

To: TALX Users
From: JSE TALX
Date: 26 May 2009
Subject: Recommended Hardware and Software Requirements for TALX

Dear TALX user,

The purpose of this section is to provide an up-to-date listing about the TALX hardware and software recommendations. These recommendations are available on talx@jse.co.za.

The Server Hardware and OS recommendations displayed below have been validated and certified by SunGard Global Trading.

It is important to note that Windows Vista is now supported.

If you have any further questions or concerns, please do not hesitate to contact us.



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Microsoft Windows Configurations for GL WIN workstation

The following table lists the configuration information for the Windows workstations running the GL WIN applications.

Microsoft Windows versions supported

- MS Windows 2000 Server, SP4.
- MS Windows XP Professional, SP2 and SP3.
- MS Windows 2003 Server ONLY for Ubitrade software applications.
- MS Windows Vista SP1 since GL WIN 8.1.6.12.

MS Windows Configurations for GL WIN			
	GLWIN for CASH Markets	GLWIN for DERIVATIVES Markets	Specific modules: Automate, Program trader
Supported OS	MS Windows 2000, SP4 MS Windows XP, SP2/SP3 MS Windows Vista, SP1	MS Windows 2000, SP4 MS Windows XP, SP2/SP3 MS Windows Vista, SP1	MS Windows 2000, SP4 MS Windows XP, SP2/SP3 MS Windows Vista, SP1
RAM	1 GB mandatory	2 GB highly recommended	2 GB highly recommended
CPU	3 GHz	3 GHz	3 GHz
Graphic Card	All drivers validated by Microsoft	All drivers validated by Microsoft	All drivers validated by Microsoft
Network Card	Ethernet	Ethernet	Ethernet
TCP/IP	Compatible WINSOCK.DLL	Compatible WINSOCK.DLL	Compatible WINSOCK.DLL

This configuration is recommended to manage a maximum of 50,000 orders per day. Some specific settings are required to manage a higher number of orders per day, for instance in the case of automatic modules usage (Automate or Program Trader). Please contact you Technical Account Manager for detailed information.

LINUX Server Configurations

The LINUX Operating System is now the most represented and recommended GLTRADE server environments for Server applications.

Linux OS Versions supported:

The Operating System version supported by GL TRADE software is :

- RedHat AS/ES 3 versions

- **Redhat Linux Server Enterprise 3.0 AS/ES**, Kernel Level : 2.4.21-20 32-bits
- **Redhat Linux Server Enterprise 3.3 AS/ES**, Kernel Level : 2.4.21-20 32-bits
- **Redhat Linux Server Enterprise 3.8 AS/ES**, Kernel Level : 2.4.21-47 32-bits

- RedHat AS/ES 4 versions

- **RedHat Linux Server Enterprise 4.5 AS/ES , Kernel Level : 2.6.9-55.EL with 32-bits compatibility libraries.**

Check all the following packages are included to your distribution before running GL Trade Software:

- kernel-2.6.9-55.EL
- libstdc++-3.4.6-8
- compat-libstdc++-33-3.2.3-47.3 => comprising the libstdc++.so.5 required for GL software
- libgcc-3.4.6-8
- glibc-common-2.3.4-2.36
- glibc-2.3.4-2.36

Obviously, this OS version is designed mainly to host GL Trade software compiled on RedHat Linux AS/ES 4.5.

As a matter of information, the backward compatibility of GL Trade software compiled on Linux RedHat AS/ES 3.X has been tested on generic products for Servers with Linux RedHat AS/ES 4.5 OS version embedded.

Any other distribution/version than those displayed above, is not supported.

The application of system patches listed in the GIS SysNet document "**CIB 368: Linux GL Kit v2.1-45 release note**" is mandatory to correctly run the GLTRADE server applications such as the SLC Relay and SLEV5. You can retrieve this document under www.gltrade.net > Documentation folder

LINUX recommendations for Server Applications		
Server type	HP DL360 G5 / HP DL380 G5	Dell Power Edge 1950 I - III G5
CPU #	1 / 2 2 processors recommended	1 / 2 2 processors recommended
Processor specifications	64-bit Intel® Xeon™ Quad-Core G5 processor 5400 series (E/X starting from 5450) (G4 still supported)	64-bit Intel® Xeon™ Quad-Core G5 processor 5400 series (E/X starting from 5450) (G4 still supported)
Clock Frequency	3.0 to 3.4 GHz	3.0 to 3.4 GHz
Front-Side Bus (FSB)	1333 MHz FSB	1333 MHz FSB
On-chip L2 Cache	6 MB per processor (2x 6MB RAM for Bi-processor)	6MB per processor (2x 6GB RAM for Bi-processor)
RAM	Type	PC2-5300 Fully Buffered DIMMs (DDR2-667)in matched pairs
	Recommended	4 GB / 8 GB RAM recommended(*)
	Maximum	Up to 32 GB RAM
Chipset	Intel® 5000P chipset	Intel® 5000P chipset
Hard Disk Drives	2x 73 GB, 146 GB 10K rpm Ultra320 SCSI disk drive – RAID1 compatible – Hot Plug	3.5" SAS (10K/15K RPM): 73GB, 146GB RAID1 compatible – Hot Plug
Network Interface Card	Embedded NC373i Multifunction Gigabit Network Adapters NIC	Dual embedded Broadcom® NetXtreme II™ 5708 Gigabit2 Ethernet NIC with fail-over and load balancing
Remote Management	Integrated Lights-Out (iLO 2) Management 2 (integrated on motherboard)	Standard Baseboard Management Controller with IMPI 2.0 support; optional DRAC5 for advanced capabilities
OS Supported	Redhat Linux Server Enterprise (ES/AS) 3.0, 3.3, 3.8, 4.5	Redhat Linux Server Enterprise (ES/AS) 3.0, 3.3, 3.8, 4.5
OS Patches to apply	Please refer to the document entitled "CIB Linux #368"	

(*) 8 GB RAM configuration is dedicated to parallelize several software configurations (Source SLCs and SLEs) or an heavy SLC Relay configuration.

Compulsory Hardware Configuration

- **Network Ethernet interfaces have to be configured in Auto-Negotiation mode (depending on the Catalysts configuration; if possible configure both in 100 MB Full Duplex).** Please refer to the Corporate Operations Linux ES 3.0 Installation & Configuration Manual, for more information.
- For a GLNET connection, all the services below have to be set up and automatically started before GL processes:
 - GATED
 - TELNET
 - VSFTPD (FTP server)
 - NTPD (NTP server)

Linux Hardware Recommendations

GL TRADE recommends the following hardware installations:

- HP ProLiant DL380/Dell PowerEdge 1950 monoprocessor is able to handle single SLC or SLEV5 installations. In some cases, this server configuration (with twice as much memory) can host up to 2 server installations, depending on the resource consumption (markets configured, level of data requested, feed volumetry, number of users connected).
- HP ProLiant DL 380/Dell PowerEdge 1950 Bi-processor is able to handle several SLC or SLEV5 installations up to several SLC or SLEV5 installations.

Linux System parameters:

The recommendation concerning the Dell/HP servers for GL Trade software is now:

Linux Biprocessor 2x 2.8/3.6 GHz and 4 GB RAM

The example below of system configuration file is tuned for such a server.

Edit or check the /etc/sysctl.conf configuration file as follows.

```
# /etc/sysctl.conf:
;For the 'kernel.shmmax' parameter, usually set this value to 50% of the RAM size installed on the server
;The max value is 70-80% of the RAM size
;The default PAGE_SIZE is set to 4096 bytes
kernel.shmmax=2147483648
kernel.shmall=2097152
net.ipv4.ip_no_pmtu_disc=1
net.core.rmem_max=8388608
net.core.wmem_max=8388608
net.core.rmem_default=65536
net.core.wmem_default=65536
net.ipv4.tcp_rmem=4096 87380 4194304
net.ipv4.tcp_wmem=4096 65536 4194304
net.ipv4.tcp_mem=8388608 8388608 8388608
net.ipv4.route.flush=1
net.core.netdev_max_backlog=1000
net.ipv4.tcp_syn_retries=0
```

Note: Please contact the SysNet Team to get the accurate "Linux GL Kit v1.4 release note".

SUN SOLARIS Server Configurations

The servers characteristics listed below refer to particular software installations. These recommendations differ from each other regarding the number of server software (SLC, SLE) installations you would like to configure on this such equipment.

Solaris OS Versions supported - ALL with 32-bits libraries:

- **SOLARIS 8, Patch release 12/02** and later versions. Since July, 2006 the latest cluster patch mandatory for GLTRADE software applications is : **108434 for 32-bit OS release**
- **SOLARIS 9, Patch release 04/03** and later versions. Since July, 2006 the latest cluster patch mandatory for GLTRADE software applications is : **111711 for 32-bit OS release**
- **SOLARIS 10, Patch release 06/06, 11/06, 05/08** with Patch Cluster and later versions. Recommended patch for Kernel Level: **127127-xx, 118833-xx, 118822-xx, 120011-xx, 127111-xx**

Following SUN alerts regarding the IP stack issues, GL TRADE highly recommends to install the kernel patch: **118833** (required for 127127-xx patch install).

SUN SOLARIS Servers recommended			
Server type	SERVER1	SERVER2	SERVER3
Specifications	SUN Netra 210/240 SUNFire V210/240	SUN SPARC Enterprise M3000	SUN SPARC Enterprise M5000
Processor Number	UltraSPARC® IIIi 1 / 2 processors	SPARC® 64 VII 1 processor	SPARC® 64 VII 1 to 8 processors
Frequency	1.5 GHz	2.52 GHz	2.4 GHz
Cache L2	1 MB	5 MB shared by Cores	5 MB shared by Cores
Architecture	64-bit, four-way superscalar SPARC® V9	64- bits processor Quad-Core, 2 threads per Core	64- bits processor Quad-Core, 2 threads per Core
RAM Type	4x DIMM slots per processor, DDR-1 SDRAM (PC2700) 128-bit	8x DIMM slots (split in 2 banks of 4 DIMMs equal- size in a bank) DDR2 DIMMs ECC pairs	32x DIMM slots (split in 8 banks of 4 DIMMs equal- size in a bank) DDR2 DIMMs ECC pairs
Standard Recommended	2 GB	4GB	16 GB
Maximum	4 GB to 8 GB(*)	8 GB to 16 GB(*)	32 GB to 64 GB(*)

	Up to 8 GB	Up to 32 GB	Up to 256 GB
Internal Hard Drives			
Number	1 / 2 (up to 4)	1 / 2 (up to 4)	2 (up to 4)
Type	SAS	SAS	SAS
Size	146 / 320 GB Gb	146 / 320 GB	146 / 320 GB
Speed	10k/15k rpm	10k/15k rpm	10k/15k rpm
Gigabit Ethernet Port	4 bge0 bge1 bge2 bge3	4 controlled by PCIe switch	4 controlled by PCIe switch
PCI Slot available	- 1 PCI-X 133-MHz/64-bit full-height - 1 PCIe x8 lane slot with 16-way connector	- 4 PCIe x8 lane slot with 16-way connector (one x8 lane)	- 8 PCIe slots - 2 PCI-X (four PCIe and one PCI-X per I/O tray) - 4 PCIe x8 lane slot with 16-way connector (one x8 lane)
Remote Admin	<ul style="list-style-type: none"> • Integrated Lights Out Manager • RJ45 serial port and RJ45 Ethernet connectors 	<ul style="list-style-type: none"> • Integrated Lights Out Manager • RJ45 serial port and RJ45 Ethernet connectors 	<ul style="list-style-type: none"> • Integrated Lights Out Manager • RJ45 serial port and RJ45 Ethernet connectors
Format	1U	2U	4U
OS supported	Solaris8 Operating system (12/02), Solaris 9 (04/03) and later Solaris10 (06/06) and later	Solaris10 (06/06, 11/06) and later	Solaris10 (06/06, 11/06) and later

(*) The SERVER2 is an enhanced configuration that allows :

1. **Power capacities**, to run server applications with heavier configurations (Multiple Source SLCs taking care about CPU load configuration and bandwidth OR SLEV5 with larger order databases requirements).
2. **Flexibility** in case of an upgrade (processors, RAM, HDD,...) in order to run several server software applications

IMPORTANT NOTE: In a common way, the SLC Relay World (multi-market Cash/ Derivatives or 24h/24) is no longer recommended to run on SUN Solaris SPARC servers due to larger CPU load constraints, required by the recent increase in volumetry observed for most of the exchanges.
Please note, that Linux servers are now the only recommendation for SLC Relay World software.

SUN Solaris System parameters:

The recommendation concerning the SUN servers for GL Trade software is now:

SUN SPARC Enterprise with processor SPARC64 VII 2.52GHz and 4 GB RAM minimum

The example below of system configuration file is tuned for such a server.

Edit or check the /etc/system configuration file as follows.

```
# /etc/system :  
;For the 'shminfo_shmmax' parameter, usually set this value to 50% of the RAM size installed on the  
server  
;The max value is 70-80% of the RAM size  
  
set shmsys:shminfo_shmmax=2147483648  
set shmsys:shminfo_shmmin=1  
set shmsys:shminfo_shmmni=100  
set shmsys:shminfo_shmseg=40  
  
set semsys:seminfo_semmnu=4096  
set semsys:seminfo_semmns=4096  
set semsys:seminfo_semmni=4096  
set semsys:seminfo_semmap=350
```

Note: Please contact the SysNet Team to get the accurate "SUN Solaris system pre-requisites release note".

Microsoft Windows configurations for Server Applications (SLC, SLEV5)

The following table lists the configuration information for Windows platforms running the server applications such as SLC and SLEV5.

MS Windows Configurations for Server Applications	
OS	MS Windows 2000, service pack 4 MS Windows XP SP2 and SP3 MS Windows Server 2003
RAM Standard Recommended	2 GB 4 GB
CPU Standard Recommended	Dual-Core 2 GHz Dual-Core 3 GHz or more
Network Card	Ethernet 100 Mb
TCP/IP	Compatibles WINSOCK.DLL

CLEARVISION and LINKVISION Hardware and Software Pre-requisites

Depending on the installation, the hardware requirements may differ from one another. The tables displayed below provide server recommendations according to certain software requirements. For any other specific installation requirements, please contact the GLTRADE Operations support.

Configuration for CLEARVISION

The following table outlines all the minimum system requirements for the CLEARVISION

CLEARVISION 3.4.3 System Requirements and Recommendations		
Exchange Server	Hardware:	<p>The exchange server should run on a dedicated server</p> <ul style="list-style-type: none"> • PENTIUM III 800Mhz • 512MB RAM • 2 X 10 GB Hard Disks (see note:) <p><i>Note:</i> GL TRADE strongly recommends that you install 2 physical HDDs to provide more secure backup of your SAVE directories</p>
	Software:	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server • IBM Object REXX interpreter, version 2.1.2/2.1.3 (runtime or Dev.) • Oracle Client, 8.1.7 or 9.2.0, or Sybase client 12.0 or 12.5 • PC-Anywhere 32 for Windows NT for remote access with leased line
Database Server	Hardware:	<p>The server should be dedicated to the Database.</p> <p>UNIX server more scalable</p>

		<ul style="list-style-type: none"> • PENTIUM III 800Mhz • 512MB RAM • 10 GB Hard Disk <p>This should be discussed with a GL TRADE DB consultant as the requirements will depend on the anticipated clearing volumes.</p> <p><i>See also, Oracle or Sybase recommendations.</i></p>
	Software:	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server or Solaris 8 • Oracle, 8.1.7 or 9.2.0, or Sybase 12.0 or 12.5
Member Server	Hardware:	<ul style="list-style-type: none"> • PENTIUM III 800Mhz • 30MB RAM free • 50 Mb of Hard Disk space per 10000 orders • Dedicated Machine if you have more than 10000 orders in your database
	Software:	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server • Oracle Client, 8.1.7 or 9.2.0, or Sybase Client 12.0 or 12.5 • Runs as a Windows service.
Security Server	Hardware:	<ul style="list-style-type: none"> • PENTIUM III 800Mhz • 30MB RAM free • A dedicated machine is not required, but this machine must have access to the CLEARVISION database.
	Software:	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server • Runs as a Windows service.
STP Remote Monitor	Hardware:	<ul style="list-style-type: none"> • PENTIUM III 1 Ghz • 128MB RAM • A dedicated machine is not required, but this machine must have access to the CLEARVISION servers.
	Software:	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server • TCP/IP Network Connection
Front End Workstations	Hardware:	<ul style="list-style-type: none"> • Pentium III 500Mhz • 128MB RAM • 1 GB Hard Disk free
	Software:	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server • Oracle Client, 8.1.7 or 9.2.0, or Sybase Client 12.0 or 12.5 • TCP/IP Network Connection • If this workstation exports data to a back office application, you must install IBM Object REXX interpreter, version 2.1.2 (runtime or Dev.)



Market Watch Workstations	Hardware:	<ul style="list-style-type: none"> • Pentium III 500Mhz • 128MB RAM • 1 GB Hard Disk
	Software:	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server • TCP/IP Network Connection • If this workstation exports data to a back office application, you must install IBM Object REXX interpreter, version 2.1 (runtime or Dev)

Configuration for LINKVISION

The following table outlines all the minimum system requirements for the LINKVISION

LINKVISION System Requirements and Recommendations			
Type of configuration		Daily Orders quantity < 500, SLE Relay, Oracle DB and STP Driver can run on the SAME server	Daily Orders quantity > 500, SLE Relay, Oracle DB and STP Driver run on SEPARATE servers
ORACLE Database Server	Hardware:	<ul style="list-style-type: none"> • Pentium III - 1Ghz 512MB RAM 20 GB Hard Disk <p>The machine can support up to one SLE Relay, a STP Driver and the Oracle database</p>	<ul style="list-style-type: none"> • Pentium IV - 2Ghz 512MB / 1 Gb recommended 20 GB Hard Disk <p>Dedicated machine that can hosts the STP Driver. This should be discussed with a GL TRADE consultant as the requirements will depend on the anticipated clearing volumes.</p> <p><i>See also, Oracle or Sybase recommendations</i></p>
	Software:	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server or Solaris 8 • Oracle, 8.1.7 or 9.2.0, or Sybase 12.0 or 12.5 	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server or Solaris 8 • Oracle, 8.1.7 or 9.2.0, or Sybase 12.0 or 12.5
LINKVISION Workstations (LV-Client)	Hardware:	<ul style="list-style-type: none"> • Pentium III 1 Ghz 256MB RAM 10 GB Hard Disk 	<ul style="list-style-type: none"> • Pentium III 1 Ghz 256MB RAM 10 GB Hard Disk
	Software:	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server • Oracle Client, 8.1.7 or 9.2.0, or Sybase Client 12.0 or 12.5 • TCP/IP Network Connection • IBM Object REXX interpreter 	<ul style="list-style-type: none"> • Windows 2000, XP, 2003 Server • Oracle Client, 8.1.7 or 9.2.0, or Sybase Client 12.0 or 12.5 • TCP/IP Network Connection • IBM Object REXX interpreter

		runtime version, version 2.1	runtime version, version 2.1
Dedicated line in case of Workstations far from Exchange Server and Database	Bandwidth dedicated by workstation	64k	64k
STP Driver	Hardware:	<ul style="list-style-type: none"> • Pentium III 800Mhz 128MB RAM 10 GB Hard Disk 	<ul style="list-style-type: none"> • Pentium III 800Mhz 128MB RAM 10 GB Hard Disk
	Software:	<ul style="list-style-type: none"> • Windows NT4/2000 and Solaris 8 • One dedicated Oracle client 8.1.7 or 9.2.0, or Sybase 12.0 or 12.5 if the STP Driver run on a separate machine • TCP/IP Network Connection 	<ul style="list-style-type: none"> • Windows NT4/2000 and Solaris 8 • One dedicated Oracle client 8.1.7 or 9.2.0, or Sybase 12.0 or 12.5 if the STP Driver run on a separate machine • TCP/IP Network Connection

GL OMS - POM/AOM Hardware and OS Pre-requisites

Order Management System - Server Configuration

GL OMS Server requirements - Microsoft WINDOWS

Note 1: For non-cluster configuration, Windows 2000 Professional edition can be used without any constraint.

The recommended versions of Microsoft WINDOWS are 2000 Server, 2003 Server and XP Professional with regard to accurate package versions advised by Microsoft Corp.

Note 2: Disk sizes are chosen among most common hard disk size.

	Config A – 5 users and 1,000 orders/day	Config B – 20 users and 10,000 orders/day	Config C – 40 users and 50,000 orders/day	Config D – 1,000 users and 50,000 orders/day
General hardware description	1 Dell Power Edge 860, Dual core Xeon 2.13GHz. 2 Gb of	1 Dell Power Edge 860, Dual core Xeon 2.13GHz. 2 Gb of	1 Dell Power Edge 860, Dual core Xeon 2.13GHz. 2 Gb of	1 Dell Power Edge 1950, 2 Dual core Xeon 3.0GHz processors, 4 Gb of RAM

	RAM, Hard Disk Drive 73 Gb	RAM, Hard Disk Drive 73 Gb	RAM, Hard Disk Drive 73 Gb	
Standalone configuration	- 1 box with Windows 2000 Server, Oracle 10.2 Standard Edition for Windows and OMS processes	- 1 box, hard disk 36 Gb for (B) , 73 Gb for (C) with Windows 2000 Server , Oracle 10.2 Standard Edition for Windows, - 1 box with Windows 2000 Server , OMS processes, hard disk 73 Gb		- Box A, hard disk 32 Gb with Windows 2000 Server, Oracle 10.2 Standard Edition for Windows - Box B, hard disk 32 Gbytes with Windows 2000 Server, OMS processes.
With “cheap” backup	- 1 cluster running Windows 2000 Enterprise Edition, Oracle 10.2 Standard Edition for Windows and OMS processes - 1 disk array of 20 GB	- 1 cluster running Windows 2000 Enterprise Edition , Oracle 10.2 Standard Edition for MS Windows - 1 disk array of 40 GB for (B), 64 GB for (C) - 1 box with hard disk 20 Gb, running Windows Server 2000 for OMS processes. OMS processes will be also configured on one or two node of the cluster in case of failure of the box running OMS processes		- 1 cluster of two boxes A with hard disk 20 Gb running MS Windows 2000 Advanced Server , Oracle 10.2 Standard Edition for Windows -1 disk array of 60 Gbytes -1 box B, with hard disk 40 GB running OMS processes. OMS processes will be also configured on one or two node of the cluster in case of failure of the box running OMS processes
Fully clustered solution	- 1 cluster running Windows 2000 Enterprise Edition, Oracle 10.2 Standard Edition for Windows and OMS processes - 1 disk array of 20 GB	- 1 cluster of two boxes with hard disk 20 GB running Windows 2000 Enterprise Edition and Oracle 10.2 Standard Edition - 1 cluster of two boxes with hard disk 20 GB running Windows 2000 Enterprise Edition, Oracle client 10.2 - 1 disk array of 32 Gb for (B), 64 Gb for (C)		- 1 cluster of two boxes A with hard disk 20 Gb running MS Windows 2000 Advanced Server , Oracle 10.2 Standard Edition for Windows - 1 cluster of two boxes B, with hard disk 20 GB, running MS Windows 2000 Advanced Server for OMS processes. -1 disk array of 60 Gbytes

Note: For GL OMS database, the version Oracle 9.2 is nevertheless still supported.

GL OMS Server requirements - SUN SOLARIS

Note 1: SUN SOLARIS recommended versions are SOLARIS 8, SOLARIS 10 with regard to accurate Patch Kernel Release advised by SUN Corp. In order to take advantage of new OS versions and performance Solaris 10 is more recommended than Solaris 8.

Note 2: Disk sizes are chosen among most common hard disk size.

	Config A – 5 users and 1,000 orders/day	Config B – 20 users and 10,000 orders/day	Config C – 40 users and 50,000 orders/day	Config D – 1,000 users and 50,000 orders/day
General hardware description	1 SUNFire V240, 2 GB of RAM, HDD 73 GB	1 SUNFire V240 with 2 processors, 4 GB of RAM, HDD 73 GB		<ul style="list-style-type: none"> • Box A : 1 SUNFire 280R with 2 processors, 4 GB of RAM • Box B : 1 SUNFire 280R with 2 processors, 2 Gb of RAM
Standalone configuration	<ul style="list-style-type: none"> • 1 box with Oracle 9.2 Standard Edition for Solaris and OMS processes 	<ul style="list-style-type: none"> • 1 box with Oracle 9.2 Standard Edition for Solaris • 1 box running OMS processes. 		<ul style="list-style-type: none"> • Box A: 1 SUNFire V440 with 4 processors, 8 GB of RAM, HDD 73 Gb, Oracle 9.2 Standard Edition for Solaris. • Box B: 1 SUNFire V240 with 2 processors, 4 GB of RAM, HDD 60 GB and OMS processes hard disk 36 Gb with Solaris for OMS processes
With “cheap” backup	<ul style="list-style-type: none"> • 1 cluster of two boxes running Oracle 9.2 Standard Edition for Solaris running OMS processes • 1 StorEdge MultiPack disk array of 60 GB 	<ul style="list-style-type: none"> • 1 cluster running Oracle 9.2 Standard Edition for Solaris • 1 disk array of 60 GB • 1 box running OMS processes <p>OMS processes will be also configured on one or two node of the cluster in case of failure of the box running OMS processes.</p>		<ul style="list-style-type: none"> • 1 cluster of two SUNFire V440 running Oracle 9.2 Standard Edition for Solaris • 1 disk array of 120 GB • 1 SUNFire V240 running OMS processes
Fully clustered	<ul style="list-style-type: none"> • 1 cluster of two boxes running 	<ul style="list-style-type: none"> • 1 cluster of two boxes running Oracle 9.2 Standard Edition for Solaris 		<ul style="list-style-type: none"> • 1 cluster of two SUNFire V440 running

solution	Oracle 9.2 Standard Edition for Solaris running OMS processes • 1 StorEdge MultiPack disk array of 60 GB	• 1 cluster of two boxes running OMS processes • 1 disk array of 60 GB	Oracle 9.2 Standard Edition for Solaris • 1 cluster of two SUNFire V240 running OMS processes • 1 disk array of 120 GB
Note: For GL OMS database, the version Oracle 9.2 is nevertheless still supported			

Cluster Server configuration:

For such a solution, we recommend to use following Veritas software:

- Veritas Cluster Server 4.0
- Veritas Database Edition 3.0 for Oracle
- Veritas Cluster Server Enterprise Agents for Database Edition /HA 3.0 for Oracle

For more details, please refer to User Guide Documentation Section 6

GL OMS Server requirements - LINUX REDHAT

	Config A – 5 users and 1,000 orders/day	Config B – 20 users and 10,000 orders/day	Config C – 40 users and 50,000 orders/day	Config D – 100 users and 50,000 orders/day
General hardware description	• 1 Dell Power Edge 860, Dual core Xeon 2.13GHz processor, 2 GB of RAM, HDD 73 GB	• 1 Dell Power Edge 860, Dual core Xeon 2.13GHz processor, 4 GB of RAM, HDD 73 GB		• 1 Dell Power Edge 1950, 2 Dual core Xeon 3.0GHz processors, 4 GB of RAM, HDD 73 GB
Standalone configuration	• 1 box with RedHat 4 64bit, Oracle 10.2 Standard Edition for Linux and OMS processes.	• 1 box with RedHat 4 64bit: Oracle 10.2 Standard Edition for Linux, • 1 box with RedHat 4 64bit: OMS processes , HDD 73 GB		• Box A, with RedHat 4 64bit: Oracle 10.2 Standard Edition for Linux, • Box B, with RedHat 4 64bit: OMS processes.

Note: For GL OMS database, the version Oracle 9.2 is nevertheless still supported

Architecture and disk space usage

As mentioned previously, the Hard Disk Drive sizing are chosen among most common hard disk size. To define your exact requirement, refer to table hereafter.

We show in details the disk space used in Gbytes according to the different cases and assuming the following:

- Orders are kept for 3 months
- Audit and archive records are kept for 6 months
- Log files are kept for 2 weeks

	Config A – 5 users and 1,000 orders/day	Config B – 20 users and 10,000 orders/day	Config C – 40 users and 50,000 orders/day	Config D – 100 users and 50,000 orders/day
Disk space required for database (GB)	4.8	6.0	13.6	27.0
Disk space required for logs (GB)	2.4	3.2	4.8	9.0
TOTAL (GB)	7.2	9.2	18.4	36.0

Note: The architecture remains the same whatever Dell or SUN hardware is used.

Order Management System - Front-end Configuration

OMS Front Ends - Sales and Dealer screens	Hardware:	Pentium IV 2Ghz 1 GB RAM (minimum recommended) 20 GB Hard Disk 100 base T NIC
	Operating System:	Windows 2000 Service Pack 4 Windows XP Professional Service Pack 2