



IBM Software Group

IBM Tivoli® Training
IBM Tivoli Monitoring 6.1

Estimating Tivoli Data Warehouse Space Requirements



Estimating

© 2006 IBM Corporation

Objectives

Upon completion of this module, you should be able to:

- Describe how placing the Warehouse Proxy and database on different machines affects roll up rates and storage requirements.
- Identify the hardware requirements for the Warehouse Proxy and database servers.
- Estimate the amount of disk space needed for small, medium, or large IBM Tivoli Monitoring installations.



Sizing Information for Warehouse Proxy

Depending on location of **Warehouse Proxy** and **database server**:

- **Same** machine:
 - Total volume of data uploaded within 24 hours:
 - Maximum **25 GB** of data
 - Roll Up Rate:
 - **20 MB** of data from a single endpoint in 15 minutes (sustained rate)
- **Different** machines:
 - Total volume of data uploaded within 24 hours:
 - Maximum **10 GB** of data
 - Roll Up Rate:
 - **10 MB** of data from a single endpoint in 15 minutes (sustained rate)

Note from a recent performance test:

Remote DB2® on AIX®: Total volume uploaded within 24 hours: **40 GB** of data

More on Sizing and Performance Considerations

Hardware requirements for

- **Warehouse Proxy agent server:**
 - Processors: Minimum **four** for a large installation

- **Database server:**
 - Processors: Minimum **four** processors
 - Disk Drives: 16 to 24 disk drives for large installation

- **Summarization and Pruning agent server:**
 - Processors: Minimum **four** processors
 - Memory: minimum 2 GBbytes

Attribute Group – kux (UNIX® system)

System.System_Name	System.Block_Reads	System.Processes_Stopped
System.Timestamp	System.Block_Writes	System.Threads_in_Run_Queue
System.Type	System.Logical_Block_Reads	System.Threads_Waiting
System.Version	System.Logical_Block_Writes	System.Boot_Time
System.Total_Real_Memory	System.NonBlock_Reads	System.Pending_IO_Waits
System.Total_Virtual_Memory	System.NonBlock_Writes	System.START_IO
System.Up_Time	System.Receive_Interrupts	System.Device_Interrupts
System.Users_Session_Number	System.Transmit_Interrupts	System.UpTime
System.System_Procs_Number	System.Modem_Interrupts	System.Parameter
System.Net_Address	System.Active_Internet_Connections	System.Value
System.User_CPU	System.Active_Sockets	System.Swap_Space_Free
System.System_CPU	System.Load_Average_1_Min	System.Page_Ins_Rate
System.Idle_CPU	System.Load_Average_5_Min	System.Page_Out_Rate
System.Wait_I/O	System.Load_Average_15_Min	System.Page_Scanning
System.Processes_in_Run_Queue	System.DUMMY-Memory_Free	System.Avg_PageIns_1
System.Processes_Waiting	System.Memory_Used	System.Avg_PageIns_5
System.Page_Faults	System.Page_Scan_Rate	System.Avg_PageIns_15
System.Page_Reclaims	System.Virtual_Memory_Percent_Used	System.Avg_PageIns_60
System.Pages_Paged_In	System.Virtual_Memory_Percent_Available	System.Avg_PageOut_1
System.Pages_Paged_Out	System.CPU_Busy	System.Avg_PageOut_5
System.Page_Ins	System.System_Read	System.Avg_PageOut_15
System.Page_Outs	System.System_Write	System.Avg_PageOut_60
System.Free_Memory	System.System_Threads	System.Avg_PageScan_1
System.Active_Virtual_Memory	System.Processes_Runnable	System.Avg_PageScan_5
System.CPU_Context_Switches	System.Processes_Running	System.Avg_PageScan_15
System.System_Calls	System.Processes_Sleeping	System.Avg_PageScan_60
System.Forks_Executed	System.Processes_Idle	System.Avg_Processes_RunQueue_60
System.Execs_Executed	System.Processes_Zombie	

Attribute Group – kux (UNIX process)

Process.System_Name	Process.Elapsed_Time
Process.Timestamp	Process.Virtual_Size
Process.Process_ID	Process.Mem_Pct
Process.Flag	Process.CPU_Pct
Process.Execution_State	Process.Total_CPU_Percent
Process.User_ID	Process.Sample_CPU_Pct
Process.Parent_Process_ID	Process.Heap_Size
Process.CPU_Utilization	Process.Stack_Size
Process.Priority	Process.Major_Fault
Process.Nice_Value	Process.Minor_Fault
Process.Entry_Address	Process.Context_Switch
Process.Size	Process.Involuntary_Context_Switch
Process.Event_Waited_On	Process.User_CPU_Time
Process.Terminal_Device	Process.System_CPU_Time
Process.Time	Process.Total_CPU_Time
Process.Command	Process.Thread_Count
Process.Process_Command	Process.Child_User_CPU_Time
Process.Reptype	Process.Child_System_CPU_Time
Process.Real_Group_ID	Process.Total_Child_CPU_Time
Process.Effective_User_ID	Process.Wait_CPU_Time
Process.Effective_Group_ID	Process.Wait_Lock_Time
Process.Process_Group_Leader_ID	Process.Read/Write
Process.Session_ID	Process.CPU_Time
Process.Scheduling_Class	Process.Parameter
Process.CPU_ID	Process.Value
Process.User_Name	Process.Command_U
Process.StartTime	Process.Process_Command_U
	Process.User_Name_U

Tivoli. software

Sizing parameters

- **Detailed** record size: for the Attribute Group (NT_System =452 bytes)
- **Aggregated** record size (NT_System =1,308 bytes)
 - The record sizes are in the User Guide of the specific agent.
- Number of samples per day based on **collection interval** (5, 15 minutes...)
 - 288 samples (5 minutes), 96 (for 15 minutes), 48 (for 30 minutes), 24 (for 60 minutes)
- Number of **days** to keep the **detailed** data (30 days)
- How long summarized data is needed: (Total summarized records=897)
 - 30 days of hourly data (24*30=720)
 - 3 months of daily data (365/12*3=91)
 - 1 year of weekly data (1*52=52)
 - 2 years of monthly data (2*12=24)
 - 2 years of quarterly data (2*4=8)
 - 2 years of yearly data (2*1=2)
- Final number multiplied by **5** to account for database indexes, log space, free space, and other database space
- Number of agents per server
- Total server count

Sizing Estimate for Small Environment

Collecting metrics for:

- 5 agents per server
- 50 servers

Assumption:

▪ Each Agent:

- 2 CPUs
- 2 disks
- 1 NIC
- 20 users
- 20 processes
- 5 file systems

Detailed data sample **32 KB** (32,372 bytes) each

Aggregated data samples **96 KB** (897 aggregated records)

Total estimated space for summarized data = **20.8 GB** (96 KB * 897 * 5 * 50)

• Collection Interval:

- 5 minutes 288 samples/day
- 15 minutes 96 samples/day
- 30 minutes 48 samples/day
- 60 minutes 24 samples/day

30 Days:

- 66,675 MB
- 22,225 MB
- 11,125 MB
- 5,550 MB

Total TDW Data Size

- 427 GB
- 210 GB**
- 156 GB
- 129 GB

Sizing Estimate for Medium Environment

Collecting metrics for:

- 5 agents per server
- 200 servers

Assumption:

Each Agent:

- 2 CPUs
- 2 disks
- 1 NIC
- 50 users
- 50 processes
- 8 file systems

Detailed data sample **75 KB** (75,476 bytes)

Aggregated data sample **225 KB** (897 aggregated records)

Total estimated space for summarized data = **193.7 GB** (225kb * 897 * 5 * 200)

Collection Interval:

- 5 minutes 288 samples/day
- 15 minutes 96 samples/day
- 30 minutes 48 samples/day
- 60 minutes 24 samples/day

30 Days:

- 621.9 GB
- 207.3 GB
- 103.7 GB
- 51.8 GB

Total TDW Data Size

- 3,982 GB
- 1,958 GB**
- 1,452 GB
- 1,199 GB

Sizing Estimate for Large Environment:

Collecting metrics for :

- Assumption:
 - 5 agents/server
 - 600 servers
- Each Agent:
 - 4 CPUs
 - 4 disks
 - 1 NIC
 - 50 users
 - 50 processes
 - 12 file systems

Detailed data sample **79 KB** (79,836 bytes)

Aggregated data sample **237 KB** (897 aggregated records)

Total estimated space for summarized data = **614.7 GB** (237kb * 897 * 5 * 600)

Collection Interval:	30 Days:	Total TDW Data Size
• 5 minutes 288 samples/day	1,973 GB	12,637 GB
• 15 minutes 96 samples/day	658 GB	6,213 GB
• 30 minutes 48 samples/day	329 GB	4,607 GB
• 60 minutes 24 samples/day	164 GB	3,804 GB

Copyright and trademark information

© Copyright IBM Corporation 2000 - 2006. All rights reserved.

U.S. Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

IBM web site pages may contain other proprietary notices and copyright information which should be observed.

IBM trademarks

<http://www.ibm.com/legal/copytrade.shtml#ibm>

Fair use guidelines for use and reference of IBM trademarks

<http://www.ibm.com/legal/copytrade.shtml#fairuse>

General rules for proper reference to IBM product names

<http://www.ibm.com/legal/copytrade.shtml#general>

Special attributions

IBM, the IBM logo and DB2 are trademarks of International Business Machines Corporation in the United States, other countries, or both.

MMX, Pentium, and ProShare are trademarks of Intel Corporation in the United States, other countries, or both.

Microsoft and Windows NT are trademarks of Microsoft Corporation in the United States, other countries, or both.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product or service names may be trademarks or service marks of others.



Tivoli software

© 2006 IBM Corporation