



## ClockWork Enterprise 5 System Requirements rev 5.2

### Overview

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ClockWork consists of three main software components:

- The ClockWork server application is built on Microsoft WCF technology and provides a central point that all clients connect to;
- The ClockWork client application is a .NET based application installed on the client computers that provides the front-line interface for staff and administrative users. Updates are handled automatically through a web-based update system;
- The ClockWork web application is an asp.NET based application that provides a front-line interface for some functionality to students and instructors. Functionality is provided through various modules built for different purposes.

The online web modules offer complementary services to students and are available on and off campus. They provide a pluggable authentication system for students to use; stand-alone and LDAP / Active Directory modules are built in and a custom plug-in system is available if required.

ClockWork uses a Microsoft Sql Server database as the back-end. Sql Server 2008 Express may be used at no cost if a Sql Server database server is not currently available. The Express version of Sql Server has some limitations when compared with the full version, including a maximum usage of one CPU, a maximum memory usage of

1GB, and a maximum database size of 10 GB. These limitations are not a hindrance for an average ClockWork implementation with 10-50 staff.

## System Requirements

### Application Server

*ClockWork uses Microsoft Windows Communication Foundation (WCF) as the back-end for the application server software. WCF is a free Microsoft component on the server, similar to IIS, and runs in conjunction with IIS.*

Application Server Requirements	
Processor	1GHz or faster recommended
Framework	<ul style="list-style-type: none"> <li>.NET Framework 3.5 Service Pack 1 (SP1)</li> <li>Windows Communication Foundation (WCF) (this is located in the Windows "Add/remove features" area in Windows)</li> <li>IIS 7 or higher</li> </ul>
SSL Certificate	<ul style="list-style-type: none"> <li>Can be the same SSL certificate used for the web modules (below) if the Application Server is on the same machine as the Web Server (this is the recommended setup)</li> </ul>
Memory	1GB or more recommended
Hard Disk	recommended 1 GB of free space or more for installation
Ports <small>(required on client)</small>	808 (TCP) or 80,443 (HTTP). Recommended is TCP.

### Database Server

*ClockWork uses Microsoft Sql Server as the back-end database, and is compatible with any of the 2005 or 2008 versions. The ClockWork database is intended to run from a server that hosts other databases for other applications; an automated backup schedule should be in place. A virtual machine may be used.*

Database Server Requirements	
Software	Microsoft SQL Server 2005 or higher, any edition
Hard Disk	20 GB minimum recommended for data. Actual data space requirements depend on usage. Backups will require additional space. It is recommended to store a copy of backups externally.
Sql Server user	<ul style="list-style-type: none"> <li>One Sql Server user account with dbread and dbwrite permissions on the ClockWork database</li> <li>One Sql Server user account with truncate, create, and alter permissions on the ClockWork database (for installation and upgrading purposes)</li> </ul>

### Web Server

*The ClockWork web modules can be installed on an existing web server along-side other applications. A virtual machine may be used.*

Web Server Requirements	
Processor	1GHz or faster recommended

Server-side language	<ul style="list-style-type: none"> <li>• ASP.NET 3.5 Service Pack 1 (SP1)</li> <li>• IIS 7 or higher</li> </ul>
Operating System	Any operating system that supports the http server and the Server-Side language specified above
Memory	2 GB or more recommended
Hard Disk	250 MB of free space for installation, plus sufficient free hard drive space to allow IIS to run smoothly.
SSL certificate	A signed SSL certificate is required for secure transmission of data over the Internet.

### **Client (Staff computer)**

The client software is installed on each staff computer. The Microsoft .NET Framework 3.5 is a free Microsoft download. ClockWork software updates are provided through a built-in ClockWork-Server-based updating system. Updates are automatically performed at client side and can be controlled/restricted at an administrative level.

Client (Staff) Requirements	
Processor	1GHz or faster recommended
Framework	.NET Framework 3.5 Service Pack (SP1)
Operating System	<ul style="list-style-type: none"> <li>• Windows XP SP2 or later</li> <li>• Vista Home Basic and above</li> <li>• Windows 7 Home Basic and above</li> <li>• Windows 8</li> </ul>
Memory	1 GB or more is recommended
Hard Disk	400 MB of free space or more for installation and updates
Display	SVGA (1024x768) or higher recommended
Other	Microsoft Word 2003 or higher

### **ClockWork Licensing Specifications for IT information**

Each Department that purchases ClockWork will be allowed the following:

1. Install a Test and Production version of the "ClockWork Database", the "ClockWork Server Application", the "ClockWork Web Server".
2. Department may install the "Software Client" on as many computers as they wish. The number of "Concurrent Licenses" purchased will dictate how many users can connect to ClockWork at the same time.