

# MedInsight New Hampshire Comprehensive Health Care Information System

## NHpreprocessor User Guide

Version 3.0

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## Introduction

The NHpreprocessor is used to encrypt ASCII encoded files that contain health care claims data that will be submitted to the state of New Hampshire, Department of Health and Human Services (DHHS). The utility encrypts the specified files, creating an output ASCII encoded file and a zip file. Non-ASCII encoded files are not supported.

## System Requirements and Performance

### **System Requirements**

This application runs on the following 64-bit versions of the Windows operating systems:

- Windows Server 2016
- Windows Server 2012 R2
- Windows 10

In addition, the above operating systems, the MedInsight NHpreprocessor application also supports the Linux operating system (Ubuntu 18.04) (Console mode only).

Regardless of the system being used, the most recent service pack must be installed. The application requires the system to have Microsoft .NET Core 3.1 Desktop runtime installed.

### **Performance**

The performance of the MedInsight NH Preprocessor depends on disk speed, processor speed, and the amount of memory available on the system. Since the application is I/O intensive, storing the input and output files on a network file system is not recommended and will reduce performance significantly.

The amount of memory used by the application is directly related to the number of logical processors available. By default, the application uses a maximum of 8 logical processors when running on a 64-bit OS.

To test the system Milliman used a **64-bit Microsoft Windows Server 2012 R2** with **32 GBs** of memory and **8 logical processors [Intel(R) Xeon(R) CPU E5-2680 0 @ 2.70 GHz (8 vCPU, 4 virtual sockets with dual-core virtual processors)]**. The input and output files were stored on the system's C drive.

Using this system, the length of time (by file type) and maximum memory required for the utility to process various files (employing 8 logical processors) is as follows:

	Member Provider	Medical Claims	Pharmacy Claims	Dental Claims	Member Eligibility
<b>Total Records used for testing</b>	15 Million	20 Million	20 Million	20 Million	20 Million
<b>Total Time</b>	3 min 6 sec	26 min 31 sec	21 min 51 sec	25 min 6 sec	18 min 27 sec
<b>Total Time Excluding Compression Time</b>	1 min 55 sec	8 min 13 sec	6 min 31 sec	7 min 48 sec	6 min 18 sec
<b>Maximum Memory Consumption</b>	3657 MB	7874 MB	5053 MB	5908 MB	5349 MB

We ran same tests on a 64-bit Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-43-generic x86\_64) with 32 GBs of memory, 8 logical processors (Intel(R) Xeon(R) CPU E5-2660 v3 @ 2.60GHz) and the results on this machine were almost similar to Windows machine.

**WARNING:** *If the system does not have sufficient memory, the OS will page memory, and this will decrease the performance significantly. If limited memory is available, the number of logical processors used by the application can be reduced by updating the element MaximumLogicalProcessorsToUse in the file \_Application.xml located in the <Application Data>\Milliman\MedInsight\NHpreprocessor 3.0\Configuration, where <Application Data> is the Windows environment setting (usually set to C:\ProgramData).*

## File Requirements

Files submitted through the NHpreprocessor must be submitted in accordance with New Hampshire Insurance Department (NHID) rules available at <https://nhchis.com/DocumentDelivery/GetFile/17>.

Please note: the only minor modification to these rules is that when asterisks are used in any field values, the entire field should be surrounded by double quotes.

## Installation

### Installation Overview

Upon installation, the MedInsight NH Preprocessor setup program will copy files to the Windows “Program Files” and “Program Data” folders. Assuming a standard installation, the “Program Files” folder will be located at C:\Program Files\Milliman\MedInsight\NHpreprocessor 3.0, and the “Program Data” folder will be located at C:\ProgramData\Milliman\MedInsight\NHpreprocessor 3.0.

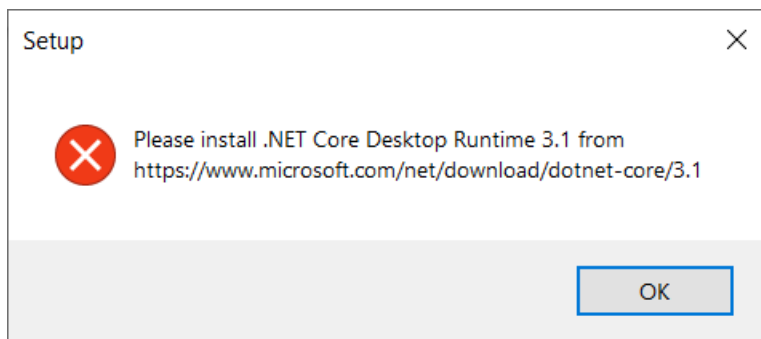
Among other things, the setup program will install:

- A client program titled NHpreprocessor.exe, providing a user interface for the application.
- A console program titled NHpreprocessbatch.dll, which is used for hashing the data from the command line.

### ***Installation Steps for the Windows Operating System***

The user must run the setup program using an account that has local administrator rights. Medinsight NH preprocessor 3.0 will require the .NET Core 3.1 desktop runtime to be installed on the system. To install the application, follow these steps:

1. Copy the NHpreprocessor setup program to a local drive.
2. Right-click on the program, waiting for the context-menu to appear.
3. Launch the program with “Run-As-Administrator” rights.
4. The setup program will verify that Microsoft .NET Core 3.1 desktop runtime is installed. If it’s not installed, the setup program will abort the installation process and will ask to install it. In this case, the setup program will show the link from where the .NET Core 3.1 desktop runtime can be downloaded.

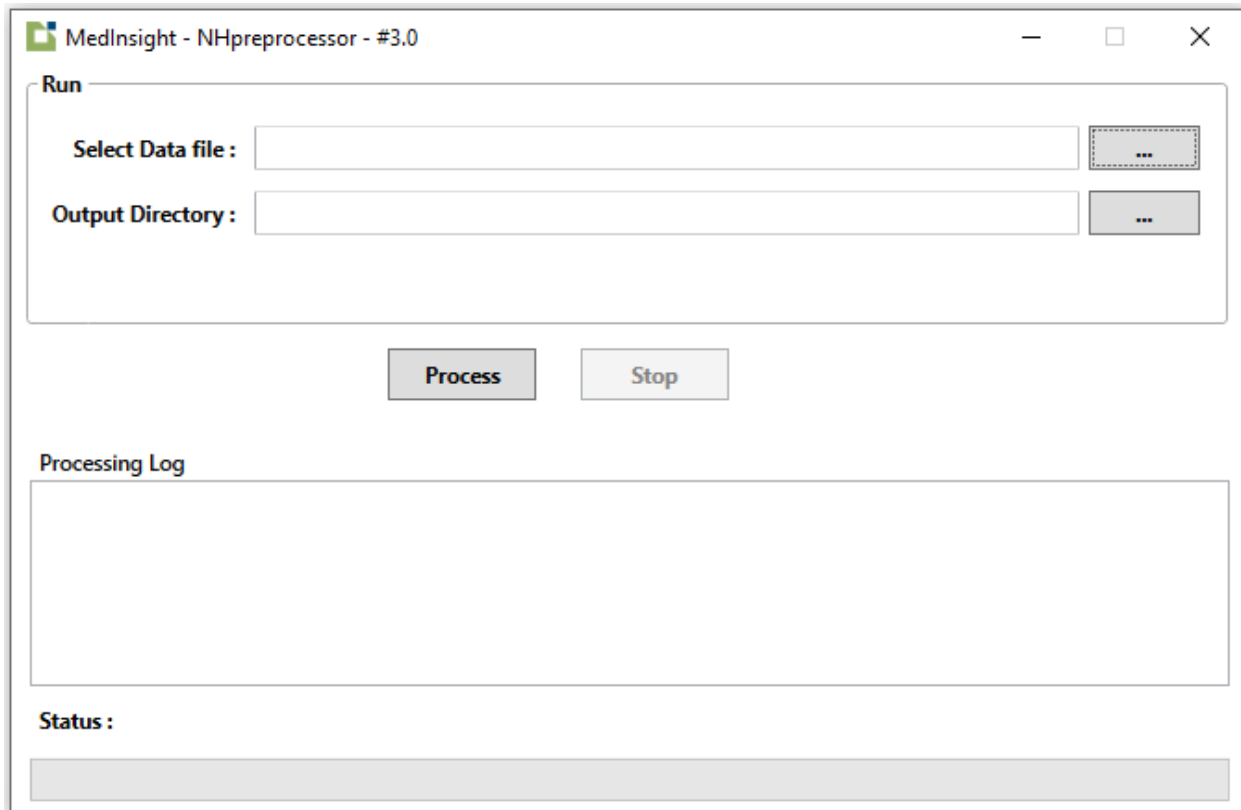


5. The setup program will present the “Welcome to NHpreprocessor 3.0 Setup Wizard” screen. Click on the “Next” command button.



6. The setup program will ask for the location where the application should be installed. If the default path is not acceptable, update the default path by clicking on the “Browse” command button. Once you have updated the path, click on the “Next” command button.
7. The setup program is now ready to install. Click “Install” to continue with the installation or click “Back” if you want to review or change any setting. To begin the installation process, click the “Install” button.
8. The setup program will then complete the installation process. When it completes, the setup program may or may not prompt the user to restart the computer now or later. Select the appropriate time and click on the “Finish” command button.

The installation process is now complete. The user can verify if the program installed successfully by launching the application, and then processing the sample files that come with it. User can start the application from Start → Milliman → NHpreprocessor 3.0.



### ***Silent Mode Installation for the Windows Operating System***

This section explains the installation process of the NHpreprocessor in silent mode using command line arguments. Syntax for the silent mode installation is as follows:

NHpreprocessorSetup.exe /Silent /Launch= /dir=

The definitions and acceptable values for each argument are presented below:

#### **/Silent**

This argument must be passed when installing the NHpreprocessor in silent mode. When the setup is run in silent mode, the user interface of the installer is not displayed but the installation progress window is displayed. No values are passed.

#### **/Launch=True/False**

This argument must be passed to indicate whether the application should launch or not after the installation is complete. Valid values include:

- True: The application will launch after installation is complete.
- False: The application will not launch after installation is complete.

#### **/Dir="**<Path>**"**

This is an optional argument and its default value is "%programFiles%\Milliman\MedInsight\NHpreprocessor 3.0". Users can change the installation path of the application using this argument.

### ***Installation on the Linux Operating System***

For the Linux operating system, the user must have the setup program compatible with the Linux operating system. To install the application on a system having the Linux operating system (Ubuntu 18.04), follow these steps:

1. Place the setup program at a location on the system having the Linux OS.
2. Open the terminal/console with your valid credentials.
3. Change the directory to the location where the setup program has been placed.
4. Run the following command to install the application –

```
sudo dpkg -i <name of the setup file with extension>
```

```
Example: sudo dpkg -i NHpreprocessorSetup.deb
```

5. The application will then be installed in the user directory (for e.g.-  
usr/share/nhpreprocessor-3-0)

## **Uninstalling the MedInsight NHpreprocessor**

### ***Uninstallation on Windows Operating System***

The standard Windows control panel tool can be used to remove the application from the system. Navigate to the Control Panel and select “Uninstall a Program”. From the program list, click on the “MedInsight NHpreprocessor 3.0” application, and then click “Uninstall”.

The application can also be uninstalled by running the **unins000.exe**, which can be found in the same directory where the application is installed. (The default is *C:\Program Files\Milliman\MedInsight\NHpreprocessor 3.0*).

### ***Uninstallation on Linux Operating System***

1. Open the terminal/console with your valid credentials.
2. Run the following command -

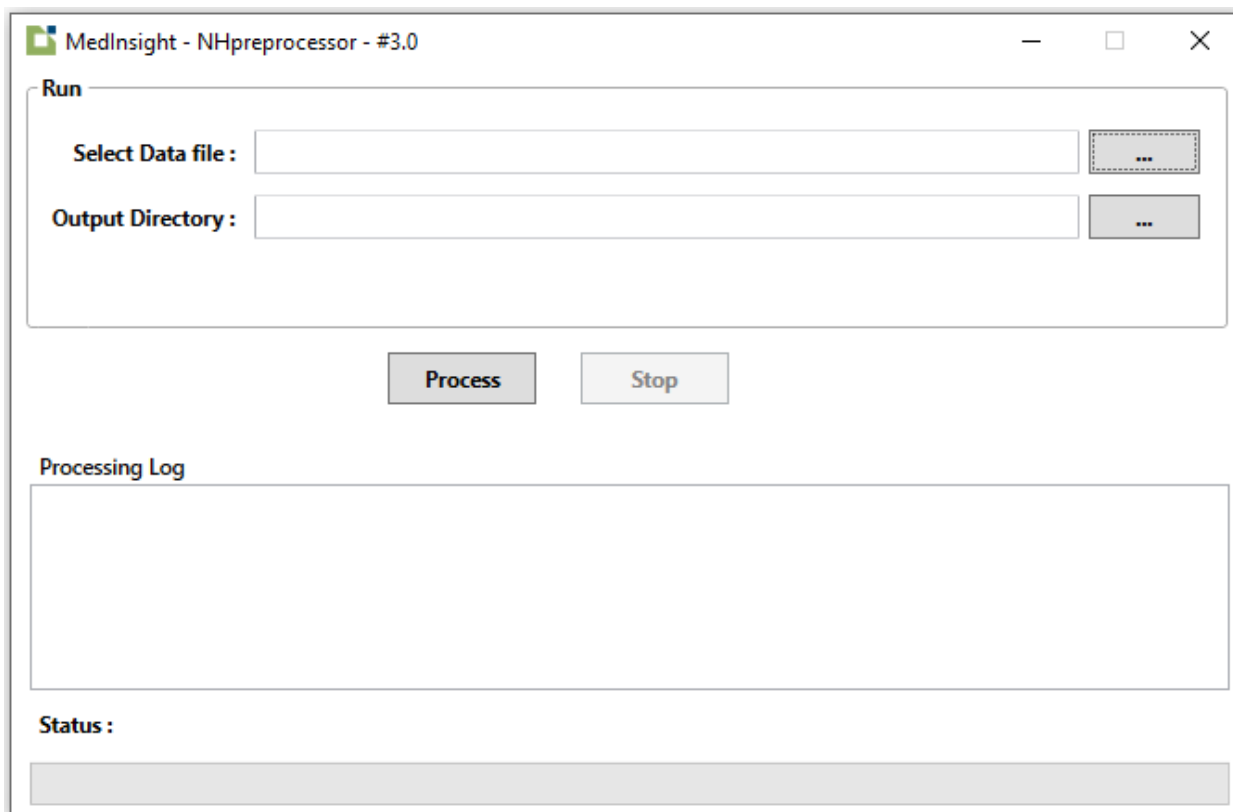
```
Sudo dpkg --remove <name of the application folder>
```

```
Example: sudo dpkg --remove nhpreprocssor-3-0
```

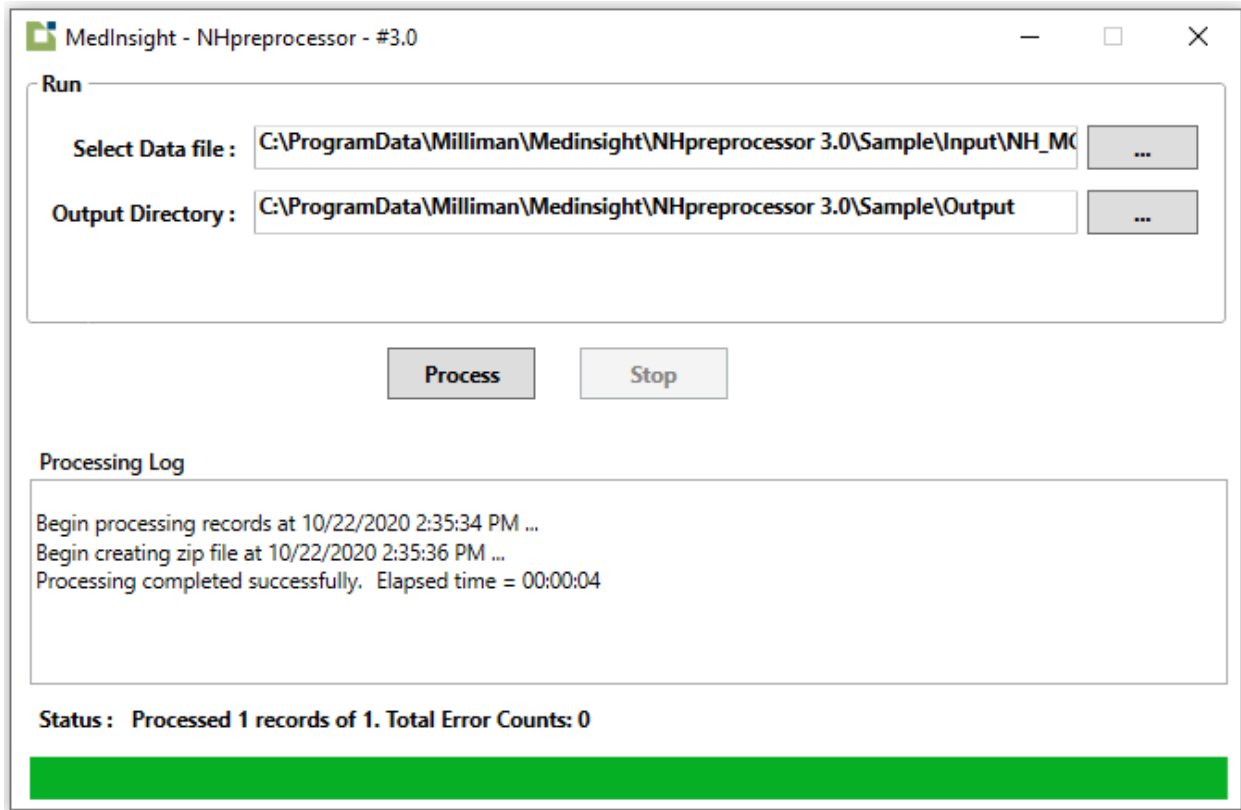
## **Using the NHpreprocessor 3.0**

The user may run the client utility using an account that has standard user rights. The program may be launched by clicking on Start-> Milliman -> NHpreprocessor 3.0. Once the utility has been launched, the user is presented with the following form:





1. Click on the button next to “Select Data file” text box to specify the input file.
2. Click on the button next to “Output Directory” text box to specify the folder where the output file and log file will be created. Note that the utility will fail if the user does not have modify rights on the folder selected.
3. Click on the “Process” button to process the file.
4. When the utility successfully processes the file and creates the zip file, it presents the user with the dialogue box shown below.



- The utility names the output files using the following naming convention: FileTypeProjectNaicBegin\_EndVersion. (e.g., MCNHABCDEVGH200901\_2012061003.txt). Data files are given a .txt extension and zip files are given a .zip extension.

Element	CONTENTS	LENGTH
FILETYPE	ME, MC, PC, DC, MP	char(2)
PROJECT	"NH"	char(2)
NAIC	Alphanumeric, currently up to 8 characters long.	varchar(8)
PERIODBEGIN	YYYYMM	char(6)
PERIODEND	YYYYMM	char(6)
VERSION	Version of the utility used to create the file.	varchar(8)

## Using the Batch Utility

If the user wants to automate the creation of the output file and zip file, the user may run the batch utility NHpreprocessbatch.dll. The user may run the utility using an account that has standard user rights. The utility returns 0 if it completes the encryption process successfully. Otherwise, it returns a non-zero value.

### ***Running the batch on Windows OS***

Follow the below steps to run the application:

1. Open the console with your valid credentials.
2. Change the directory to the location where the application has been installed (C:\Program Files\Milliman\MedInsight\NHpreprocessor 3.0).
3. Use the following command to run the application:

```
dotnet NHpreprocessbatch.dll --  
InputDataFilePath="C:\ProgramData\Milliman\Medinsight\NHpreproces  
sor 3.0\Sample\Input\NH_MCTEST1.txt" --  
OutputPath="C:\ProgramData\Milliman\Medinsight\NHpreprocessor  
3.0\Sample\Output"
```

4. Verify the output at the following location:  
C:\ProgramData\Milliman\Medinsight\NHpreprocessor 3.0\Sample\Output.

### ***Running the batch on Linux***

Follow the below steps to run the application:

1. Open the terminal/console with your valid credentials.
2. Change the directory to the location where the application has been installed (usr/share/nhpreprocessor-3-0)
3. Use the following command to run the application:

```
dotnet NHpreprocessbatch.dll --  
InputDataFilePath=/usr/share/nhpreprocessor-3-  
0/AppData/Sample/Input/NH_DCTEST1.txt --  
OutputPath=/usr/share/nhpreprocessor-3-0/AppData/Sample/Output
```

4. Verify the output at the following location: /usr/share/nhpreprocessor-3-0/output

Note: If there is any error during processing, user will get an error prompt on user interface and in case of batch run it will give nonzero exit code and all the output files for the current run will be deleted. A log file will be generated under "LogFiles" folder, providing detailed information about the error. Also, if the output files are greater than 2 GB in size, application may throw an error while zipping the output files. In this case, user needs to zip the output files manually.

### **File Validations Included in Utility**

The NHpreprocessor performs the following validations when processing each data file:

- Files must be ASCII, text files, with \* (asterisk) delimiters.
- Total records in trailer must match actual records submitted.

- Required fields must be submitted.
- Header and trailer records must be submitted.
- Header and trailer records must have correct values and correct number of fields.
- Payer code in header record must match payer code in trailer record.
- Reporting period in header and trailer records must match.
- Eligibility year/month value in data must fall within reporting period provided in header.
- Paid Date year/month value in data must fall within reporting period provided in header.
- Eligibility year/month value in data must fall within reporting period provided in trailer.
- Paid Date year/month value in data must fall within reporting period provided in trailer.
- Data records must have the correct number of fields.
- Social Security Numbers cannot be '999999999' or '1111111111' or '222222222' or '333333333' or so forth.
- The data can be any ASCII character, with the following exceptions:
  - A field that contains one or more asterisks must be surrounded by double quotes.
  - Double quotes are not allowed in the data.

## Trouble Shooting

The client utility presents the user with an “Error Processing File” dialogue box if the data in the file fails one or more data checks. The information presented in the dialogue box can be used to trouble shoot the data issue. Also, the client utility and the batch utility create a log file with each run, which is stored in the output folder specified by the user. The log file contains additional information that may be useful in trouble shooting data issue.

## Production Support

For support, please email [NHCHISsupport@milliman.com](mailto:NHCHISsupport@milliman.com).