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Advantage Database Server®
Hardware Requirements

TABLE OF CONTENTS

This document was created as a general guideline for planning application hardware requirements for Advantage Database Server. Hardware requirements vary greatly based on functionality implemented by Advantage-enabled applications. These applications are developed by Independent Software Vendors, which typically bundle Advantage with their application. Only these vendors can accurately provide hardware requirements based on extensive testing with their application. End-users should default to their software vendor's recommendations for server hardware.

REQUIREMENTS

	MINIMUM REQUIREMENTS	SUGGESTED REQUIREMENTS
Footprint	32-bit – 28 MB 64-bit – 37 MB	
Processor	Minimum required by OS	1 GHz or greater
Memory	Minimum required by OS	1 GB or greater depending on application
Disk Space	Dependant on database size	500 MB

Small Footprint

While many database servers seem to require greater and more costly hardware with every release, the Advantage Database Server has extremely low hardware requirements. Advantage will install on nearly all Windows, Linux and NetWare server operating systems. Designed for Independent Software Vendors, the server's small installation can be easily integrated with an application install CD or downloaded over the web. Starting with Advantage 10, a consolidated Help File adds approximately 8MB. This help file while extremely useful for development can be omitted in the final install distribution package to make the footprint size even smaller.

Processor Requirements

Advantage performs extremely well on under-powered machines. For many applications Advantage will operate on the minimum CPU that is required for the operating system, for example, a 550 MHz Pentium-compatible CPU to run on Windows 2003 Server, or a 1GHz for Windows Server 2008. Nevertheless, a faster processor on the server will usually improve performance for applications with many concurrent users or that use server-side filtering either directly or via Advantage SQL.

Unfortunately, there's not an exact formula for calculating process requirements. In most cases, servers should have at least a 1 GHz CPU. Typically, a faster processor provides better performance, although applications that perform little filtering and have few users may not benefit from a processor upgrade. Advantage Database Server supports multiple processors on Windows, Linux and Netware (see the Advantage Help file for additional details). Advantage Database Server is multi-threaded and will perform each user-requested database operation concurrently or in parallel if multiple processors are present.

Memory

Compared to other database servers, Advantage requires very little RAM. SQL processing and transaction processing will drive the demand for RAM on the server. If your application uses many SQL statements or does a large amount of transaction processing, more than 1 GB of RAM would be recommended. Otherwise at least 1 GB is enough for many applications.

Configuration settings such as the number of connections, work areas, tables, indexes, data locks and worker threads use a static amount of RAM when the Advantage service starts. However, the amount is typically insignificant. To view the amount of static RAM used by the Advantage Database Server, use the Remote Server Info utility, which is built into the Advantage Data Architect (ARC). In ARC, select Tools from the main menu and select Remote Server Info. The configuration parameters tab will display memory usage.

Hard Disk Space

The database server files are a mere 28 MB (32-bit). The server will also need space available for the application data files (table, memo and index files). This will vary by application.

In addition, Advantage may need additional space for creating temporary files for queries. Although these files are deleted after the query is closed, these files can become large in certain situations. This space requirement also varies based on queries that are executed by client applications.

Advantage will create an error log and it may create transaction processing files, if transactions are implemented. Transaction processing files are typically small and are deleted after the transaction is complete.

Performance Tips

Before upgrading hardware to resolve performance issues, see the Performance Factors in the Advantage help file. Additionally, the following tips have resolved many high CPU utilization issues:

- Use the query logging utility (Advantage v8.0 or higher) or analyze the application code to verify that all SQL statements and filters are optimized using the SQL Debugger (Advantage Data Architect v9.0 or higher). Statements or filters are optimized if they are able to use existing indexes. If statements or filters are not optimized, additional processing is required by the server, which can be very CPU intensive. Building the appropriate indexes resolves a majority of CPU utilization issues. Typically, end-users should contact their software vendor for index specifications.
- If using DBF files, pack the tables. This will remove deleted records and re-build existing indexes.
- Upgrade to Advantage Database Server. Version 11 is the fastest performing version of Advantage ever.

If CPU utilization is low, the network is typically the bottleneck for most application processes. Application developers should implement as much server-side processing as possible, including SQL processing, stored procedures and triggers. As a trouble-shooting step, the application can be run on the server to determine the network performance lag. If performance improvement is dramatic, administrators can start to isolate the network to identify faulty or slow network hardware.

CONCLUSION

Like most applications, Advantage Database Server performance improves with faster processors and more memory. The improvement varies significantly based on the client application processes. Applications that perform server-side operations (filters and SQL) and have multiple concurrent users will benefit more from hardware upgrades. Again, this document should only be considered as a general guideline and should supplement existing information in the Advantage Help files.

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