



# Hardware, Software, and Telecommunications Overview

## *Document Revision History*

Version	Date	Author	Description
1	May 2005	NEHEN Team	Initial Draft
2	June 2006	NEHEN Team	Payer updates
3	February 28, 2007	Laurance Stuntz	Payer Telecommunications updates
4	March 5, 2008 June 3, 2008	Sira Cormier	<i>NEHEN Hub</i> service alternative
5	August 4, 2008	Sira Cormier	RI payer updates
6	August 2009	Bonez Dupre	Reviewed specs. No changes.
7	October 2009	Bonez Dupre	Updated server specifications.
8	September 2010	Bonez Dupre	Updated server specifications to support 5010 releases.
9	May 2011	Bonez Dupre	Updates regarding operating system versions and internet explorer for 2011.x releases

## Recommendations for Hardware & Software

This document outlines the hardware and software specifications for a production environment to support the 2011.x releases coming out this year. Sites may scale down the requirements for test environments.

The NEHEN solution consists of a web-based application (NEHEN Express) and application services that manage and route the EDI transactions with trading partners. The application is I/O intensive and interacts with the database when processing transactions. The software operates on physical or VM servers. The configuration of the VM Server Farm will impact the overall performance of the NEHEN application. If your site decides to use VM, please verify that the VM Server Farm will be able to assign the recommended amount of system resources to the NEHEN application. We recommend a physical server for the SQL Server.

## Application Server Configuration

NEHEN members have typically implemented separate, dedicated, test and production application servers. The test application server may also host the test database, but our recommendation for the production environment is to utilize one machine for the application and a separate machine for the SQL Server database. If the site has an existing dedicated database cluster for the enterprise, the NEHEN database can be hosted in this environment as well. Some sites have setup two servers for the test environment so the servers can be used as backups in case the production servers fail.

The recommended application server configuration is based on the number of transactions that the site submits over one year.

Annual Transaction Volume	RAM	Cores	Minimum Disk Space
Under 5 million	8GBs	Four 3GHz or better cores	150 GBs
5 million to 15 million	8GBs	Eight 3GHz or better cores	300 GBs
15 million to 25 million	16GBs	Sixteen 3GHz or better cores	600 GBs

- The application server should be an enterprise class server.
- The operating system should be Windows 2003 server (32 bit) with the latest service pack or Windows 2008 R2 (64 bit) with the latest service pack. Please note that Windows 2008 will be supported with releases 2011.2 or higher. The 2011.1 release will only be supported on Windows 2003.
- Your site will need to select the appropriate edition based on the amount of RAM that is needed. Windows 2003 Standard edition supports 4GBs of RAM and enterprise edition supports up to 32GBs of RAM. Windows 2008 Standard edition supports 32GBs of RAM and enterprise edition support up to 2TBs of RAM.
- Hyper threading should be enabled if it is available.
- The network card should have full duplex enabled.
- Hard disk space should be in RAID5+1 or better configuration.
- The minimum disk space is the amount of disk space that the NEHEN solution will need. Your site may want to add more disk space depending on your business needs.
- If your site's anticipated annual volume is over 25 million transactions, please contact the NEHEN Technical Support team to discuss the appropriate configuration. In this case, your site may need to use two application servers to support the processing of your transactions.

## ***Database Server Configuration***

A site may setup a dedicated SQL Server for NEHEN or the site may setup the NEHEN database on a shared SQL server. Test and production databases are required to allow installation and testing of new NEHEN releases and configurations.

The recommended database server configurations are based on the number of transactions that a site stores and maintains in one database.

<b>Annual Transaction Volume</b>	<b>RAM</b>	<b>Cores</b>	<b>Minimum Disk Space</b>
Under 5 million	8GBs	Four 3GHz or better cores	500 GBs
5 million to 15 million	8GBs	Eight 3GHz or better cores	750 GBs
15 million to 25 million	16GBs	Sixteen 3GHz or better cores	1 TB

- The database server should be an enterprise class server.
- The operating system should be Windows 2003 server (32 bit) with the latest service pack or Windows 2008 R2 (64 bit) with the latest service pack.
- Your site will need to select the appropriate edition based on the amount of RAM that is needed. Windows 2003 Standard edition supports 4GBs of RAM and enterprise edition supports up to 32GBs of RAM. Windows 2008 Standard edition supports 32GBs of RAM and enterprise edition support up to 2TBs of RAM.
- Hyper threading should be enabled.
- The network card should have full duplex enabled.
- Hard disk space in RAID5+1 or better configuration.
- The minimum disk space is the amount of disk space needed to maintain two years of transaction history and one month of log data. Your site may want to add more disk space if your site plans to retain a longer period of historical data plus space that may be needed for backup purposes and other internal business needs.
- If your site is planning to store over 25 million transactions in the database, please contact the NEHEN Support Team.
- MS SQL Server 2005 with the latest service pack or MS SQL Server 2008 with the latest service pack.

## ***Third Party Software Requirements***

The core software uses third party components to support various application features. The NEHEN member and the NEHEN technical team are responsible for installing the various components. These components must be installed on both the test and production application servers.

### **NEHEN Member**

The member's IT department must install the following software components on the application server prior to the NEHEN software installation process:

- Enable Microsoft Internet Information Services 6.0 and MSMQ
- Install .NET v.1.1 runtime and the .NET v.1.1 SDK (latest service pack should be installed). This component is not needed on Windows 2008.
- Install .NET v.2.0 runtime and the .NET v.2.0 SDK (latest service pack should be installed)
- Install .NET v.3.5 runtime and the .NET v.3.5 SDK (latest service pack should be installed)
- Install .NET v4.0 runtime and the .NET v4.0 SDK (latest service pack should in installed)
- Install the Windows SDK (contains the debug libraries for native code executable)
- Install Sillverlight v.4 runtime plus Silverlight v.3 SDK

### **NEHEN Technical Team**

The NEHEN technical team installs the following software components on the application server during the installation process:

- Logi Reports 9.5.1.4
- Ajax Toolkit
- EDIDev 5.5

EDIDev 5.5 will be used to support 2011.1 in your test environment. This component will not be used with 2011.2. There is no need to install EDIDev on your production application server. It is only needed in your test environment.

### ***NEHEN Express Requirements***

NEHEN Express has been tested with Internet Explorer 7.0 and higher. The NEHEN Technical team recommends that users access NEHEN Express using Internet Explorer.

## ***Windows 2003 Configuration***

This section outlines helpful hints when configuring your Windows 2003 server to support the *NEHEN Express* web-based application.

### ***Helpful Hints***

During the installation process, the NEHEN technical representative will work with your system administrator to make the following changes if needed:

- If NEHEN Express on the application server displays the page not found message or other HTTP errors, your site may need to disable the enhanced security option in Internet Explorer or share the NEHENLite folder under \Program Files\NEHEN.

## ***Windows 2008 Configuration***

Information to this section will be added when information is available.

### ***Telecommunications Requirements***

NEHEN generally installs connectivity to the following payers. Through the DirectConnect program, CSC is building connectivity to many other payers, please contact NEHEN program management for a complete, up-to-date list.

<b>Payer/Information Source</b>	<b>TransactionType</b>	<b>Recommended Connectivity</b>	<b>Supported Alternate Connectivity</b>
Aetna	Eligibility Claim Status Inquiry	HTTP/S over the Internet, no new telecom required	
Blue Cross/Blue Shield of MA	Eligibility Claim Remittance	Virtual Private Network provided via <i>NEHEN Hub</i> service	Virtual Private Network over the Internet directly to the payer
	Claim Status Inquiry Referral	Virtual Private Network provided via <i>NEHEN Hub</i> service	Virtual Private Network over the Internet directly to Emdeon
BMC HealthNet Plan	Eligibility Claim Remittance	HTTP/S over the Internet, no new telecom required	
Cigna	Eligibility Claim Status Inquiry	HTTP/S over the Internet, no new telecom required	
Harvard Pilgrim Health Care	Eligibility Claim Status Inquiry Referral Claim Remittance	Web services over the Internet, no new telecom required	Virtual Private Network over the Internet  Frame relay
Health New England	Eligibility Claim Status Inquiry Claim	Web services over the Internet, no new telecom required	
MassHealth	Eligibility Claim Status Inquiry Claim Remittance	HTTP/S over the Internet, no new telecom required	

<b>Payer/Information Source</b>	<b>TransactionType</b>	<b>Recommended Connectivity</b>	<b>Supported Alternate Connectivity</b>
MedAvant (provides eligibility Connecticutare)	Eligibility	HTTP/S over the Internet, no new telecom required	
MedData (provides eligibility for Fallon and Tricare)	Eligibility	HTTP/S over the Internet, no new telecom required	
Medicare	Eligibility	Virtual Private Network provided via <i>NEHEN Hub</i> service	Frame relay to CMS provided by IVANS (approximately \$1,500/month, can be used for claims, and DDE access too)
	Claim Remittance	Virtual Private Network provided via <i>NEHEN Hub</i> service	Frame relay to NHIC provided by IVANS
Blue Cross/Blue Shield <i>of Rhode Island</i>	Eligibility	HTTP/S over the Internet, no new telecom required	
Medicaid – <i>Rhode Island</i>	Eligibility	HTTP/S over the Internet, no new telecom required	

<b>Payer/Information Source</b>	<b>TransactionType</b>	<b>Recommended Connectivity</b>	<b>Supported Alternate Connectivity</b>
Neighborhood Health Plan	Eligibility Claim Status Inquiry Referral Claim Remittance	Web services over the Internet, no new telecom required	Virtual Private Network over the Internet
Network Health	Eligibility Claim Remittance	Virtual Private Network provided via <i>NEHEN Hub</i> service	Virtual Private Network over the Internet
PostNTrack (Cigna and Oxford)	Eligibility Claim Status	HTTP/S over the Internet, no new telecom required	
Tufts Health Plan	Eligibility Claim Status Inquiry Referral Claim Remittance	Virtual Private Network provided via <i>NEHEN Hub</i> service	Virtual Private Network over the Internet Frame relay