

**The Ensemble Video Platform is comprised of four (4) different technologies. These include:**

- Ensemble Video Application Server
- Wowza Streaming Engine
- Sorenson Squeeze Server
- MS SQL Server

In the sections that follow we will discuss each service in detail and their hardware recommendations. Also, at the end of this section we will discuss the typical setup scenarios where services are combined into a single server, and the hardware requirements when combining those services.

## Ensemble Application Server

- Platform: Virtual or Physical
- CPU: 4 Cores (Minimum)
- RAM: 8 GB (Minimum)
- OS: Windows Server 2016 or Windows 2012 R2



- Storage (recommended 10K or 15K hard drives for optimum IO):
  - o 100 GB System Partition
  - o 50 GB MPlayer Data Partition
  - o 250 GB WebApp Partition
- Ports: 80 (HTTP) 443 (HTTPS)

This server will run the Ensemble software. The software will run on top of IIS.

The Ensemble service is officially supported on both physical and virtual servers. It is recommended that Ensemble be loaded on a VM, due to the flexibility the VM offers with adding additional resources such as storage, RAM, CPU.

We recommend 10K or 15K drives for this server since the WebApp will be stored on this server. The web app will store all the non-video assets such as thumbnails, preview images, attachments, etc.

The MPlayer Data partition is used as a scratch space for MPlayer.exe which Ensemble utilizes to generate thumbnails for newly uploaded video content. This partition is usually just mounted as an empty folder at C:\ProgramData\MPlayer\Data (no drive letter needs to be assigned).

## Wowza Streaming Engine

- Platform: Virtual or Physical
- CPU: 8 Cores (Minimum)
- RAM: 12 GB (Minimum)
- OS: Windows Server 2016 or Windows 2012 R2
- Storage (7500 RMP Drives or higher):
  - o 60-100GB System Partition
  - o 500GB or Greater Video Storage
- External Ports: 443 (HTTPS) 1935 (RTMP) 554 (RTSP Android Streaming)
- Internal Ports (Wowza to Ensemble): 8088,8086,8087 (Admin/API Ports)

This server will provide the streaming of video content for the Ensemble Platform. This server is also the final resting place for the VOD content after transcoding. Because of this fact, the storage requirements for this server will be large. We recommend going no lower than 500GB initially for video storage.



The Wowza service is officially supported on both physical and virtual servers. It is recommended that Wowza be loaded on a VM, due to the flexibility the VM offers with adding additional resources such as storage, RAM, CPU.

The Wowza Streaming Engine runs on top of Java SDK, which will be installed as part of the setup.

## Sorenson Squeeze Server

- Platform: Virtual or Physical
- CPU: 8 Cores (Minimum)
- Operating System: Windows Server 2016 or Windows 2012 R2
- Processor: 1.4GHz minimum (2GHz or faster recommended)
- Memory: 16 GB RAM minimum (16GB RAM or 2GB per processor core)
- Available Disk Space: 150GB minimum (250 GB or greater recommended for large files, and more powerful servers)

The Encoder server uses CPU cores heavily to perform video/audio encoding. The encoder takes in a wide variety of raw file formats (i.e. AVI, MOV, WMV, etc.) and produces a streamable MP4 file format. When encoding to MP4 H.264 video files, Sorenson Squeeze uses “divide and conquer” approach to maximize transcoding throughput. It is highly recommended that you do not attempt to run other applications or services on any system running Squeeze Server. Adding more CPU and memory will increase transcoder throughput. Additional capacity can be added by clustering Sorenson Squeeze servers (requires full version of Sorenson Squeeze).

**Note:** Source video files are temporarily stored on the computer during compression. The computer will need to have enough free disc space to store the source files, compressed files as well as space for the files that are being uploaded to the server in preparation for compressing.

### Sizing Guide

Below is a sizing guide to help you design and implement your encoder server.

Size	Jobs per day	Cores	RAM (GB)	HD Setup
Small	< 50	8	16	250 GB
Medium	< 50 and < 100	16	24-32	350 GB
Large	>100	24-32	32-64	500 GB



**Note:** Transcoding benchmarks are available to roughly guide hardware utilization for various transcoding workflows. Testing typical transcoding to gauge hardware requirements is recommended wherever possible.

**Note HD Setup:** The hard drive on the encoder server provides the temporary storage to perform the encoding work. The original file, as well as the finished product is all stored on the local hard drive until such time it is transferred back to Ensemble for streaming. Because the hard drives provide the working space, the encoder will benefit from faster/higher performance drives.

While 7500 RPM drives are fully supported, faster 10K or 15K drives would provide faster throughput for transcoding jobs. The space can be one single partition or split between the System and the encoder software. If splitting the HD space, give the system partition 60-100GB and the remainder put into a separate partition.

## Microsoft SQL Server

- Platform: Physical or Virtual
- CPU: 4 Cores (Minimum)
- RAM: 8 GB (Minimum)
- OS: Windows Server 2016 or Windows 2012 R2
- Storage (recommended 10K or 15K hard drives for optimum IO):
  - o 60-100GB System Partition
  - o 250GB Data Partition
- CLR Enabled SQL Server
- SQL Mixed Mode Security

The above hardware requirements are estimates. Many customers will either utilize an existing MS-SQL installation or install MS-SQL Express on the Ensemble server directly. Combinations of services are discussed later in this document. If you plan to add Ensemble DB to an existing MS-SQL Server, you will need to enable CLR on the server (it is not enabled by default). More information on CLR and how to enable can be found here:

[http://msdn.microsoft.com/en-us/library/ms254498\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/ms254498(v=vs.110).aspx)

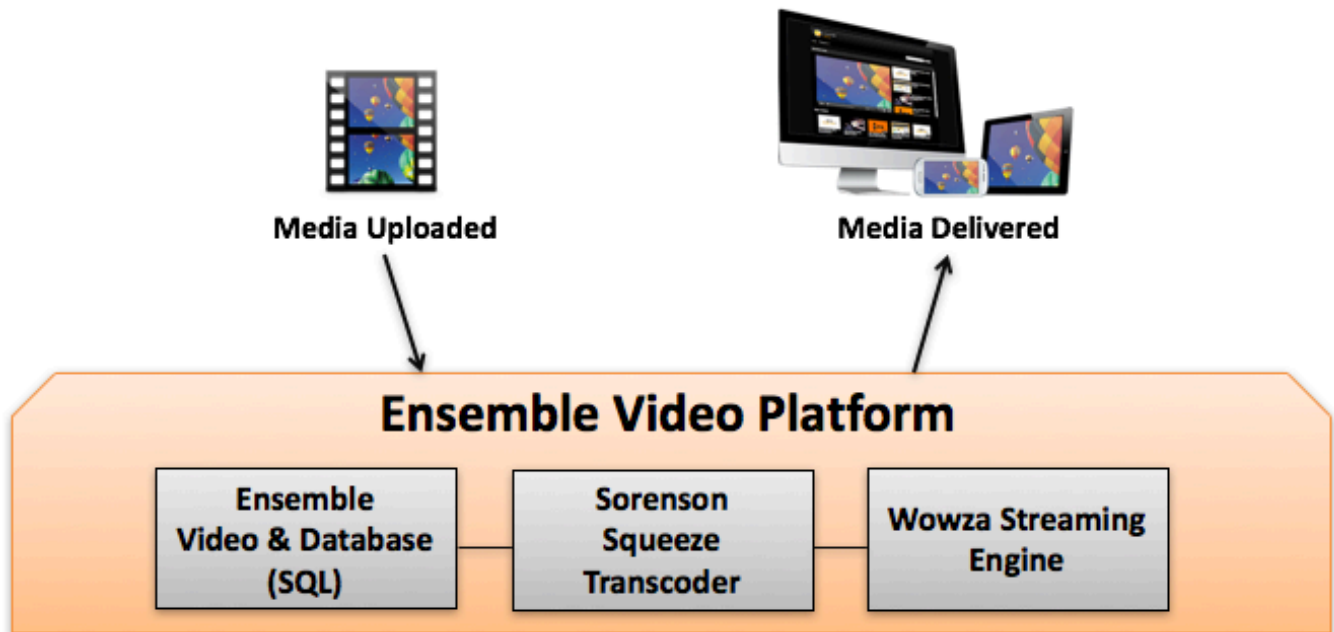
**Note:** The Ensemble Platform utilizes MS SQL Server to store metadata and application data. The database does not require a lot of space. A typical 10TB VOD installation will have a database around 3GB in size.

**Note:** MS-SQL Express can be utilized if desired. The size limitation of SQL Express is 10GB maximum database size. Majority of Ensemble customers would never exceed a database size of 10GB, so SQL Express can be used for the small/medium sized customers. Backing up SQL Express will require custom scripts or a third-party tool, since Express doesn't ship with SQL Agent.



## Combining Services

Due to new secure HLS streaming requirements, we only recommend combining Ensemble and SQL on the same server. Wowza and Ensemble cannot share the same server due to contention for port 443.



## Ensemble/SQL

- Platform: Virtual or Physical
- CPU: 8 Cores (Minimum)
- RAM: 16GB (Minimum)
- OS: Windows Server 2016 or Windows 2012 R2
- Storage (recommended 10K or 15K hard drives for optimum IO):
  - o 100-250GB System Partition
  - o 50GB MPlayer Data Partition
  - o 250GB WebApp Partition
  - o 100GB SQL DB Storage Partition



## **Ensemble/Wowza**

- Not Supported

## **Ensemble/Squeeze**

- Not Supported

## **Wowza/Squeeze**

- Not Supported