



JDH TECHNOLOGIES

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White Paper

# Web-4M<sup>TM</sup> System Requirements

# Client Requirements

## **Windows 95/98/NT/2000/ME**

### Minimum Recommended Hardware

400 MHz Pentium

64 MB RAM

Sound Card with Full-Duplex Audio Support

Microphone

Video Camera

### Software Recommendations

Microsoft Internet Explorer 4.01 or later (*preferred*)

Netscape Navigator 6.0 or later

(Some earlier version of Netscape may work with Web-4M, but may have trouble with the Access-4M Tunneling option.)

## **Solaris<sup>2</sup>**

### Minimum Recommended Hardware

Ultra-1

64 MB RAM

Sound Card with Full-Duplex Audio Support

Microphone

### Software Recommendations - Java Enabled Web Browser

Netscape Navigator 6.0 or later

## **Linux<sup>2</sup>**

### Minimum Recommended Hardware

400 MHz Pentium

64 MB RAM

Sound Card with Full-Duplex Audio Support

Microphone

### Software Recommendations

Netscape Navigator 6.0 or later

Mandrake, Redhat, Caldera or Suse Linux

## **Mac<sup>1,2</sup>**

### Minimum Recommended Hardware

350MHz G3

64 MB RAM

### Software Recommendations

Microsoft Internet Explorer 5.0 or later with MRJ

Mac OS X or later

## **SunRay<sup>2</sup>**

### Minimum Recommended Hardware

Sound Card with Full-Duplex Audio Support

Microphone



Software Recommendations  
Netscape Navigator 6.0 or later

### **Other<sup>1</sup>**

Since Web-4M uses Java Technology, other platforms with Java Enabled Browsers may run Web-4M but are not support by JDH Technologies

## Server Recommendations

### **Windows NT/2000<sup>®</sup>, 50-100 Simultaneous Users**

This section covers recommendations concerning server hardware for use with Web-4M running on a Windows NT or Windows 2000 server.

Readers should be aware that many aspects of Windows NT and 2000 system configuration will affect the performance of the server, including installed memory, number of CPUs, type and number of disk drive(s), network connection speed and capability of the interface, bus speed, other installed peripherals, and what other software and/or system services are enabled and running on the server machine. For this reason the numbers given in this document should be treated as rough estimates only, with detailed trials on a specific configuration being the only way to determine server capabilities.

#### **Required Software:**

Windows NT Server 4.0 Service Pack 4 (or later), or Windows 2000 Server Edition.  
Microsoft Internet Information Server (IIS) or Apache web server

#### **Server Hardware Recommendations:**

Pentium III or IV– 600 MHz  
256 Mbytes of memory  
100 Mbit Ethernet (or other network) interface  
SCSI (preferably because of their greater speed) or IDE disks. It is impossible to recommend a size for these disks, as the storage requirement will obviously depend on the amount of information being stored for each user, whether users are using Web-4M as their mail client, and how much information is put into the public document library.

A machine of this size should support up to 50 simultaneously connected users, out of a total user list of several hundred. User limit will scale (roughly) with the CPU speed, all other things being equal, so that a 1GHz machine with 512 MB of memory, suitably configured, should support up to 100 simultaneous users.

### **Linux<sup>™</sup>, 50-100 Simultaneous Users**

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This section covers recommendations concerning server hardware for use with Web-4M running Linux Servers. Readers should be aware that many aspects of Linux system configuration will affect the performance of the server, including installed memory, number of CPUs, type and number of disk drive(s), network connection speed and capability of the interface, bus speed, other installed peripherals, and what other software and/or system services are enabled and running on the server machine. For this reason the numbers given in this document should be treated as rough estimates only, with detailed trials on a specific configuration being the only way to determine server capabilities.

**Required Software:**

RedHat® 6.0, Suse® 6.3  
Apache web server (for Linux)

**Server Hardware Recommendations:**

Pentium III or PentiumIV – 600 MHz  
256 Mbytes of memory  
100 Mbit Ethernet (or other network) interface  
SCSI (preferably because of their greater speed) or IDE disks. It is impossible to recommend a size for these disks, as the storage requirement will obviously depend on the amount of information being stored for each user, whether users are using Web-4M as their mail client, and how much information is put into the public document library.

A machine of this size should support up to 50 simultaneously connected users, out of a total user list of several hundred. User limit will scale (roughly) with the CPU speed, all other things being equal, so that a 1GHz machine with 512 MB of memory, suitably configured, should support up to 100 simultaneous users. We recommend Solaris based system for systems larger than this.

## **Solaris® Servers**

This section covers recommendations concerning server hardware for use with Web-4M running on Solaris servers. Readers should be aware that many aspects of Solaris system configuration will affect the performance of the server, including installed memory, number of CPUs, type and number of disk drive(s), network connection speed and capability of the interface, bus speed, other installed peripherals, and what other software and/or system services are enabled and running on the server machine. For this reason the numbers given in this document should be treated as rough estimates only, with detailed trials on a specific configuration being the only way to determine server capabilities.

**Required Software:**

Solaris 2.5.1 or later, with suitable patches  
Solaris webserver or Apache web server (for Solaris).

**Server Hardware Recommendations (High End)**

Solaris 3500 – 6500

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1 – 30 processors  
256 - 8 Gbytes of memory  
100 Mbit - Gigabit Ethernet (or other network) interface  
SCSI disks.

These Solaris multiprocessor machines all use the same processor, but support increasing numbers of processors, I/O and memory. Machines in the 3500 class with a single processor and 512 Mbytes of memory should support between 50 and 100 simultaneous users. A 30 processor 6500 class machine with 4 Gigabytes or memory, a Gigabit Ethernet (or equivalent ATM) interface, and a suitable Internet or intranet connection (see below) should support up to 1000 simultaneous users.

## Network Recommendations

In running a conference with slide shows, chats, whiteboards, and audio, each client connection to Web-4M consumes approximately 20 - 30 Kbit/s of bandwidth. Adding video and Desktop/AppSharing to the conference increases the client's bandwidth requirement to approximately 128 Kbit/s. In order to host 40 simultaneous connections, all participating in audio conferences, the bandwidth requirement is 1.2 Mbit/s, so a T1 line at 1.544 Mbit/s should perform adequately under this load. Approximately 20-25 simultaneous users can collaborate on a T1 conferencing with audio, video, slideshow and Desktop/AppSharing. A T3 line at 45 Mbit/s should be able to handle up to 500-1000 simultaneous users (depending on conferencing mode). An OC-3 (155 Mbit/s) ATM link should support up to 1500-3000 simultaneous users.

One-to-Many conferences with Desktop/AppSharing require a suitable network connection for the presenter. The presenter requires approximate 64 Kbit/s for each conference participant when in using Desktop/Appshare.

Peer to peer Video and App Sharing do not require server bandwidth, but put greater bandwidth demands on the client connections. Although it is possible to operate Video or App Sharing (independently) on a 56Kbit/s connection, it is recommend that users have at least a 128 Kbit/s connection. The bandwidth of the Video tools can be controlled via an Options menu. The bandwidth for App Sharing is affected by the screen resolution of the client machine.

Client, server and bandwidth requirements can vary widely based on hardware and software usage. This whitepaper is intended to be a guide for initial user requirements. Benchmarking your application environment is desirable if accurate and detailed requirements are desired.

*<sup>1</sup> Phone, audio conferencing and App Share are not supported. Under some versions of MacOS problems have been reported. It is recommend that you test your Mac client system to ensure satisfactory performance with your operating environment.*

*<sup>2</sup> Video not supported AppShare client support only.*

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