

IBM System Storage Multilevel Grid Access Manager IBM Storage and Server Interoperability Matrix

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Table of Contents

| | |
|--|-----------|
| TABLE OF CONTENTS | 1 |
| HARDWARE SUPPORT POLICY | 1 |
| IBM BLADECENTER CONFIGURATIONS | 2 |
| BLADECENTER CHASSIS | 3 |
| <i>BladeCenter Hardware/Firmware</i> | <i>3</i> |
| ADMIN NODE | 4 |
| <i>Software</i> | <i>4</i> |
| <i>Blade Hardware/Firmware</i> | <i>4</i> |
| <i>Storage Options</i> | <i>5</i> |
| ADMIN/GATEWAY NODE | 6 |
| <i>Software</i> | <i>6</i> |
| <i>Blade Hardware/Firmware</i> | <i>6</i> |
| <i>Storage Options</i> | <i>7</i> |
| ARCHIVE NODE | 8 |
| <i>Software</i> | <i>8</i> |
| <i>Blade Hardware/Firmware</i> | <i>8</i> |
| <i>Storage Options</i> | <i>9</i> |
| ARCHIVE NODE / TSM SERVER | 10 |
| <i>Software</i> | <i>10</i> |
| <i>Blade Hardware/Firmware</i> | <i>10</i> |
| <i>Storage Options</i> | <i>11</i> |
| CONTROL NODE | 12 |
| <i>Software</i> | <i>12</i> |
| <i>Blade Hardware/Firmware</i> | <i>12</i> |
| <i>Storage Options</i> | <i>13</i> |
| CONTROL/STORAGE NODE | 14 |
| <i>Software</i> | <i>14</i> |
| <i>Blade Hardware/Firmware</i> | <i>14</i> |
| <i>Storage Options</i> | <i>15</i> |
| GATEWAY NODE - DISTRIBUTED | 16 |
| <i>Software</i> | <i>16</i> |
| <i>Blade Hardware/Firmware</i> | <i>16</i> |
| <i>Storage Options</i> | <i>17</i> |
| GATEWAY NODE - HIGH AVAILABILITY | 18 |
| <i>Software</i> | <i>18</i> |
| <i>Blade Hardware/Firmware</i> | <i>18</i> |
| <i>Storage Options</i> | <i>19</i> |
| GATEWAY NODE - REDUNDANT | 20 |
| <i>Software</i> | <i>20</i> |
| <i>Blade Hardware/Firmware</i> | <i>20</i> |
| <i>Storage Options</i> | <i>21</i> |
| STORAGE NODE | 22 |
| <i>Software</i> | <i>22</i> |
| <i>Blade Hardware/Firmware</i> | <i>22</i> |
| <i>Storage Options</i> | <i>23</i> |
| VMWARE MULTIPLE REDUNDANT GATEWAY | 24 |
| <i>Software</i> | <i>24</i> |
| <i>Blade Hardware/Firmware</i> | <i>24</i> |
| <i>Storage Options</i> | <i>25</i> |
| IBM SYSTEM X CONFIGURATIONS | 26 |

| | |
|---|----|
| ADMIN NODE | 27 |
| <i>Software</i> | 27 |
| <i>Server Hardware/Firmware</i> | 27 |
| <i>Storage Options</i> | 28 |
| ADMIN/GATEWAY NODE | 29 |
| <i>Software</i> | 29 |
| <i>Server Hardware/Firmware</i> | 29 |
| <i>Storage Options</i> | 30 |
| ADMIN/GATEWAY/CONTROL/STORAGE NODE (GMAS-L ONLY) | 31 |
| <i>Software</i> | 31 |
| <i>Server Hardware/Firmware</i> | 31 |
| <i>Storage Options</i> | 32 |
| ARCHIVE NODE..... | 33 |
| <i>Software</i> | 33 |
| <i>Server Hardware/Firmware</i> | 33 |
| <i>Storage Options</i> | 34 |
| ARCHIVE NODE / TSM SERVER..... | 35 |
| <i>Software</i> | 35 |
| <i>Server Hardware/Firmware</i> | 35 |
| <i>Storage Options</i> | 36 |
| CONTROL NODE..... | 37 |
| <i>Software</i> | 37 |
| <i>Server Hardware/Firmware</i> | 37 |
| <i>Storage Options</i> | 38 |
| CONTROL/STORAGE NODE | 39 |
| <i>Software</i> | 39 |
| <i>Server Hardware/Firmware</i> | 39 |
| <i>Storage Options</i> | 40 |
| GATEWAY NODE - DISTRIBUTED..... | 41 |
| <i>Software</i> | 41 |
| <i>Server Hardware/Firmware</i> | 41 |
| <i>Storage Options</i> | 42 |
| GATEWAY NODE - HIGH AVAILABILITY | 43 |
| <i>Software</i> | 43 |
| <i>Server Hardware/Firmware</i> | 43 |
| <i>Storage Options</i> | 44 |
| GATEWAY NODE WITH EXTERNAL DISK FOR CACHE - HIGH AVAILABILITY | 45 |
| <i>Software</i> | 45 |
| <i>Server Hardware/Firmware</i> | 45 |
| <i>Storage Options</i> | 46 |
| GATEWAY NODE - REDUNDANT..... | 47 |
| <i>Software</i> | 47 |
| <i>Server Hardware/Firmware</i> | 47 |
| <i>Storage Options</i> | 48 |
| GATEWAY/CONTROL/STORAGE NODE (GMAS-L ONLY)..... | 49 |
| <i>Software</i> | 49 |
| <i>Server Hardware/Firmware</i> | 49 |
| <i>Storage Options</i> | 50 |
| STORAGE NODE..... | 51 |
| <i>Software</i> | 51 |
| <i>Server Hardware/Firmware</i> | 51 |
| <i>Storage Options</i> | 52 |
| VMWARE MULTIPLE REDUNDANT GATEWAY NODE..... | 53 |
| <i>Software</i> | 53 |
| <i>Server Hardware/Firmware</i> | 53 |

| | |
|--|-----------|
| <i>Storage Options</i> | 54 |
| APPENDIX A – IBM SYSTEM STORAGE EXP3000 STORAGE OPTION | 55 |
| APPENDIX B – IBM SYSTEM STORAGE DS3200 STORAGE OPTION | 56 |
| APPENDIX C – IBM SYSTEM STORAGE DS3300 STORAGE OPTION | 57 |
| APPENDIX D – IBM SYSTEM STORAGE DS3400 STORAGE OPTION | 58 |
| APPENDIX E – IBM SYSTEM STORAGE DS4000 STORAGE OPTION | 59 |
| APPENDIX F – IBM SYSTEM STORAGE N SERIES STORAGE OPTION | 61 |
| APPENDIX G – IBM SYSTEM STORAGE DS8000 STORAGE OPTION | 64 |
| APPENDIX H – IBM SYSTEM STORAGE SAN VOLUME CONTROLLER STORAGE OPTION | 65 |
| APPENDIX I – IBM SYSTEM STORAGE XIV STORAGE OPTION | 66 |
| APPENDIX J – IBM SYSTEM STORAGE TAPE STORAGE OPTION | 67 |
| CLIENT ATTACHMENT MATRIX..... | 68 |

Hardware Support Policy

This policy determines the length of time we will test a given piece of hardware with new levels of GAM code:

- o Hardware interoperability introduced in any release of GAM will remain current and be tested for software upgrades for all new releases of GAM for at least three years. For example, hardware which first appears in this interoperability matrix in January 2007 will be tested for all releases of GAM in 2007, 2008, and 2009. Hardware that is still shipping and current will continue to be tested beyond this commitment.
- o Hardware interoperability will be supported at the last tested software level, until the hardware's end of support date –or– Bycast's end of support for that software level or interoperability of that software level with the level of grid software the customer is running on other nodes. What this means is that a piece of hardware introduced in GAM version n which we do not test in GAM version n+3 (three releases after GAM version n) will nevertheless be supported running GAM n+2 for as long as Bycast supports GAM n+2, and there is still underlying hardware support available for the device.
- o NOTE: Bycast currently supports interoperability of different software levels in the same grid only during an upgrade.

For example:

2007 = GAM n = hardware XYZ introduced

2008 = GAM n+1 = hardware XYZ retested, customer can upgrade GAM SW on existing HW

2009 = GAM n+2 = hardware XYZ retested, customer can upgrade GAM SW on existing HW

2010 = GAM n+3 = hardware XYZ NOT retested, but customer can continue to run on GAM n+2 SW on hardware XYZ for as long as GAM n+2 SW is supported by Bycast and hardware XYZ is supported by the hardware supplier.

So if hardware XYZ was purchased in 2007 it would be supported on the latest GAM software version until GAM n+3 becomes generally available in 2010, and beyond that for as long as GAM n+2 software is supported by Bycast. Devices like tape are not directly supported by GAM; rather they fall under TSM's SW support cycle and GAM merely talks to TSM. Nevertheless, longer-lived devices GAM does directly talk to would continue to be tested with new releases as long as they are shipping and current.

IBM BladeCenter Configurations

BladeCenter Chassis

BladeCenter Hardware/Firmware

BladeCenter H Chassis

2 Multi-switch Interconnect Module for IBM BladeCenter

Ethernet Connectivity Options

Server Connectivity Module for IBM BladeCenter

Cisco Systems Intelligent GbE Switch Module for IBM BladeCenter

Cisco Systems Fiber Intelligent Gigabit Ethernet Switch Module

2 modules requires for all configurations

2 additional modules (total of 4) are required any of the following node types will be installed in the chassis:

Admin Node

Admin/Gateway Node

Archive Node (only if node is communication with a TSM/SSAM server not on the grid network)

Gateway Node - Distributed

Gateway Node - High Availability

Gateway Node - Redundant

VMware Multiple Redundant Gateway Node

1 additional module (total of 5) are required if there will be a High Availability Gateway Node installed in the chassis

Fibre Channel Connectivity Options

2 Brocade 4GB SAN Switch Module for IBM BladeCenter

2 Cisco Systems 4GB Fibre Channel Switch Module

2 QLogic 4GB Fibre Channel Switch Module for IBM BladeCenter

2 QLogic 8GB Fibre Channel Switch Module for IBM BladeCenter

NOTE - the switch modules installed in the chassis must be a Vendor match to any external switch they will be connected to

NOTE - a sufficient number of SFPs are required for connection of external storage and/or ISLs

4 Power Supply Modules

2 IBM BladeCenter KVM/Advanced Management Module

| | |
|--|--------------|
| Advanced Management Module Firmware | v2.48d |
| Brocade 4GB SAN Switch Module Firmware | v6.1.1d |
| Cisco Systems 4GB SAN Switch Module Firmware | v3.3.1a |
| QLogic 4GB SAN Switch Module Firmware | v5.5.2.08 |
| QLogic 8GB SAN Switch Module Firmware | v7.10.0.15 |
| Server Connectivity Module Firmware | v1.1.2.0 |
| Cisco Systems Intelligent GbE Switch Module | v121-22.EA12 |
| Cisco Systems Fibre Intelligent Gigabit Ethernet Switch Module | v121-22.EA12 |

IBM BladeCenter H Chassis

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=500020&familyind=5297403&typeind=5297408&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Admin Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |

Blade Hardware/Firmware

The Admin node is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

2/4 Port Ethernet Expansion Card (CFFh) for IBM BladeCenter

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

2 IBM Server Blade 73GB SAS 15k 2.5 inch SFF NHS, configured as 1 RAID 1 array

2 300GB 15k FC or SAS HDDs, configured as a RAID 1 array on supported external storage for Audit Logs and the NMS DB

| | |
|---|----------------------|
| LSI 1064e SAS Controller Firmware | v1.41 or later |
| LSI 1064e SAS Controller Driver | v4.16.80.01 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix D

Appendix E

Admin/Gateway Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ¹ | v9.00 or later |
| ServeRAID Storage Manager ² | v9.00 or later |

Blade Hardware/Firmware

The Admin/Gateway node is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

IBM BladeCenter Storage and I/O Expansion Blade

IBM ServeRAID-8K SAS Controller

2 IBM Storage and I/O Blade 73GB SAS 15k 2.5 inch SFF HS, configured as 1 RAID 1 array

2/4 Port Ethernet Expansion Card (CFFh) for IBM BladeCenter

2 300GB 15k FC or SAS HDD, configured as a RAID 1 array on supported external storage for Audit Logs and the NMS DB

2 300GB 15k FC or SAS HDD, configured as a RAID 1 array on supported external storage for the FSG Cache

| | |
|---|-----------------------|
| IBM ServeRAID 8k SAS Controller Firmware | v5.2.0-15427 or later |
| IBM ServeRAID 8k SAS Controller Driver | v1.1.5.2451 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

¹ only used when using IBM Director and requiring external management of the ServeRAID 8k card

² only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix D

Appendix E

Archive Node

Software

| | |
|--|-------------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |
| IBM TSM/SSAM Client Software | v5.5 or later version of v5.x |

Blade Hardware/Firmware

The Archive node is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

2/4 Port Ethernet Expansion Card (CFFh) for IBM BladeCenter (only required if node is communicating with a TSM/SSAM server not on the grid network)

2 IBM Server Blade 73GB SAS 15k 2.5 inch SFF NHS, configured as 1 RAID 1 array

| | |
|---|----------------------|
| LSI 1064e SAS Controller Firmware | v1.41 or later |
| LSI 1064e SAS Controller Driver | v4.16.80.01 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

| | |
|----------------------------------|---------------|
| IBM System Storage DR550 | v4.1 or later |
| IBM System Storage DR550 Express | v4.1 or later |
| IBM TSM Server | v5.5 or later |
| IBM SSAM | v5.5 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage DR550 and DR550 Express

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/supportresources?brandind=5000028&familyind=5329490&taskind=1>

Archive Node / TSM Server

Software

| | |
|--|-------------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |
| IBM ServeRAID Extension for IBM Director | v9.00 or later |
| ServeRAID Storage Manager | v9.00 or later |
| IBM TSM/SSAM Client Software ³ | v5.5 or later version of v5.x |
| IBM TSM/SSAM Server Software ⁴ | v5.5 or later version of v5.x |

Blade Hardware/Firmware

The Archive node/TSM server is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter (for external disk attachment)

2 IBM Server Blade 73GB SAS 15k 2.5 inch SFF NHS, configured as 1 RAID 1 array (only needed when configuring without the Storage and I/O Expansion Blade)

To support attachment to tape, the following is required

IBM BladeCenter Storage and I/O Expansion Blade

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter (installed in the Expansion Blade and in addition to the card required above)

IBM ServeRAID-8K SAS Controller

2 IBM Storage and I/O Blade 73GB SAS 15k 2.5 inch SFF HS, configured as 1 RAID 1 array (only needed when configuring with the Storage and I/O Expansion Blade)

2 300GB 15k FC or SAS HDD, configured as a RAID 1 array on supported external storage for the TSM DB and Recovery Log

2 300GB 15k FC or SAS HDD, configured as a RAID 1 array on supported external storage for the TSM Disk Pool

³ only used when using IBM Director and requiring external management of the ServeRAID 8k card

⁴ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

| | |
|--|-----------------------|
| IBM ServerAID 8k SAS Controller Firmware | v5.2.0–15427 or later |
| IBM ServerAID 8k SAS Controller Driver | v1.1.5.2451 or later |
| LSI 1064e SAS Controller Firmware | v1.41 or later |
| LSI 1064e SAS Controller Driver | v4.16.80.01 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix D
Appendix E
Appendix J

Control Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ⁵ | v9.00 or later |
| ServeRAID Storage Manager ⁶ | v9.00 or later |

Blade Hardware/Firmware

The Control node is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

IBM BladeCenter Storage and I/O Expansion Blade

IBM ServeRAID-8K SAS Controller

2 IBM Storage and I/O Blade 73GB SAS 15k 2.5 inch SFF HS, configured as 1 RAID 1 array

4 300GB 15k FC or SAS HDD, configured as a RAID 10 array on supported external storage for the CMS DB

| | |
|---|-----------------------|
| IBM ServeRAID 8k SAS Controller Firmware | v5.2.0-15427 or later |
| IBM ServeRAID 8k SAS Controller Driver | v1.1.5.2451 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁵ only used when using IBM Director and requiring external management of the ServeRAID 8k card

⁶ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

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<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix D

Appendix E

Control/Storage Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ⁷ | v9.00 or later |
| ServeRAID Storage Manager ⁸ | v9.00 or later |

Blade Hardware/Firmware

The Control/Storage node is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

IBM BladeCenter Storage and I/O Expansion Blade

IBM ServeRAID-8K SAS Controller

2 IBM Storage and I/O Blade 73GB SAS 15k 2.5 inch SFF HS, configured as 1 RAID 1 array

4 300GB 15k FC or SAS HDD, configured as a RAID 10 array on supported external storage for the CMS DB

| | |
|---|-----------------------|
| IBM ServeRAID 8k SAS Controller Firmware | v5.2.0-15427 or later |
| IBM ServeRAID 8k SAS Controller Driver | v1.1.5.2451 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁷ only used when using IBM Director and requiring external management of the ServeRAID 8k card

⁸ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=500020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix D

Appendix E

Gateway Node - Distributed

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |

Blade Hardware/Firmware

The Gateway node is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

2/4 Port Ethernet Expansion Card (CFFh) for IBM BladeCenter

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

2 IBM Server Blade 73GB SAS 15k 2.5 inch SFF NHS, configured as 1 RAID 1 array

4 300GB 15k FC HDD, configured as two RAID 1 arrays on two separate supported external storage systems for fsgsys

300GB 15k FC HDD, configured as 5x300GB RAID 5 arrays on two separate supported external storage systems for FSG Cache

-OR-

1TB SATA HDD, configured as 5x1TB RAID 5 arrays on two separate supported external storage systems for FSG Cache

| | |
|---|----------------------|
| LSI 1064e SAS Controller Firmware | v1.41 or later |
| LSI 1064e SAS Controller Driver | v4.16.80.01 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix E

Gateway Node – High Availability

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46–0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1–v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |

Blade Hardware/Firmware

The Gateway node is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

2/4 Port Ethernet Expansion Card (CFFh) for IBM BladeCenter

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

2 IBM Server Blade 73GB SAS 15k 2.5 inch SFF NHS, configured as 1 RAID 1 array

4 300GB 15k FC or SAS HDD, configured as a RAID 10 array on supported external storage for FSG Cache

| | |
|---|----------------------|
| LSI 1064e SAS Controller Firmware | v1.41 or later |
| LSI 1064e SAS Controller Driver | v4.16.80.01 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix D
Appendix E

Gateway Node - Redundant

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |

Blade Hardware/Firmware

The Gateway node is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

2/4 Port Ethernet Expansion Card (CFFh) for IBM BladeCenter

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

2 IBM Server Blade 73GB SAS 15k 2.5 inch SFF NHS, configured as 1 RAID 1 array

4 300GB 15k FC or SAS HDD, configured as a RAID 10 array on supported external storage for FSG Cache

| | |
|---|----------------------|
| LSI 1064e SAS Controller Firmware | v1.41 or later |
| LSI 1064e SAS Controller Driver | v4.16.80.01 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix D
Appendix E

Storage Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Common Agent | 6.1 or later |

Blade Hardware/Firmware

The Storage node is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

2 IBM Server Blade 73GB SAS 15k 2.5 inch SFF NHS, configured as 1 RAID 1 array

| | |
|---|----------------------|
| LSI 1064e SAS Controller Firmware | v1.41 or later |
| LSI 1064e SAS Controller Driver | v4.16.80.01 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix D
Appendix E
Appendix F
Appendix G
Appendix H
Appendix I

VMware Multiple Redundant Gateway

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| VMware ESX Server | v3.5 update 1 |
| IBM Director Common Agent | 6.1 or later |

Blade Hardware/Firmware

The VMware Multiple Redundant Gateway node supports up to 6 Gateway node images per server. This is supported when installed on the IBM BladeCenter HS21 with the minimum configuration below.

Base Options

30mm High Density Dual or Quad Core Base

Processor Options

2 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

16GB RAM

2/4 Port Ethernet Expansion Card (CFFh) for IBM BladeCenter

QLogic 4GB Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

2 IBM Server Blade 73GB SAS 15k 2.5 inch SFF NHS, configured as 1 RAID 1 array

2-12 300GB 15k FC or SAS HDD, configured as 2x300GB RAID 1 array for each gateway node image on supported external storage for FSG Cache, up to six images total

| | |
|---|----------------------|
| LSI 1064e SAS Controller Firmware | v1.41 or later |
| LSI 1064e SAS Controller Driver | v4.16.80.01 or later |
| IBM BladeCenter HS21 BMC | v1.16 or later |
| IBM BladeCenter HS21 BIOS | v1.18 or later |
| IBM BladeCenter HS21 Diagnostics | v1.06 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Firmware | v1.46 or later |
| QLogic 4GB Fibre Channel Expansion Card (CFFh) Driver | 8.01.07 or later |
| IBM SAS Hard drive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM BladeCenter HS21

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000020&familyind=5316512&typeind=5316515&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix D

Appendix E

IBM System X Configurations

Admin Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ⁹ | 5.20.02 or later |
| IBM Director Common Agent ¹⁰ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ¹¹ | v9.00 or later |
| ServeRAID Storage Manager ¹² | v9.00 or later |

Server Hardware/Firmware

The Admin node is supported when installed on the IBM System X x3650 with the minimum configuration below.

Processor Options

- 1 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Network Options

- 1 NetXtreme 1000 T Dual Port Ethernet Adapter – PCI-X
- 1 PRO/1000 PT Dual Port Server Adapter by Intel – PCI-E

6 73GB 15K 3.5 inch Hot-Swap SAS HDD, configured as three RAID 1 arrays

Dual Power Supplies

Optional Supported Components

- Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁹ For use with IBM Director 5 installations

¹⁰ For use with IBM Director 6 installations

¹¹ only used when using IBM Director and requiring external management of the ServeRAID 8k card

¹² only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3650

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Not Applicable

Admin/Gateway Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ¹³ | 5.20.02 or later |
| IBM Director Common Agent ¹⁴ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ¹⁵ | v9.00 or later |
| ServeRAID Storage Manager ¹⁶ | v9.00 or later |

Server Hardware/Firmware

The Admin/Gateway node is supported when installed on the IBM System X x3650 with the minimum configuration below.

Processor Options

- 1 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Network Options

- 1 NetXtreme 1000 T Dual Port Ethernet Adapter – PCI-X
- 1 PRO/1000 PT Dual Port Server Adapter by Intel – PCI-E
- 2 73GB 15K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 arrays
- 4 300GB 15K 3.5 inch Hot-Swap SAS HDD, configured as two RAID 1 array
- Dual Power Supplies

Optional Supported Components

- Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

¹³ For use with IBM Director 5 installations

¹⁴ For use with IBM Director 6 installations

¹⁵ only used when using IBM Director and requiring external management of the ServeRAID 8k card

¹⁶ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3650

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Not Applicable

Admin/Gateway/Control/Storage Node (GMAS-L only)

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ¹⁷ | 5.20.02 or later |
| IBM Director Common Agent ¹⁸ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ¹⁹ | v9.00 or later |
| ServeRAID Storage Manager ²⁰ | v9.00 or later |

Server Hardware/Firmware

The Admin/Gateway/Control/Storage node is supported when installed on the IBM System X x3650 with the minimum configuration below.

Processor Options

- 2 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Storage Adapter Card – refer to the Storage Options section below for specifics

1 PRO/1000 PT Dual Port Server Adapter by Intel – PCI-E

6 300GB 15K 3.5 inch Hot-Swap SAS HDD, configured as three RAID 1 arrays

Dual Power Supplies

Optional Supported Components

Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

¹⁷ For use with IBM Director 5 installations

¹⁸ For use with IBM Director 6 installations

¹⁹ only used when using IBM Director and requiring external management of the ServeRAID 8k card

²⁰ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3650

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix A

Appendix B

Archive Node

Software

| | |
|--|-------------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ²¹ | 5.20.02 or later |
| IBM Director Common Agent ²² | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ²³ | v9.00 or later |
| ServeRAID Storage Manager ²⁴ | v9.00 or later |
| IBM TSM/SSAM Client Software | v5.4 or later version of v5.x |

Server Hardware/Firmware

The Archive node is supported when installed on the IBM System X x3650 with the following minimum configuration:

Processor Options

- 2 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Network Options (only required if node is communicating with a TSM/SSAM server not on the grid network)

- 1 NetXtreme 1000 T Dual Port Ethernet Adapter – PCI-X
- 1 PRO/1000 PT Dual Port Server Adapter by Intel – PCI-E

2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array

Dual Power Supplies

Or when installed on the IBM System X x3550 with the following minimum configuration:

Processor Options

- 2 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Network Options (only required if node is communicating with a TSM/SSAM server not on the grid network)

- 1 NetXtreme 1000 T Dual Port Ethernet Adapter – PCI-X
- 1 PRO/1000 PT Dual Port Server Adapter by Intel – PCI-E

2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array

Dual Power Supplies

Optional Supported Components

Remote Supervisor Adapter II

| | |
|------------------------------------|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
|------------------------------------|-----------------------|

²¹ For use with IBM Director 5 installations

²² For use with IBM Director 6 installations

²³ only used when using IBM Director and requiring external management of the ServeRAID 8k card

²⁴ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

| | |
|--|---------------------|
| IBM System X ServeRAID 8k Driver | 1.1.5–2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| IBM System X x3550 BMC | v1.42 or later |
| IBM System X x3550 BIOS | v1.13 or later |
| IBM System X x3550 Diagnostics | v1.05 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware (x3550) | v1.12 or later |
| Remote Supervisor Adapter II (RSA II) Firmware (x3650) | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System X x3650

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X x3550

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310498&typeind=5310804&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=12&continue.y=19>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

| | |
|----------------------------------|---------------|
| IBM System Storage DR550 | v4.1 or later |
| IBM System Storage DR550 Express | v4.1 or later |
| IBM TSM Server | v5.5 or later |
| IBM SSAM | v5.5 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage DR550 and DR550 Express

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/supportresources?brandind=5000028&familyind=5329490&taskind=1>

Archive Node / TSM Server

Software

| | |
|--|-------------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ²⁵ | 5.20.02 or later |
| IBM Director Common Agent ²⁶ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ²⁷ | v9.00 or later |
| ServeRAID Storage Manager ²⁸ | v9.00 or later |
| IBM TSM/SSAM Client Software | v5.5 or later version of v5.x |
| IBM TSM/SSAM Server Software | v5.5 or later version of v5.x |

Server Hardware/Firmware

The Archive node / TSM Server is supported when installed on the IBM System X x3650 with the following minimum configuration:

Processor Options

- 2 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Storage Adapter Card – refer to the Storage Options section below for specifics

- 2 73GB 15K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array
 - 4 300GB 15K 3.5 inch Hot-Swap SAS HDD, configured as two RAID 1 arrays
- Dual Power Supplies

Optional Supported Components

- Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System X x3650

²⁵ For use with IBM Director 5 installations

²⁶ For use with IBM Director 6 installations

²⁷ only used when using IBM Director and requiring external management of the ServeRAID 8k card

²⁸ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix A²⁹
Appendix B²⁹
Appendix D²⁹
Appendix E²⁹
Appendix F²⁹
Appendix G²⁹
Appendix H²⁹
Appendix J

²⁹ Addition of external disk storage is a custom configuration for this node and individualized configuration instructions will need to be requested.

Control Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ³⁰ | 5.20.02 or later |
| IBM Director Common Agent ³¹ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ³² | v9.00 or later |
| ServeRAID Storage Manager ³³ | v9.00 or later |

Server Hardware/Firmware

The Control node is supported when installed on the IBM System X x3650 with the minimum configuration below.

Processor Options

- 2 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

- 2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array
 - 4 300GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 10 array
- Dual Power Supplies

Optional Supported Components

- Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

³⁰ For use with IBM Director 5 installations

³¹ For use with IBM Director 6 installations

³² only used when using IBM Director and requiring external management of the ServeRAID 8k card

³³ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3650

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Not Applicable

Control/Storage Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ³⁴ | 5.20.02 or later |
| IBM Director Common Agent ³⁵ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ³⁶ | v9.00 or later |
| ServeRAID Storage Manager ³⁷ | v9.00 or later |

Server Hardware/Firmware

The Control/Storage node is supported when installed on the IBM System X x3650 with the minimum configuration below.

Processor Options

- 2 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Storage Adapter Card – refer to the Storage Options section below for specifics

- 2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array
- 4 300GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 10 array

Dual Power Supplies

Optional Supported Components

- Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

³⁴ For use with IBM Director 5 installations

³⁵ For use with IBM Director 6 installations

³⁶ only used when using IBM Director and requiring external management of the ServeRAID 8k card

³⁷ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3650

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix A
Appendix B
Appendix C
Appendix D
Appendix E
Appendix F
Appendix G
Appendix H
Appendix I

Gateway Node - Distributed

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ³⁸ | 5.20.02 or later |
| IBM Director Common Agent ³⁹ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ⁴⁰ | v9.00 or later |
| ServeRAID Storage Manager ⁴¹ | v9.00 or later |

Server Hardware/Firmware

The Gateway node is supported when installed on the IBM System X x3550 with the minimum configuration below.

Processor Options

1 Quad-Core Intel Xeon Processor E5430 - 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Network Options

1 PRO/1000 PT Dual Port Server Adapter by Intel - PCI-E

Storage Adapter Card - refer to the Storage Options section below for specifics

2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array

Dual Power Supplies

Optional Supported Components

Remote Supervisor Adapter II

4 300GB 15k FC HDD, configured as two RAID 1 arrays on two separate supported external storage systems for fsgsys

300GB 15k FC HDD, configured as 5x300GB RAID 5 arrays on two separate supported external storage systems for FSG Cache

-OR-

1TB SATA HDD, configured as 5x1TB RAID 5 arrays on two separate supported external storage systems for FSG Cache

2 4GB or better IBM B-type or Cisco Fibre Channel SAN switches

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3550 BMC | v1.42 or later |
| IBM System X x3550 BIOS | v1.13 or later |
| IBM System X x3550 Diagnostics | v1.05 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.12 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

³⁸ For use with IBM Director 5 installations

³⁹ For use with IBM Director 6 installations

⁴⁰ only used when using IBM Director and requiring external management of the ServeRAID 8k card

⁴¹ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System X x3550

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310498&typeind=5310804&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=12&continue.y=19>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix E

Gateway Node – High Availability

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46–0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1–v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ⁴² | 5.20.02 or later |
| IBM Director Common Agent ⁴³ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ⁴⁴ | v9.00 or later |
| ServeRAID Storage Manager ⁴⁵ | v9.00 or later |

Server Hardware/Firmware

The Gateway node is supported when installed on the IBM System X x3650 with the minimum configuration below.

Processor Options

- 1 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID–8K SAS Controller

Network Options

- 2 NetXtreme 1h000 T Dual Port Ethernet Adapter – PCI-X
 - 2 PRO/1000 PT Dual Port Server Adapter by Intel – PCI-E
 - 2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array
 - 4 300GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 10 array
- Dual Power Supplies

Optional Supported Components

- Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0–15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5–2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁴² For use with IBM Director 5 installations

⁴³ For use with IBM Director 6 installations

⁴⁴ only used when using IBM Director and requiring external management of the ServeRAID 8k card

⁴⁵ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3650

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Not Applicable

Gateway Node with External Disk for Cache – High Availability

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46–0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1–v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ⁴⁶ | 5.20.02 or later |
| IBM Director Common Agent ⁴⁷ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ⁴⁸ | v9.00 or later |
| ServeRAID Storage Manager ⁴⁹ | v9.00 or later |

Server Hardware/Firmware

The Gateway node is supported when installed on the IBM System X x3550 with the minimum configuration below.

Processor Options

1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID–8K SAS Controller

Network Options

1 PRO/1000 PT Quad Port Server Adapter by Intel – PCI-E

Storage Adapter Card – refer to the Storage Options section below for specifics

2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array

Dual Power Supplies

Optional Supported Components

Remote Supervisor Adapter II

4–12 300GB 15k SAS HDD, configured as a RAID 10 array on supported external storage for the FSG Cache

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0–15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5–2451 or later |
| IBM System X x3550 BMC | v1.42 or later |
| IBM System X x3550 BIOS | v1.13 or later |
| IBM System X x3550 Diagnostics | v1.05 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.12 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁴⁶ For use with IBM Director 5 installations

⁴⁷ For use with IBM Director 6 installations

⁴⁸ only used when using IBM Director and requiring external management of the ServeRAID 8k card

⁴⁹ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3550

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310498&typeind=5310804&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=12&continue.y=19>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Appendix B
Appendix D

Gateway Node - Redundant

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ⁵⁰ | 5.20.02 or later |
| IBM Director Common Agent ⁵¹ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ⁵² | v9.00 or later |
| ServeRAID Storage Manager ⁵³ | v9.00 or later |

Server Hardware/Firmware

The Gateway node is supported when installed on the IBM System X x3650 with the minimum configuration below.

Processor Options

- 1 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Network Options

- 1 NetXtreme 1000 T Dual Port Ethernet Adapter – PCI-X
 - 1 PRO/1000 PT Dual Port Server Adapter by Intel – PCI-E
 - 2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array
 - 4 300GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 10 array
- Dual Power Supplies

Optional Supported Components

- Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁵⁰ For use with IBM Director 5 installations

⁵¹ For use with IBM Director 6 installations

⁵² only used when using IBM Director and requiring external management of the ServeRAID 8k card

⁵³ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3650

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Not Applicable

Gateway/Control/Storage Node (GMAS-L only)

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ⁵⁴ | 5.20.02 or later |
| IBM Director Common Agent ⁵⁵ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ⁵⁶ | v9.00 or later |
| ServeRAID Storage Manager ⁵⁷ | v9.00 or later |

Server Hardware/Firmware

The Gateway/Control/Storage node is supported when installed on the IBM System X x3650 with the minimum configuration below.

Processor Options

- 2 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Network Options

- 1 PRO/1000 PT Dual Port Server Adapter by Intel – PCI-E

Storage Adapter Card – refer to the Storage Options section below for specifics

6 300GB 15K 3.5 inch Hot-Swap SAS HDD, configured as three RAID 1 arrays

Dual Power Supplies

Optional Supported Components

Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3650 BMC | v1.47 or later |
| IBM System X x3650 BIOS | v1.14 or later |
| IBM System X x3650 Diagnostics | v1.10 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.10 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁵⁴ For use with IBM Director 5 installations

⁵⁵ For use with IBM Director 6 installations

⁵⁶ only used when using IBM Director and requiring external management of the ServeRAID 8k card

⁵⁷ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3650

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310494&typeind=5310895&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=16&continue.y=13>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix A

Appendix B

Storage Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| IBM Director Level 2 Agent ⁵⁸ | 5.20.02 or later |
| IBM Director Common Agent ⁵⁹ | 6.1 or later |
| IBM ServeRAID Extension for IBM Director ⁶⁰ | v9.00 or later |
| ServeRAID Storage Manager ⁶¹ | v9.00 or later |

Server Hardware/Firmware

The Storage node is supported when installed on the IBM System X x3550 with the minimum configuration below.

Processor Options

- 1 Dual-Core Intel Xeon Processor 5140 – 2.33GHz
- 1 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

4GB RAM

IBM ServeRAID-8K SAS Controller

Storage Adapter Card – refer to the Storage Options section below for specifics

2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array

Dual Power Supplies

Optional Supported Components

Remote Supervisor Adapter II

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3550 BMC | v1.42 or later |
| IBM System X x3550 BIOS | v1.13 or later |
| IBM System X x3550 Diagnostics | v1.05 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.12 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁵⁸ For use with IBM Director 5 installations

⁵⁹ For use with IBM Director 6 installations

⁶⁰ only used when using IBM Director and requiring external management of the ServeRAID 8k card

⁶¹ only used when NOT using IBM Director and requiring external management of the ServeRAID 8k card

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3550

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310498&typeind=5310804&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=12&continue.y=19>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix A
Appendix B
Appendix C
Appendix D
Appendix E
Appendix F
Appendix G
Appendix H
Appendix I

VMware Multiple Redundant Gateway Node

Software

| | |
|--|---------------------------|
| SUSE Linux Enterprise Server 10 SP1 Kernel | 2.6.16.46-0.12 |
| IBM System Storage Multilevel Grid Access Manager Software | v2.1.1-v8.0.4 Build 66836 |
| Bycast Enablement Layer Software | v3.4.3 Build 66836 |
| VMware ESX Server | v3.5 update 1 |
| IBM Director Level 2 Agent ⁶² | 5.20.02 or later |
| IBM Director Common Agent ⁶³ | 6.1 or later |

Server Hardware/Firmware

The VMware Multiple Redundant Gateway node supports up to 6 Gateway node images per server. This is supported when installed on the IBM System X x3550 with the minimum configuration below.

Processor Options

2 Quad-Core Intel Xeon Processor E5430 – 2.66GHz

16GB RAM

IBM ServeRAID-8K SAS Controller

Network Options

1 PRO/1000 PT Dual Port Server Adapter by Intel – PCI-E

Storage Adapter Card – refer to the Storage Options section below for specifics

2 73GB 10K 3.5 inch Hot-Swap SAS HDD, configured as one RAID 1 array

Dual Power Supplies

Optional Supported Components

Remote Supervisor Adapter II

2-12 300GB 15k FC or SAS HDD, configured as 2x300GB RAID 1 array for each gateway node image on supported external storage for FSG Cache, up to six images total

| | |
|--|-----------------------|
| IBM System X ServeRAID 8k Firmware | v5.2.0-15427 or later |
| IBM System X ServeRAID 8k Driver | 1.1.5-2451 or later |
| IBM System X x3550 BMC | v1.42 or later |
| IBM System X x3550 BIOS | v1.13 or later |
| IBM System X x3550 Diagnostics | v1.05 or later |
| Broadcom NIC Firmware | v2.0.9h or later |
| Broadcom NIC Driver | v1.8.2b or later |
| Remote Supervisor Adapter II (RSA II) Firmware | v1.12 or later |
| Remote Supervisor Adapter II (RSA II) Daemon | v1.46 or later |
| IBM SAS Harddrive Update | v1.04 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁶² For use with IBM Director 5 installations

⁶³ For use with IBM Director 6 installations

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System X x3550

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?familyind=5310498&typeind=5310804&modelind=0&osind=0&brandind=5000008&taskind=2&matrix=Y&psid=sp&continue.x=12&continue.y=19>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

Storage Options

Refer to the following appendices for supported storage attachment options.

Appendix B
Appendix D
Appendix E

Appendix A – IBM System Storage EXP3000 Storage Option

IBM System Storage EXP3000

Storage Adapter Options – IBM System X servers only

- 1 LSI Logic MegaRAID 8480 SAS Controller
- 1 IBM ServeRAID MR10M

| | |
|--|-----------------------|
| LSI Logic MegaRAID 8480 SAS Controller Firmware | 7.0.1-0054 or later |
| LSI Logic MegaRAID 8480 SAS Controller Driver | 00.00.03.23 or later |
| IBM ServeRAID MR10M Firmware | 11.0.1-0008 or later |
| IBM ServeRAID MR10M Driver | 00.00.03.23 or later |
| IBM System Storage EXP3000 ESM Firmware/Update Program | v1.93 or later / v1.4 |
| MegaRAID Storage Manager | 2.77 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

LSI Logic MegaRAID 8480 SAS Controller

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-65478&brandind=5000008>

IBM System X ServeRAID Controllers

<http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=SERV-RAID&brandind=5000008>

IBM System Storage EXP3000

<http://www-947.ibm.com/systems/support/myview/supportsite.wss/selectproduct?taskind=2&brandind=5000028&familyind=5329845&typeind=0&modelind=0&osind=0&psid=bm&continue.x=1&matrix=Y>

Appendix B – IBM System Storage DS3200 Storage Option

IBM System Storage DS3200

Storage Adapter Options – IBM System X servers only

- 1 IBM SAS HBA Controller (for single controller configurations)
- 2 IBM SAS HBA Controllers (for dual controller configurations)

| | |
|--|---------------------------|
| IBM SAS HBA Controller Firmware | v2.44 or later |
| IBM SAS HBA Controller Driver | v4.16.80.01 or later |
| IBM System Storage DS3200 Firmware | 07.35.41.01 or later |
| IBM System Storage DS3000 EXP3000 Firmware | v1.96 or later |
| IBM System Storage DS3000 RDAC ⁶⁴ | v09.03.0C05.0030 or later |
| IBM System Storage DS3000 SAS/SATA Hard drive update | v4.5 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage DS3200

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000028&familyind=5348412&typeind=0&modelind=0&osind=0&psid=sr&continue.x=1&matrix=Y>

⁶⁴ Only required when using a dual controller configuration

Appendix C – IBM System Storage DS3300 Storage Option

IBM System Storage DS3300

Storage Adapter Options – IBM System X servers only
1 QLogic iSCSI Dual Port PCIe HBA for System X

| | |
|--|---------------------------|
| QLogic iSCSI HBA Firmware | v1.15 or later |
| QLogic iSCSI HBA Driver | 5.01.01.04-1 or later |
| IBM System Storage DS3300 Firmware | 07.35.41.01 or later |
| IBM System Storage DS3000 EXP3000 Firmware | v1.96 or later |
| IBM System Storage DS3000 RDAC | v09.03.0C05.0030 or later |
| IBM System Storage DS3000 SAS/SATA Hard drive update | v4.5 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage DS3300

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000028&familyind=5356498&osind=0&oldbrand=5000028&oldfamily=5348412&oldtype=0&taskind=2&matrix=Y&psid=dm>

Appendix D – IBM System Storage DS3400 Storage Option

IBM System Storage DS3400

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|--|---------------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage DS3400 Firmware | 07.35.41.01 or later |
| IBM System Storage DS3000 EXP3000 Firmware | v1.96 or later |
| IBM System Storage DS3000 RDAC ⁶⁵ | v09.03.0C05.0030 or later |
| IBM System Storage DS3000 SAS/SATA Hard drive update | v4.5 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage DS3400

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000028&familyind=5348409&osind=0&oldbrand=5000028&oldfamily=5356498&oldtype=0&taskind=2&matrix=Y&psid=dm>

⁶⁵ Only required when using a dual controller configuration

Appendix E – IBM System Storage DS4000 Storage Option

IBM System Storage DS4200 Express

Storage Adapter Options – IBM System X servers only
1 IBM System Storage DS4000 Dual Port FC4 HBA
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|---------------------------------|
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later ⁶⁶ |
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later ⁶⁶ |
| IBM System Storage DS4200 Firmware | 07.15.10.01 or later |
| IBM System Storage DS4000 EXP420 Firmware | v1.60 |
| IBM System Storage DS4000 RDAC | v09.03.0C05.0030 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage DS4200 Express

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000028&familyind=5345919&osind=0&oldbrand=5000028&oldfamily=5329617&oldtype=0&taskind=2&matrix=Y&psid=dm>

IBM System Storage DS4700 Express

Storage Adapter Options – IBM System X servers only
1 IBM System Storage DS4000 Dual Port FC4 HBA
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|---------------------------------|
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later ⁶⁶ |
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later ⁶⁶ |
| IBM System Storage DS4700 Firmware | 07.15.10.01 or later |
| IBM System Storage DS4000 EXP810 Firmware | v1.60 |
| IBM System Storage DS4000 RDAC | v09.03.0C05.0030 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

⁶⁶ Refer to the `ibm_dd_ds4kcf_<driver_version>.txt` file for adapter settings

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System Storage DS4700 Express

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000028&familyind=5329827&osind=0&oldbrand=5000028&oldfamily=5345919&oldtype=0&taskind=2&matrix=Y&psid=dm>

IBM System Storage DS4800 Midrange Disk System

Storage Adapter Options – IBM System X servers only
1 IBM System Storage DS4000 Dual Port FC4 HBA
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|---------------------------------|
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later ⁶⁷ |
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later ⁶⁷ |
| IBM System Storage DS4800 Firmware | 07.15.10.01 or later |
| IBM System Storage DS4000 EXP810 Firmware | v1.60 |
| IBM System Storage DS4000 RDAC | v09.03.0C05.0030 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage DS4800 Midrange Disk System

<https://www-304.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000028&familyind=5329626&osind=0&oldbrand=5000028&oldfamily=5329827&oldtype=0&taskind=2&matrix=Y&psid=dm>

⁶⁷ Refer to the `ibm_dd_ds4kcf_<driver_version>.txt` file for adapter settings

Appendix F – IBM System Storage N series Storage Option

IBM System Storage N3300 Express

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|-------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage N3300 Data ONTAP | 7.2.6.1 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage N3300

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000029&familyind=5356503&oldbrand=5000029&oldfamily=5356506&oldtype=0&taskind=1&psid=SR>

IBM System Storage N3600 Express

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|-------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage N3600 Data ONTAP | 7.2.6.1 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage N3600

<http://www-947.ibm.com/systems/support/supportsite.wss/mainselect?brandind=5000029&familyind=5356506&continue.x=14&continue.y=14&oldbrand=5000029&oldfamily=5356506&oldtype=0&taskind=1&psid=BM>

IBM System Storage N3700 Express

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|-------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage N3700 Data ONTAP | 7.2.6.1 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

IBM System Storage N3700

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000029&familyind=5329783&oldbrand=5000029&oldfamily=5356503&oldtype=0&taskind=1&psid=sr>

IBM System Storage N5300

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|-------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage N5300 Data ONTAP | 7.2.6.1 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage N5300

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000029&familyind=5354011&oldbrand=5000029&oldfamily=5329783&oldtype=0&taskind=1&psid=sr>

IBM System Storage N5600

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|-------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage N5600 Data ONTAP | 7.2.6.1 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage N5600

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000029&familyind=5345924&oldbrand=5000029&oldfamily=5354011&oldtype=0&taskind=1&psid=sr>

IBM System Storage N6040

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|-------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage N6040 Data ONTAP | 7.2.6.1 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage N6040

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000029&familyind=5345924&oldbrand=5000029&oldfamily=5354011&oldtype=0&taskind=1&psid=sr>

IBM System Storage Multilevel Grid Access Manager
IBM Storage and Server Interoperability Matrix

[ilyind=5369140&oldbrand=5000029&oldfamily=5345924&oldtype=0&taskind=1&psid=sr](http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000029&familyind=5369140&oldbrand=5000029&oldfamily=5345924&oldtype=0&taskind=1&psid=sr)

IBM System Storage N6070

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|-------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage N6070 Data ONTAP | 7.2.6.1 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage N6070

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000029&familyind=5369142&oldbrand=5000029&oldfamily=5369140&oldtype=0&taskind=1&psid=sr>

IBM System Storage N7700

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|-------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage N7700 Data ONTAP | 7.2.6.1 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage N7700

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000029&familyind=5362562&oldbrand=5000029&oldfamily=5369142&oldtype=0&taskind=1&psid=sr>

IBM System Storage N7900

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|-------------------|
| QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM System Storage N7900 Data ONTAP | 7.2.6.1 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage N7900

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000029&familyind=5362565&oldbrand=5000029&oldfamily=5362562&oldtype=0&taskind=1&psid=sr>

Appendix G – IBM System Storage DS8000 Storage Option

IBM System Storage DS8000

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|---|--|
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later ⁶⁸ |
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later ⁶⁸ |
| IBM System Storage DS8000 Code Level DM–MPIO configuration file | Bundle v62.42.xx.x or later v3.01 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage DS8100

<https://www-304.ibm.com/systems/support/supportsite.wss/mainselect?brandind=5000028&familyind=5329631&continue.x=10&continue.y=13&oldbrand=5000028&oldfamily=5329631&oldtype=0&taskind=1&psid=bm>

IBM System Storage DS8300

<https://www-304.ibm.com/systems/support/supportsite.wss/mainselect?brandind=5000028&familyind=5329633&continue.x=13&continue.y=13&oldbrand=5000028&oldfamily=5329633&oldtype=0&taskind=1&psid=bm>

Support Matrix for Linux DM–Multipath

http://www-01.ibm.com/support/docview.wss?rs=540&context=ST52G7&dc=D430&uid=ssg1S4000107&loc=en_US&cs=utf-8&lang=en

⁶⁸ Refer to the DS8000 Host Attachment Guide for adapter settings

Appendix H – IBM System Storage SAN Volume Controller Storage Option

IBM System Storage SAN Volume Controller

Storage Adapter Options – IBM System X servers only
1 IBM System Storage DS4000 Dual Port FC4 HBA
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|--|-------------------------------------|
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic QLA2462 Firmware | v1.69 or later ⁶⁹ |
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic QLA2462 Driver | v8.01.07 or later ⁶⁹ |
| IBM System Storage SAN Volume Controller Code Level DM-MPIO configuration file | v4.3.1.5 or later v3.01 or later |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage SAN Volume Controller

<https://www-304.ibm.com/systems/support/supportsite.wss/mainselect?brandind=5000033&familyind=5329743&continue.x=14&continue.y=14&oldbrand=5000033&oldfamily=5329743&oldtype=0&taskind=1&psid=bm>

Support Matrix for Linux DM-Multipath

http://www-01.ibm.com/support/docview.wss?rs=540&context=ST52G7&dc=D430&uid=ssg1S4000107&loc=en_US&cs=utf-8&lang=en

⁶⁹ Refer to the SVC Host attachment Guide for adapter settings

Appendix I – IBM XIV Storage System Option

IBM XIV Storage System

Storage Adapter Options – IBM System X servers only
1 QLogic 4GB FC Dual Port PCIe HBA

| | |
|--|-------------------|
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic QLA2462 Firmware | v1.69 or later |
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic QLA2462 Driver | v8.01.07 or later |
| IBM XIV Storage System Code Level | latest supported |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM XIV Storage System

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=1&brandind=500028&familyind=5368932&typeind=0&modelind=0&osind=0&psid=sr&continue.x=1>

Appendix J – IBM System Storage Tape Storage Option

IBM System Storage Tape

Any IBM tape option that utilizes the IBMtape driver and the IBMtapeutil utility. The drive and library codes need to be at the latest supported levels.

Storage Adapter Options – IBM System X servers only

- 1 IBM System Storage DS4000 Dual Port FC4 HBA
- 1 QLogic 4GB FC Dual Port PCIe HBA
- 1 IBM SAS HBA Controller

| | |
|---|-------------------|
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Firmware | v1.69 or later |
| IBM System Storage DS4000 Dual Port FC4 HBA / QLogic 4GB FC Dual Port PCIe HBA Driver | v8.01.07 or later |
| IBM SAS HBA Controller Firmware | v2.44 |
| IBM SAS HBA Controller Driver | 4.16.80.01 |
| IBM Tape Driver | v1.23.0 |
| IBMTapeutil | v1.5.1 |

For the latest support levels of hardware and firmware and to download the appropriate drivers and firmware, please review the following links

IBM System Storage Tape Systems

<http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?taskind=2&brandind=5000034&familyind=0&typeind=0&modelind=0&osind=0&psid=bm&continue.x=1>

Client Attachment Matrix

| Attachment Type |
|-----------------------|
| CIFS Workgroup |
| CIFS Active Directory |
| NFS |

*Note - only one CIFS authentication type may be used per Gateway replication group