



# PLANNING FOR YOUR VANTAGE DATABASE



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# Synopsis

Telestream Vantage combines media capture, transcoding, clip management, analysis, QC, and metadata processing into a single, unified video workflow design and automation framework. When Vantage is installed a SQL database is also installed to safely and efficiently store the Vantage domain's definition and configuration, including all workflows and all workflow data.

However, in some cases you may wish to install this database on a separate machine from the actual Vantage services. Additionally, a single database server represents a single point of failure in an otherwise resilient system. A mirrored database solution allows a backup database to take over from the principle database in the event of a failure.

This app note describes when to put the database on a separate server from the Vantage services. It also describes how to enables servers to use database mirroring.

## Database Guidelines

Use this topic to understand the guidelines for when Telestream recommends using a dedicated database server, and database server platform requirements.

### Supported Databases

Vantage is supported on the following database systems:

- Microsoft SQL Server 2005 Express and Standard SP3
- Microsoft SQL Server 2008 Express and Standard.

### Guidelines for Using SQL Server Standard

- SQL Express has the following limitations:
- Database Size – SQL 2008 Express R2: 10 GB
- Database Size – SQL 2005 Express: 4 GB
- Maximum RAM Usage: 1GB RAM
- Number of CPUs: 1 CPU

SQL Standard has the following limitations:

- No size limit for database
- Maximum RAM Usage: 64 GB RAM usage
- Number of CPU Threads: 4 CPUs

As a result, the decision about whether to use SQL Standard instead of Express is based primarily upon your planned maximum database size and the expected average volume of database traffic.

### Database Size

The size of the database is generally related to the number of jobs in a database. Each job record stores its entire workflow history, which means that simple workflows (such as a basic transcode) require less database space for each job than complex workflows (such as those involving decision-making or multiple steps).

As a rule of thumb, if you plan to store more than 500 - 1000 jobs in your Vantage database at the same time – either running or in job history – then you should probably use SQL Standard.

## Database Traffic

Several factors affect how much database traffic is generated. There is no single rule for when you should use Standard, but the following factors may indicate that Standard is necessary:

- The number of actions running in current jobs: If you often have more than 50-100 actions running simultaneously, you may improve performance by using SQL Standard.
- Multi-node installations: Multi-node installations (such as a 3-node Vantage Array) are designed for high job throughput and may often have more than 50 -100 actions running simultaneously. If your domain is tightly controlled to prevent high job volume (and thus, traffic), you may be able to use Express. SQL Standard is recommended when high volumes of media are submitted for processing at the same time.
- Web applications (such as the Web Job Status View application): If you have more than 3 Web app clients accessing the Vantage database simultaneously/frequently, or if you have more than 100 jobs in the job history view, you should consider SQL Standard to improve client performance.
- Workflow Analytics (with Vantage System Management products): Workflow analytics generally requires SQL Standard, particularly if you have more than 50 -100 jobs in the database.

**Note:** *Domains with database mirroring require SQL Standard and is not available when using SQL Express.*

## Guidelines for a Dedicated Database Server

If you are using an all-in-one Vantage system, the primary factor is disk access. Both transcoding actions and database operations require significant use of the hard drive. If your Vantage database is hosted on the same server where media is stored, Telestream recommends hosting the database on a separate drive from the media.

For all Vantage domains, including multi-server (distributed) domains, the primary factor to consider when hosting a database on a Vantage system is the sharing of resources between Vantage services and the database. Moving media files, analysis, and transcoding all require a significant amount of network traffic, CPU activity, and RAM. If the database is hosted on a server performing transcoding, analysis, or moving large media files, the following considerations should be made:

- The number of concurrent Transcode/Analysis tasks on the server should be limited to ensure that adequate CPU and network resources are available for the database.
- The number of concurrent transport actions on the server should be limited to ensure that adequate network resources are available for database access in a multi-node installation
- Generally, if the services are processing large files (>1GB), consider hosting the database on a separate server.

As a rule of thumb, a server hosting the database should not reach more than 75% CPU for transcoding or analysis tasks, and should not be transporting more than one large file at a time as part of a workflow. This may be accomplished by setting session limits or capacity for the Transport, Transcode and Analysis services to a low number, or by hosting the database on a separate server.

If you plan to mirror your database (which improves uptime availability), you should use a separate server for your primary and secondary database instances. Generally, Telestream recommends using a third machine for the witness server, to ensure uninterrupted operation in case of a database failover without concern for whether transcoding is consuming too many resources on the witness server for it to perform its task in a timely manner.

**Note:** *This guide does not provide instructions for installing a mirrored database and implementing mirroring. Consult your database administrator or contact your Telestream representative regarding installation service options. Installing a Vantage database on a separate server does not require an extra Vantage license for that server.*

# Guidelines for Using a Separate Database Server

Telestream recommends installing and operating the database on a separate server when:

1. You expect more than 500 jobs in the job history for a workflow, on busy machines.
2. You are creating a Vantage domain with Vantage services distributed on two or more computers/servers.
3. You are using Microsoft SQL Standard or Enterprise.

**Note:** *Items 1 and 2 above affect Workflow Designer more than Vantage services. Large numbers of jobs in the job history increases the number of database accesses from Workflow Designer. If you have many computers using the database, it will increase database accesses and will slow down the operation of Workflow Designer.*

*When performing a single-server installation, you may not need a separate server. However, Telestream recommends that you install the database on a hard drive separate from the temporary media storage.*

*Installing a database on a separate server does not require an extra Vantage license for that server.*

## Vantage Dual Database Requirements

To set up a Vantage database with mirroring and witness and to migrate an existing database into the new mirrored environment, the following requirements must be met:

### Servers Required to Host Database Services

Two servers of similar capability are required to host the principle and mirrored SQL instances. A third server is also required to host the witness instance. The witness is a lightweight process that can run on a server with lower requirements than the database server.

### System Requirements

The system requirements for a Vantage dual database installation are:

- A dedicated server for the principle database (with SQL Server Standard or Enterprise).
- A dedicated server for the mirrored database (with SQL Server Standard or Enterprise).
- A server to host the database witness (with SQL Server Express)
- A Vantage service computer for:
  - Vantage services
  - Vantage Workflow Designer
  - Vantage Management Console

### Mirrored Database Requirements

Two SQL Server Standard licenses are required: One for the principle server and one for the mirrored server. The witness server can use SQL Express, which does not require a license.

A CAL is a client access license offered by Microsoft for their SQL Server products. There are two types of CAL's: A *device* CAL allows any number of users to gain access to licensed server software from a particular device, and a *user* CAL allows a particular user gain access to licensed

server software from any number of devices. For example, a customer with fifteen Vantage nodes would require one CAL per node. Additionally, if the Vantage Workflow Portal is deployed for use, a CAL for each connection is required.

Supported SQL Server versions:

- SQL 2008  
For detailed information on Microsoft SQL 2008 Server licensing, see <http://www.microsoft.com/sqlserver/2008/en/us/pricing-licensing-faq.aspx>.
- SQL 2005 (with SP3)  
For detailed information on Microsoft SQL 2005 Server licensing, see <http://www.microsoft.com/sqlserver/2005/en/us/pricing-licensing-faq.aspx>.

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