

# Solution institute of mine seismology

# Hardware specifications for

# **IMS Server and Workstations**

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## **1** IMS server specification

This document lists the minimum and recommended hardware specification requirements for servers running the IMS server applications, like Synapse and Database server. It also includes the same for workstations running the IMS client applications.

#### **1.1** General notes that apply to all servers

- Hard-drive RAID configurations are recommended to prevent data loss.
- The Linux operating system should be installed natively on the hardware, i.e. not in a virtual environment running on another operating system, like Windows for instance. For virtualised systems, it should be a Type 1 (native hypervisor).
- All systems require fixed network interface hardware addresses (MAC address).
- It is strongly recommended to have all servers connected to uninterruptible power supplies (UPS).

#### **1.2** Specification for servers

#### **1.2.1** Small systems (less than 16 channels)

Component	Physical server		Virtual server	
	Minimum	Recommended	Minimum	Recommended
64-bit processor	Quad (4) core	Eight(8)-core	Quad (4) core	Eight(8)-core
(CPU) (See note:SPEC)	(single thread)	(single thread)	(single thread)	(single thread)
Memory (RAM) (See note:SPEC)	24GB	32GB	24GB	32GB
Ethernet ports (See note: LAN)	1 x 1Gb	2 x 1Gb	1 x 1Gb	2 x 1Gb
Serial port	1	1	0	0
Hard drives (See note: DISK)	2 x 2TB (non-RAID)	2 x 2TB (RAID1)	<ul> <li>Virtual disk 1 (400GB)</li> <li>Virtual disk 2 (2TB)</li> </ul>	<ul> <li>Virtual disk 1 (400GB)</li> <li>Virtual disk 2 (2TB)</li> </ul>
Monitor for installation	1	1	0	0
Optional graphics card (if running Trace, Vantage etc.) (See note: RESOURCES-SERVER)	NVidia or AMD 3D card with 1GB memory	NVidia or AMD 3D card with minimum 2GB memory	N/A	N/A
Operating system	Linux Ubuntu 22.04 LTS	Linux Ubuntu 24.04 LTS	Linux Ubuntu 22.04 LTS	Linux Ubuntu 24.04 LTS

Table 1: Small systems (less than 16 channels)

Component	Physical server		Virtual server	
	Minimum	Recommended	Minimum	Recommended
64-bit processor	Eight(8)-core	Eight(8)-core (dual	Eight(8)-core	Eight(8)-core (dual
(CPU) (See note:SPEC)	(single thread)	thread)	(single thread)	thread)
Memory (RAM)	32GB 40CB		37CB	40CB
(See note:SPEC)	3200	4000	52 <b>0</b> D	4000
Ethernet ports (See	1 x 1Ch 2 x 1Ch		1 x 1Ch	$2 \times 1$ Ch
note: LAN)	1 X 100	2 X 100	1 x 100	2 X 100
Serial port	1	1	0	0
			- Virtual disk 1	- Virtual disk 1
Hard drives (See note:	2 x 2TB	2 x 2TB (RAID1)	(400GB)	(400GB)
DISK)	(non-RAID)		- Virtual disk 2	- Virtual disk 2
			(2TB)	(2TB)
Monitor for	1	1	0	0
installation		0	0	
Optional graphics		NVidia or AMD		
card (if running	NVidia or AMD	Vidia or AMD		
Trace, Vantage	3D card with 1GB	minimum 2GB	N/A	N/A
etc.) (See note:	memory	memory		
RESOURCES-SERVER)		memory		
Operating system	Linux Ubuntu	Linux Ubuntu	Linux Ubuntu	Linux Ubuntu
Operating system	22.04 LTS	24.04 LTS	22.04 LTS	24.04 LTS

#### 1.2.2 Medium-sized systems (17 to 150 channels)

Table 2: Medium systems (17 to 150 channels)

Component	Physical server		Virtual server	
	Minimum	Recommended	Minimum	Recommended
64-bit processor	Eight(8)-core (dual	Eight(8)-core (dual	Eight(8)-core (dual	Eight(8)-core (dual
(CPU) (See note:SPEC)	thread)	thread)	thread)	thread)
Memory (RAM)	40GB 64CB		40 <b>G</b> B	64GB
(See note:SPEC)	4000	0400	400D	040D
Ethernet ports (See	1 x 1Ch 2 x 1Ch		1 v 1Ch	$2 \times 1$ Ch
note: LAN)	1 X 100	2 X 100	1 X 100	2 X 100
Serial port	1	1	0	0
	2 x 4TB (RAID1)	2 x 4TB (RAID1)	- Virtual disk 1	- Virtual disk 1
Hard drives (See note:			(400GB)	(400GB)
DISK)			- Virtual disk 2	- Virtual disk 2
			(4TB)	(4TB)
Monitor for	1	1	0	0
installation		0	0	
Optional graphics		NVidia or AMD		
card (if running	NVidia or AMD			
Trace, Vantage	3D card with 1GB	minimum 2GB	N/A	N/A
etc.) (See note:	memory memory			
RESOURCES-SERVER)		memory		
Operating system	Linux Ubuntu	Linux Ubuntu	Linux Ubuntu	Linux Ubuntu
operating system	22.04 LTS	24.04 LTS	22.04 LTS	24.04 LTS

#### 1.2.3 Large systems (more than 150 channels)

Table 3: Large systems (more than 150 channels)

## 2 Workstation specifications

The requirements in the following table apply to workstations running IMS client applications, like Synapse, Trace, Ticker3D, etc.

Requirements according to software applications:

- IMS Synapse Viewer, IMS Trace: Minimum requirements
- IMS Vantage, IMS Combined, IMS Ticker3D, IMS Modeling: Recommended requirements

Component	Minimum	Recommended	
64-bit processor		Eight(8)-core (dual	
(CPU) (See note: (See	Quad (4) core		
note: RESOURCES-	(single thread)	thread)	
WORKSTATION)			
Memory (RAM)			
(See note: (See note:	16GB	32GB	
RESOURCES-	1000	5200	
WORKSTATION)			
Ethernet ports	1 x 1Gb	1 x 1Gb	
Hard drives (See note:			
RESOURCES-	500GB	1TB	
WORKSTATION)			
Monitor	1 x 15 inch	2 x 23 inch	
Graphics card (if		NVidia or AMD	
running Troco	No <b>3D</b> graphics	3D card with	
Ventage etc.)	required	minimum 4GB	
vantage etc.)		memory	
	Windows 10/11	Windows 11 and	
Operating system	and Linux Ubuntu	Linux Ubuntu	
	(22.04, 24.04)	24.04	

Table 4: Workstations specifications

### 3 Notes

**SPEC**: The specifications listed, are based on average seismic event rates. For high-event rate systems, the resources listed might not be adequate.

LAN: Depending on system configuration and/or customer requirements, multiple network interfaces might be required, for instance: one interface to connect to a business LAN (general network access) and a second to connect to a private seismic VLAN. LAN interface requires static MAC address for licensing purposes.

**DISK**: Disk space can be adjusted and more added over time, based on continuous and non-continuous data recording requirements. RAID disk configurations for virtual servers are recommended. Based on system activity, SSD requirements are possible.

**RESOURCES-SERVER**: It is not recommended to run resource-heavy (like IMS Vantage, Combined, Ticker3D, etc.) or non-IMS software applications on the server that is used to run the IMS system. If this is done, it might compromise or lead to loss of data.

**RESOURCES-WORKSTATION**: The hardware specifications listed are based on resource requirements of the operating system and IMS applications and their dependencies. Should other resource-intensive applications be used on the workstation, resources will need to be adjusted accordingly.

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Table 5: Change record