 2012	15 Pages	Added support for microcode 5876, Solutions Enabler versions 7.3.x and 7.4.x. Updated EOS dates for A.09.01 (For 11iv2) and A.05.01 (For 11iv1)	2.1
Nov 5, 2012	15 Pages	Added support for HP Virtual Partitions v6.0, support for HP vPar and Integrity VMv6.1, support for HP vPar and Integrity VM v6.1.5 and HP Integrity VM v4.3 as a Serviceguard Node	2.2
Jan 8, 2014	16 Pages	Linux Support	2.4
Mar 14, 2014	16 Pages	RHEL 6.5 Support	2.5
June 13, 2014	16 Pages	SolutionsEnablersupport	2.6
June 1, 2015	16 Pages	SolutionsEnabler 7.6 support	2.7
December 11, 2015	17 Pages	Support for Solution Enabler version 8.0.x on HP-UX	2.8
June 15, 2016	17 Pages	Metrocluster for EMC SRDF B.12.00.50 bundling with SGLX Enterprise Edition A.12.00.50, Solution Enabled 8.x support on Linux and HP-UX	2.9
October 25, 2016	17 Pages	Smart quorum update, vanity link changes and some formatting, deletion of support start and end dates	3.0

For more information

To read more about HPE Serviceguard Metrocluster product, go to: www.hpe.com/info/linux-serviceguard-docs and www.hpe.com/info/hpux-serviceguard-docs

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