

Dell™ with Oracle® 11gR2 Database Enterprise Edition Running Enterprise Linux



Oracle 11gR2 Database Enterprise Edition and RAC Running on Enterprise Linux 5.8 & 6.2



Minimum Hardware/Software Requirements (Updated 12/07/12- for details, see below)			
	Validated Component(s)	Minimum Single Node DB Config	Minimum Oracle RAC Config
Oracle Software & Licenses	Oracle 11g R2 11.2.0.3.0 Enterprise Edition	Single Node	RAC (min 2 nodes)
Oracle Patch(es)	Oracle 11g R2 11.2.0.3.0		
Operating System	Red Hat Enterprise Linux 5.8 with kernel 2.6.18-308 Oracle Linux 5.8 with kernel 2.6.18-308 (Compatible Kernel) Red Hat Enterprise Linux 6.2 with kernel 2.6.32-220 Oracle Linux 6.2 with kernel 2.6.32-220 (Compatible Kernel)		
Recommended Support Contract	Dell ProSupport and Oracle supported		
Supported PowerEdge Servers	PowerEdge T610, T610 II, T710, T710 II, R610, R610 II, R710, R810, R910, M610, M610 II, M710, M710 II, M610X, M710HD, M910, M1000e M915, M620, M820, R715, R815, R620, T620, R720, R720xd, R820	1 Only	2
Memory	All valid PowerEdge memory Configurations	Minimum supported	Minimum supported
Dell Compellent Storage Array	SC-8000, SC-40	N/A (For Internal Storage) 1 (For External Storage)	1
Dell EqualLogic iSCSI Storage Array	PS4100X/XV, 4110X/XV, 6100X/XV, 6110X/XV, 6010X/XV/S/E, 6510X, 6110X/XV/S/E, M4110X/XV	N/A (For Internal Storage) 1 (For External Storage)	1
Fibre Channel Switch		N/A	N/A (For Direct Attached) 2 (8 port switches for 2-4 nodes, and 16 port switches for 5 or more nodes)
Host Bus Adapters (HBAs)	Qlogic - QLE2460, QLE2462, QLE2562, QME2472/QME2572 Emulex - LPe1150e LPe11002, LPe12000, LPe12002, LPe1105-M4/LPe1205-M Brocade BR815, BR825	N/A (For Internal Storage) 2 (For External Storage)	2 ports (Per Node) ²
Ethernet Interfaces	Intel or Broadcom 1GbE NICs Intel 10GbE Server Adapters (AT, XF SR, AF, DA, KR) Broadcom 10GbE 57710, 57711, 57800S, 57810S, 57712	1	3 (Per Node) ³
Ethernet Switches for iSCSI Storage Area Network	Dell PowerConnect 62xx GbE, PowerConnect 54xx GbE, PowerConnect 8024, 8024F 10GbE, Dell Force 10- S4810	2	2
Ethernet Switches (For Private Interconnect)	1/10GbE Switches, Dell Force 10 – S60	N/A	2
Raid Controllers (Used for internal storage only)	PERC 6i, CERC6, SAS 6/iR, 6 Gbps SAS HBA, H200, H700, H310, H710P	1	1 (Per Node)
Internal Drive	All valid PowerEdge internal storage Configurations	73 GB	73 GB/node

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Dell PowerEdge Servers				
	Model	BIOS ⁴	ESM - BMC Firmware ⁴	Notes
Dell PowerEdge™ Servers	PE R715, PE R815	2.9.0	1.92,A00(iDRAC6)	
	PE R610, PE R610 II, PE R710, PE R710 II, PE T610, PE T610 II, PE T710, PE T710 II	6.3.0	1.92,A00(iDRAC6)	
	PE R810	2.7.4	1.92,A00(iDRAC6)	
	PE R910	2.7.7	1.92,A00(iDRAC6)	
	PE R620, PE R720, PE R720xd	1.3.6	1.23.23, A00(iDRAC7)	
	PE R820	1.2.6	1.23.23 A00 (iDRAC7)	
	PE M610, PE M710, PE M610X	6.3.0	3.42,A00 (iDRAC6)	Requires PE M1000e blade enclosure
	PE M710HD	7.0.0	3.42,A00(iDRAC6)	Requires PE M1000e blade enclosure
	PE M910	2.7.6	3.42,A00(iDRAC6)	Requires PE M1000e blade enclosure,
	PE M915	2.11.1	3.42,A00(iDRAC6)	Requires PE M1000e blade enclosure,
	PE M620, M820	1.3.6	1.23.23, A00(iDRAC7)	Requires PE M1000e blade enclosure,

Internal Disks RAID	
H710P/H710	Firmware version = 21.1.0-0007,A03; Driver version = 00.00.05.38-rh
H310	Firmware version = 20.10.1-0084, A04; Driver version = 00.00.05.38-rh
H810	Firmware version = 21.1.0-0007,A03; Driver version = 09.101.00.00
H200 (mpt2sas)	Firmware version = 07.03.05.00,A09; Driver version = 09.101.00.00
PERC 6/i	Firmware version = 6.3.1-0003, A14; Driver version = 2.24.0.32 A07
CERC6 (PE Blades only)	Firmware version = 6.3.2-0001, A15; Driver version = 2.24.0.32 A07
SAS 6/iR (mptsas)	Firmware version = 00.25.47.00.06.22.03.00,A04; Driver version = 3.04.19

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Network Interconnect	
Intel Proset GbE Family of Adapters	Driver version (e1000) = 7.3.21-k6-1-NAPI
Intel PROSet PT/PF Single/Dual Port Server Adapters	Driver version (e1000e) = 1.9.5-NAPI
Intel Dual Port (ET)/Quad Port (VT/ET) GbE Server Adapters	Driver version (igb) = 3.4.2
Intel 10 GbE (AT/XF SR/AF DA/KR) Server Adapters	Driver version (ixgbe) = 3.7.2.1-NAPI
Broadcom NetXtreme II GbE Family of Adapters	Driver version (bnx2) = 2.2.1j
Broadcom NetXtreme GbE Family of Adapters	Driver version (tg3) = 3.1.6
Broadcom NetXtreme II 10 GbE Family of Adapters	Driver version (bnx2x) = 1.72.18
Broadcom iSCSI Offload Engine (iSOE)	Driver version (bnx2i) = 2.7.2.1k
NIC Teaming	
Native teaming driver	Driver version (bonding) = 3.4.0

Qlogic HBAs	
QLE 2460, QLE 2462	Bios = 2.10; Driver version = 8.03.07.03.05.07-k
QLE 2560, QLE 2562	Bios = 2.10; Driver version = 8.03.07.03.05.07-k
QME2472	Bios = 2.04; Driver version = 8.03.07.03.05.07-k
QME2572	Bios = 2.14; Driver version = 8.03.07.03.05.07-k

Emulex HBAs	
LPe1150-E, LPe11002	Bios = 2.12a8; Firmware = 2.82a4; Driver version = 8.2.0.96.2p
LPe12000-E, LPe12002-E	Bios = 2.12a8; Firmware = 2.00a5; Driver version = 8.2.0.96.2p
LPe1105-M4	Bios = 2.12a8; Firmware = 2.82a4; Driver version = 8.2.0.96.2p
LPe1205-M	Bios = 2.12a8; Firmware = 2.00a5; Driver version = 8.2.0.96.2p

Brocade HBAs	
BR 815, BR 825	Driver version = 2.3.2.5

Fibre Channel SAN Switches	
Cisco Fibre Channel Switches	
MDS 9124	Firmware version = 3.1.2 or higher
Brocade Fibre Channel Switches	
200E, 4100, 5000, 300, 5100, 5300	Firmware version = 6.2.0c or higher

iSCSI Switches	
Dell PowerConnect 54xx GbE Ethernet Switches	Firmware = V2.0.0.46, A10 or higher
Dell PowerConnect 62xx GbE Ethernet Switches	Firmware = A27 PC6200v3.3.3.3 or higher
Dell PowerConnect 8024, 8024F 10GbE Ethernet Switches	Firmware = 4.2.2.3, A13 or higher
Dell Force10 S4810	Firmware = FTOS 8.3.10.3 or higher
Dell Force10 S60	Firmware = FTOS 8.3.3.7 or higher

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iSCSI Storage	
Dell EqualLogic PS4100/PS6100/PS6010/PS6510/PS4110/PS6110	Firmware = V6.0.1 or higher and HITKIT version 1.1.x
Dell Compellent SC-8000	Storage Center 6.1 or higher
Dell Compellent SC-40	Storage Center 5.4 or higher

FC Storage	
Dell Compellent SC-8000	Storage Center 6.1 or higher
Dell Compellent SC-40	Storage Center 5.4 or higher

Software	
Oracle	Oracle 11g R2 11.2.0.3 Enterprise Edition
Operating system	Red Hat Enterprise Linux 5.8 with kernel 2.6.18-308 Oracle Linux 5.8 with kernel 2.6.18-308 (Compatible Kernel) Red Hat Enterprise Linux 6.2 with kernel 2.6.32-220 Oracle Linux 6.2 with kernel 2.6.32-220 (Compatible Kernel)
Dell Systems Management Tools and Documentation DVD	DVD provided by your Dell PowerEdge Server Bundle (support.dell.com)

NOTES :

1. Dell EqualLogic PS6100E/6110E are supported only to be used for Oracle Flash Recovery Area purposes.
2. PowerEdge R610 and R610 II only support dual port Fibre Channel HBAs. 2 single port Fibre Channel HBAs are recommended for other servers.
3. This assumes you don't need any other ports for other functions on the switch. This assumes one NIC for the public network and two teamed NICs for the private network. The two teamed NIC ports for the private network should be on separate PCI buses: one on on-board NIC, one on add on NIC card. It is recommended that two teamed NIC s are homogenous.
4. Minimum BIOS and ESM/BMC/iDRAC versions. For latest updates please go to <http://support.dell.com>.

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Minimum Hardware/Software Requirements (Updated 12/07/12– for details, see below)

	Validated Component(s)	Minimum Single Node DB Config	Minimum Oracle RAC Config
Oracle Software & Licenses	Oracle 11g R2 11.2.0.3.0 Standard Edition	Single Node	RAC (max 2 nodes)
Oracle Patch(es)	Oracle 11g R2 11.2.0.3		
Operating System	Red Hat Enterprise Linux 5.8 with kernel 2.6.18-308 Oracle Linux 5.8 with kernel 2.6.18-308 (Compatible Kernel) Red Hat Enterprise Linux 6.2 with kernel 2.6.32-220 Oracle Linux 6.2 with kernel 2.6.32-220 (Compatible Kernel)		
Recommended Support Contract	Dell ProSupport and Oracle supported		
Supported PowerEdge Servers	PowerEdge R610, R710, R610 II, R715, T610, T710, T610 II, T710 II, R620, T620, R720, R720xd	1 Only	2
Memory	All valid PowerEdge memory configurations	Minimum supported	Minimum supported
Dell PowerVault Storage Array	Dell PowerVault MD32XX (SAS), MD32XXi (iSCSI) w/ MD 12XX, MD36XXi (iSCSI) w/ MD 12XX, MD36XXF (FC) w/ MD12XX Expansion	N/A (For Internal Storage) 1 (For External Storage)	1
Fibre Channel Switch		N/A	N/A (For Direct Attached) 2 (8 port switches for 2-4 nodes, and 16 port switches for 5 or more nodes)
Host Bus Adapters (HBAs)	Qlogic - QLE2460, QLE2462, QLE2562 Emulex - LPe1150e LPe11002, LPe12000, LPe12002	N/A (For Internal Storage) 2 (For External Storage)	2 ports (Per Node) ²
Ethernet Interfaces	Intel or Broadcom 1GbE NICs Intel 10GbE Server Adapters (AT, XF SR, AF DA, KR) Broadcom 10GbE 57710/57711/57800S/57810S/57712	1	3 (Per Node) ³
Ethernet Switches for iSCSI Storage Area Network	Dell PowerConnect 62xx GbE, PowerConnect 54xx GbE, PowerConnect 8024, 8024F 10GbE, Dell Force 10 S4810	2	2
Ethernet Switches (For Private Interconnect)	Dell Force 10 S60, 1/10GbE Switches,	N/A	2
Raid Controllers (Used for internal storage only)	PERC 6i, SAS 6/iR, H200, H700, H310, H710P	1	1 (Per Node)
Internal Drive	All valid PowerEdge internal storage configurations	73 GB	73 GB/node

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Dell PowerEdge Servers				
Dell PowerEdge™ Servers	Model	BIOS ³	ESM - BMC Firmware ³	Notes
	PE R610, PE R610 II	6.3.0	1.92,A00 (iDRAC6)	
	PE R710, PE R710 II PE T610, PE T610 II, PE T710, PE T710 II	6.3.0	1.92,A00 (iDRAC6)	
	PE R715	2.9.0	1.92,A00 (iDRAC6)	
	PE R620, PE 720, PE R720xd	1.3.6	1.23.23, A00(iDRAC7)	

Internal Disks RAID	
H710P/H710	Firmware version = 21.1.0-0007,A03; Driver version = 00.00.05.38-rh
H310	Firmware version = 20.10.1-0084, A04; Driver version = 00.00.05.38-rh
H700	Firmware version = 12.10.4-0001, A10; Driver version = 00.00.04.31.2-1, A12
H200 (mpt2sas)	Firmware version = 07.03.05.00,A09; Driver version = 09.101.00.00
PERC 6/i	Firmware version = 6.3.1-0003, A14; Driver version = 2.24.0.32 A07
SAS 6/iR (mptsas)	Firmware version = 00.25.47.00.06.22.03.00,A04; Driver version = 3.04.19

Network Interconnect	
Intel Proset GbE Family of Adapters	Driver version (e1000) = 7.3.21-k6-1-NAPI
Intel PROSet PT/PF Single/Dual Port Server Adapters	Driver version (e1000e) = 1.9.5-NAPI
Intel Dual Port (ET)/Quad Port (VT/ET) GbE Server Adapters	Driver version (igb) = 3.4.2
Intel 10 GbE (AT/XF SR/AF DA) Server Adapters	Driver version (ixgbe) = 3.7.2.1-NAPI
Broadcom NetXtreme II GbE Family of Adapters	Driver version (bnx2) = 2.2.1j
Broadcom NetXtreme GbE Family of Adapters	Driver version (tg3) = 3.1.6
Broadcom NetXtreme II 10 GbE (57710/57711) Family of Adapters	Driver version (bnx2x) = 1.72.18
Broadcom iSCSI Offload Engine (iSOE)	Driver version (bnx2i) = 2.7.2.1k
NIC Teaming	
Native teaming driver	Driver version (bonding) = 3.4.0

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Qlogic HBAs	
QLE 2460, QLE 2462	Bios = 2.10; Driver version = 8.03.07.03.05.07-k
QLE 2560, QLE 2562	Bios = 2.10; Driver version = 8.03.07.03.05.07-k

Emulex HBAs	
LPe1150-E, LPe11002	Bios = 2.12a8; Firmware = 2.82a4; Driver version = 8.2.0.96.2p
LPe12000-E, LPe12002-E	Bios = 2.12a8; Firmware = 2.00a5; Driver version = 8.2.0.96.2p

Dell HBAs	
SAS 5/e	Firmware version = 00.10.51.00.06.12.05.00,A05 Driver version = 4.00.38.02-3, A05
Dell 6Gbps SAS HBA	Firmware version = 07.03.05.00.A08, Driver version = 07.00.01.00-1, A03

Fibre Channel SAN Switches	
Cisco Fibre Channel Switches	
MDS 9124	Firmware version = 3.1.2 or higher
Brocade Fibre Channel Switches	
200E, 4100, 5000, 300, 5100, 5300	Firmware version = 6.2.0c or higher

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iSCSI Switches	
Dell PowerConnect 54xx GbE Ethernet Switches	Firmware = V2.0.0.46, A10 or higher
Dell PowerConnect 62xx GbE Ethernet Switches	Firmware = 3.3.1.10, A25 or higher
Dell PowerConnect 8024, 8024F 10GbE Ethernet Switches	Firmware = 4.1.1.9, A10 or higher
Dell Force 10 S4810	Firmware = FTOS 8.3.10.3 or higher
Dell Force10 S60	Firmware = FTOS 8.3.3.7 or higher

iSCSI Storage	
Dell PowerVault iSCSI Storage	MD32x0i Firmware = 07.80.41.60, NVSRAM = N26X0-780890-001 MD36x0i Firmware = 07.80.41.60, NVSRAM = N26X0-780890-901 MD12x0 Firmware = 1.01 A00

FC Storage	
Dell PowerVault Fibre channel storage	MD36xxf Firmware = 07.80.41.60, NVSRAM = N26X0-780890-901 MD12x0 Firmware = 1.01 A00

SAS Storage	
Dell PowerVault	MD32x0 Firmware = 07.80.41.60, NVSRAM = N26X0-780890-001; MD12x0 Firmware = 1.01 A00

Software	
Oracle	Oracle 11g R2 11.2.0.3 Standard Edition
Operating system	Red Hat Enterprise Linux 5.8 with kernel 2.6.18-308 Oracle Linux 5.8 with kernel 2.6.18-308 (Compatible Kernel) Red Hat Enterprise Linux 6.2 with kernel 2.6.32-220 Oracle Linux 6.2 with kernel 2.6.32-220 (Compatible Kernel)
Dell Systems Management Tools and Documentation DVD	DVD provided by your Dell PowerEdge Server Bundle (support.dell.com)

NOTES :

1. PowerEdge R610 and R610 II only support dual port Fibre Channel HBAs. 2 single port Fibre Channel HBAs are recommended for other servers.
2. This assumes you don't need any other ports for other functions on the switch. This assumes one NIC for the public network and two teamed NICs for the private network. The two teamed NIC ports for the private network should be on separate PCI buses: one on on-board NIC, one on add on NIC card. It is recommended that two teamed NIC s are homogenous.
3. Minimum BIOS and ESM/BMC/iDRAC versions. For latest updates please go to <http://support.dell.com>.

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Dell™ with Oracle® 11g Database Enterprise Edition Running on OVM 3.1.1



Oracle 11g Database Enterprise Edition Running on OVM 3.1.1



Minimum Hardware/Software Requirements (Updated 12/07/12– for details, see below)		
	Validated Component(s)	Configuration
Oracle Software & Licenses	Oracle 11g R2 11.2.0.3.0 Enterprise Edition	Single Node
Oracle Patch(es)	Oracle 11g R2 11.2.0.3	
Hypervisor & Management Software	Oracle VM Server 3.1.1, Oracle VM Manager 3.1.1	
Guest Operating System	Red Hat Enterprise Linux 5.8 with kernel 2.6.18-308 Oracle Linux 5.8 with kernel 2.6.18-308 (Compatible Kernel) Red Hat Enterprise Linux 6.2 with kernel 2.6.32-220 Oracle Linux 6.2 with kernel 2.6.32-220 (Compatible Kernel)	
Recommended Support Contract	Dell ProSupport and Oracle supported	
Supported PowerEdge Servers	PowerEdge R620, R720, R720xd, R820, M620, M820	1 Only
Memory	All valid PowerEdge memory Configurations	Minimum supported
Dell Compellent Storage Array	Dell Compellent SC 8000, Dell Compellent SC-40	1 (For ExternalStorage)
Fibre Channel Switch	Brocade 300, 5100, 5300	2 (For External Storage)
HBA's	Qlogic - QLE2460, QLE2462, QLE2562, QME2472/QME2572 Emulex - LPe1150e LPe11002, LPe12000, LPe12002, LPe1105-M4/LPe1205-M	N/A (For Internal Storage) 2 (For External Storage)
Ethernet Interfaces	Intel or Broadcom 1GbE NICs Intel 10GbE Server Adapters (AT, XF SR, AF DA) Broadcom 10GbE 57710/57711 57810	1
Ethernet Switches for iSCSI Storage Area Network	Dell PowerConnect 62xx GbE, PowerConnect 54xx GbE , PowerConnect 8024, 8024F 10GbE, Dell Force 10 S4810	2
Ethernet Switches (For Private Interconnect)	1/10GbE Switches, Dell Force 10 S60	N/A
Raid Controllers (Used for internal storage only)	PERC H310, H710, H710P	1
Internal Drive	All valid PowerEdge internal storage configurations	73 GB

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Oracle 11g Database Enterprise Edition Running on OVM 3.1.1



Dell PowerEdge Servers				
Dell PowerEdge™ Servers	Model	BIOS ¹	ESM - BMC Firmware ¹	Notes
	PE R620, R720, R720xd,	1.3.6	1.23.23, A00(iDRAC7)	
	PE R820	1.2.6	1.23.23, A00(iDRAC7)	

Internal Disks RAID	
H310	Firmware version = 20.10.1-0084, A04;
H710	Firmware version = 21.1.0-0007,A03
H710P	Firmware version = 21.1.0-0007,A03

iSCSI Switches	
Dell PowerConnect 54xx GbE Ethernet Switches	Firmware = V2.0.0.46, A10 or higher
Dell PowerConnect 62xx GbE Ethernet Switches	Firmware = A27 PC6200v3.3.3.3 or higher
Dell PowerConnect 8024, 8024F 10GbE Ethernet Switches	Firmware = 4.2.2.3, A13 or higher
Dell Force 10 S4810	Firmware = FTOS 8.3.10.3 or higher
Dell Force 10 S60	Firmware = FTOS 8.3.3.7 or higher

External Storage	
Dell Compellent SC 8000	Storage Center 6.1 or higher
Dell Compellent SC-40	Storage Center 5.4 or higher

Software	
Oracle	Oracle 11g R2 11.2.0.3 Enterprise Edition
Operating system	Red Hat Enterprise Linux 5.8 with kernel 2.6.18-308 Oracle Linux 5.8 with kernel 2.6.18-308 (Compatible Kernel) Red Hat Enterprise Linux 6.2 with kernel 2.6.32-220 Oracle Linux 6.2 with kernel 2.6.32-220 (Compatible Kernel)
Dell Systems Management Tools and Documentation DVD	DVD provided by your Dell PowerEdge Server Bundle (support.dell.com)

NOTES :

1. For latest updates please go to <http://support.dell.com>.

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