

CAADAPTER 4.3

Installation Guide



Center for Biomedical Informatics
and Information Technology

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List	
caAdapter Users Discussion Forum	https://list.nih.gov/archives/caadapter_users-l.html

Application Support	
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About This Guide

This section introduces you to the *caAdapter 4.3 Installation Guide*. Topics in this section include

- *Purpose* on this page
- *About caAdapter* on this page
- *Topics Covered* on page 2
- *Additional References* on page 2
- *Text Conventions Used* on page 2

Purpose

This installation guide outlines the supported configurations and technical installation instructions for caAdapter 4.3. Instructions for validating the caAdapter installation are also included.

About caAdapter

caAdapter (http://ncicb.nci.nih.gov/NCICB/infrastructure/cacore_overview/caadapter) supports data sharing via the HL7 version 3 (v3) messaging standard at the National Cancer Institute Center for Biomedical Informatics and Information Technology (NCI CBIIT) (<http://ncicb.nci.nih.gov>), or any cancer center as part of the cancer Biomedical Informatics Grid (caBIG) (<http://caBIG.nci.nih.gov>) solution.

caAdapter facilitates HL7 v3 message building, parsing, and validation. It offers an open-source platform for enabling healthcare applications to build and parse HL7 v3 messages based on specific message definitions. caAdapter validates vocabulary and integrates with NCI CBIIT cancer Common Ontologic Representation Environment (caCORE) components (<http://ncicb.nci.nih.gov/NCICB/infrastructure>). This supports NCI CBIIT's mission of developing a translational research infrastructure and building a clinical research network by providing a common platform for sharing data.

caAdapter provides users with a graphical user interface (GUI) and runtime engine to map and convert clinical data in various incoming formats to an equivalent target HL7 v3 XML. For more information about caAdapter, see the *caAdapter 4.3 User's Guide*.

Topics Covered

If you are new to caAdapter, read this brief overview, which explains what you will find in each chapter of this guide.

- *Chapter 1, Preparing to Install caAdapter*, on page 4 explains the platforms that caAdapter 4.3 was tested on and required software and environment variable settings.
- *Chapter 2, Downloading and Installing caAdapter*, on page 8 explains how to download and install each distribution of the software.
- *Chapter 3, Verifying Installation*, on page 10 explains how to verify that you have correctly installed the binary, source, and Windows distributions of caAdapter, as well as how to acquire the files required to run HL7-related functions.

Additional References

You can find technical documentation for caAdapter at the following location:

http://ncicb-dev.nci.nih.gov/infrastructure/cacore_overview/caadapter/indexContent/docs/caAdapter_Documentation

- *caAdapter Core Engine Architecture*
- *caAdapter Architecture Diagram*
- *caAdapter Release Notes*
- *caAdapter User's Guide*
- *caAdapter Quick Start Mapping Guide*
- *caAdapter Design Document*
- caAdapter Javadocs

Text Conventions Used

This section explains conventions used in this guide. The various typefaces represent interface components, keyboard shortcuts, toolbar buttons, dialog box options, and text that you type.

Convention	Description	Example
Bold	Highlights names of option buttons, check boxes, drop-down menus, menu commands, command buttons, or icons.	Click Search .
<u>URL</u>	Indicates a Web address.	http://domain.com
text in SMALL CAPS	Indicates a keyboard shortcut.	Press ENTER.
text in SMALL CAPS + text in SMALL CAPS	Indicates keys that are pressed simultaneously.	Press SHIFT + CTRL.

Convention	Description	Example
<i>Italics</i>	Highlights references to other documents, sections, figures, and tables.	See <i>Figure 4.5</i> .
<i>Italic boldface</i> <i>monospace type</i>	Represents text that you type.	In the New Subset text box, enter <i>Proprietary Proteins.</i>
Note:	Highlights information of particular importance.	Note: This concept is used throughout this document.
{ }	Surrounds replaceable items.	Replace {last name, first name} with the Principal Investigator's name.

Chapter 1 Preparing to Install caAdapter

Before installing caAdapter, you must confirm that your system platform has sufficient resources, install prerequisite software, and set environment variables.

This chapter includes the following topics:

- *caAdapter 4.3 Tested Platforms* on this page
- *caAdapter Software Requirements* on page 5
- *Ant Required for Source Distribution* on page 6

caAdapter 4.3 Tested Platforms

caAdapter 4.3 has been tested at NCI CBIIT on the following system platforms with the stated resources.

	NCI CBIIT Windows Server	NCI CBIIT Linux App Server
Model	DELL Optiplex GX270	HP Proliant ML 330
CPU	1 x Intel® Pentium™ 2.8 GHz	1 x Intel® Xeon™ Processor 2.80 GHz
Memory	3.2 GB	4 GB
Local Disk	System = 40 GB	System = 2 x 36 GB (RAID 1) Data = 2 x 146 (RAID 1)
Network	100mb / full duplex	100mb / full duplex
OS	Windows XP	Red Hat Linux ES 3
Resolution (Recommended)	1280 x 1024 1024 x 768	1600x1200 1400x1050 1280x960 1280x864
Resolution (NOT Recommended)	800 x 600 640 x 480	800 x 600 640 x 480

Table 1-1. caAdapter Tested Platforms and Resources

caAdapter Software Requirements

Table 1-2 on page 5 contains detailed information on the software that must be installed prior to installing all distributions (binary, source, and Windows) of caAdapter. The versions listed below are in accordance with the NCI CBIIT technology stack. You must visit each site of the third-party software to review the license agreement prior to using that software with caAdapter.

Software	Version	Description/URL	Directory
Java 2 Platform Enterprise Edition (J2EE) or Standard Edition (J2SE)	1.5.0_04	The J2SE Software Development Kit (SDK) supports creating J2SE applications. http://java.sun.com/j2se/	If your root directory in Windows is C:\, then install to the C:\jdk1.5.0_04 Java home directory.
JGraph	5.10.1	JGraph is an open source Java graph library for the visualization and layout of graphs. http://www.jgraph.com/downloads.html	Copy jgraph.jar to caAdapter lib directory.
JAXB	2.0 or later	The JAXB Standard Implementation project at Java.Net delivers a production-quality implementation of the JAXB APIs. This implementation is also the Reference Implementation for the specification. https://jaxb.dev.java.net	<ol style="list-style-type: none"> 1. Go to https://jaxb.dev.java.net and click the Download button. 2. Download the binary or source distribution jar file. 3. Follow the instructions on the screen to execute the jar file. 4. Copy jaxb-api.jar and jsr173_1.0_api.jar to the caAdapter lib directory.

Table 1-2. Required Software for All caAdapter Distributions

Adding the JAVA_HOME Variable

For all distributions of caAdapter, verify that the JAVA_HOME environment variable is set and add it to your PATH. Perform the following steps to do this in Windows:

Step	Action
1	Right-click My Computer > Properties and select the Advanced tab.
2	Click the Environment Variables button.
3	JAVA_HOME must be listed in the User variables or System variables section of the dialog box. To add a new variable, click the New button below either section.

Step	Action
4	In the New User Variable dialog box, add the Variable and Variable Value for your home directory. Examples: Variable = JAVA_HOME; Variable Value = C:\jdk1.5.0_04
5	Find the PATH environment variable, double-click it or click the Edit button and add %JAVA_HOME%\bin to the end of its value. Click all OK buttons to confirm the changes.
6	To verify that the PATH statement listed in the Environment Variables dialog box includes JAVA_HOME, open a command window (Start > Command Prompt). Type path at the prompt and then press Enter to display your path. For example, C:\jdk1.5.0_04 should be at the end of your path. If you were successful, you can run java anywhere in your system. To verify the java version type java -version at the command prompt.

Ant Required for Source Distribution

If you are installing source code, you must download and install Ant, which is not included with caAdapter. Table 1-3 contains detailed information about Ant and where to download it. The version is in accordance with the NCI CBIIT technology stack.

Software	Version	Description/URL	Example Directory
Ant	1.6.2	Apache Ant is a Java-based build tool http://ant.apache.org/	If your root directory in Windows is C:\, then install to C:\apache-ant-1.6.2 Ant home directory

Table 1-3. Required Software for caAdapter Source Distribution

Adding the ANT_HOME Variable

Verify that the ANT_HOME environment variable is set and add it to your PATH. Perform the following steps to do this in Windows:


Step	Action
1	Right click My Computer > Properties and select the Advanced tab.
2	Click the Environment Variables button.
3	ANT_HOME must be listed in the User variables or System variables section of the dialog box. To add a new variable, click the New button below either section.
4	In the New User Variable dialog box, add the Variable and Variable Value for your home directories. Examples: Variable = ANT_HOME Variable Value = C:\apache-ant-1.6.2
5	Find the PATH environment variable and either double-click it or click the Edit button. Add %ANT_HOME%\bin to the end of its value. Click all OK buttons to confirm the changes.
6	To verify that the PATH statement listed in the Environment Variables dialog box includes ANT_HOME, open a command window (Start > Command Prompt). Type path at the prompt and then press enter to display your path. For example, C:\apache-ant-1.6.2\bin should be at the end of your path. If you were successful, you can run ant anywhere in your system.

Chapter 2 Downloading and Installing caAdapter

This chapter includes the following topics:

- *Upgrading to caAdapter 4.3 from Previous HL7 SDK Versions* on this page
- *Downloading caAdapter* on this page
- *Installing caAdapter* on page 9

Upgrading to caAdapter 4.3 from Previous HL7 SDK Versions

 HL7 SDK Users Upgrading to caAdapter 4.3	<p>All users of previous HL7 SDK versions are encouraged to upgrade to caAdapter 4.3.</p> <p>It is recommended that you uninstall any previous versions of HL7 SDK before installing caAdapter 4.3.</p>
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Downloading caAdapter

Complete the following steps to download caAdapter:

Step	Action				
1	Go to the NCI CBIIT download web site: http://ncicb.nci.nih.gov/download/index.jsp .				
2	Provide your email, name, and institution. Click Enter the Download Area .				
3	Select Download from the caAdapter section. Check the box labeled Checking this box indicates that you agree to the above terms to indicate agreement to the caAdapter license.				
4	<p>Select the appropriate distribution as listed below and save it to a temporary directory on your computer (for example, C:\temp in Windows). The caAdapter software requires the Health Level 7 (HL7) standards and message specification files to perform HL7 transformations. They are not included with any distribution. These specification files are licensed for HL7 members only. Users are required to register their own membership with HL7 and to obtain these files directly from the HL7 organization at http://www.hl7.org.</p> <ul style="list-style-type: none">• Binary Distribution: The caAdapter binary distribution file contains the binary code, Javadocs, Release Notes, example messages, and licenses.<table><tr><th>Binary Zip File Name</th><th>Description</th></tr><tr><td>caadapterv4.3_bin.zip</td><td>Binary file</td></tr></table>• Source Distribution: The caAdapter source distribution file contains the source java code, build.xml, Javadocs, Release Notes, readme.txt,	Binary Zip File Name	Description	caadapterv4.3_bin.zip	Binary file
Binary Zip File Name	Description				
caadapterv4.3_bin.zip	Binary file				

Step	Action				
	example messages, and licenses.				
	<table> <tr> <th>Source Zip File Name</th><th>Description</th></tr> <tr> <td>caadapterv4.3_src.zip</td><td>Source file</td></tr> </table>	Source Zip File Name	Description	caadapterv4.3_src.zip	Source file
Source Zip File Name	Description				
caadapterv4.3_src.zip	Source file				
	Windows Distribution: The caAdapter windows distribution file contains binary code, Release Notes, readme.txt, example messages, and licenses.				
	<table> <tr> <th>Binary Zip File Name</th><th>Description</th></tr> <tr> <td>caadapterv4.3.msi</td><td>Windows file</td></tr> </table>	Binary Zip File Name	Description	caadapterv4.3.msi	Windows file
Binary Zip File Name	Description				
caadapterv4.3.msi	Windows file				

Installing caAdapter

Complete the appropriate steps for your distribution to install caAdapter.

Installing the Source and Binary Distributions

Extract the contents of the caAdapter source or binary distribution zip file to your root directory. For example, if your root directory in Windows is `C:\`, then your caAdapter home directory becomes `C:\caadapter`.

Note: The `caadapter` directory is created for you during installation.

Table 2-1 contains the directory structure after installation.

Installing the Windows Distribution

Double-click the `.msi` file and follow the instructions provided to complete the installation. Table 2-1 below contains the folder structure after installation.

Directory	Contents
build	Binaries (<code>.class</code> files) (only for source distribution and is created at runtime)
conf	Application configuration files
dist	Contains <code>.jar</code> , <code>.war</code> files, and the <code>run.bat</code> file. (Source distribution only)
doc	caAdapter documentation and help system
etc	Important supplementary files (only for source distribution and the its contents will be packed with compiled codes as build the project)
lib	Java libraries and dependencies
hl7_home	HL7 v3 Schema and MIF files. caAdapter 4.3 supports the multi version (normative) of HL7 V3 specification. It is recommended that you create one sub-folder here for each normative.
schemas	HL7 v3 Schema files
src	Source code (<code>.java</code> files) (only for source distribution)
workspace	Default directory where you can save project files. It contains log files and HL7 v3 XML instances. It also contains an <code>examples</code> directory with sample data.

Table 2-1. Directory Structure of caAdapter

Chapter 3 Verifying Installation

This chapter includes the following topics. Perform the appropriate processes for your distribution to confirm that the installation was successful.

- *Verifying the Binary Installation* on this page
- *Verifying the Source Installation* on this page
- *Verifying the Windows Installation* on page 11
- *Verifying Application Resources* on page 11
- *Understanding HL7 Specification Files* on page 11

Verifying the Binary Installation

Perform the following steps to launch caAdapter:

Step	Action
1	In a Command Prompt window, enter <code>cd {home_directory}</code> to go to your home directory (for example, in Windows <code>C:\caadapter</code>).
2	Enter <code>run.bat</code> . The caAdapter application appears.

Verifying the Source Installation

Perform the following steps to launch caAdapter.

Step	Action
1	In a Command Prompt window, enter <code>cd {home_directory}</code> to go to your home directory (for example, in Windows <code>C:\caadapter</code>).
2	Enter <code>ant</code>
3	Enter <code>cd dist</code>
4	Enter <code>run.bat</code> The caAdapter application appears.

Verifying the Windows Installation

Perform the following steps to launch caAdapter.

Step	Action
1	Select Start > caAdapter . The caAdapter application appears.

If you can view the caAdapter user interface, your installation was successful. See the *caAdapter 4.3 User's Guide* for detailed information on using caAdapter.

Verifying Application Resources

After installing caAdapter, edit the modules you would like to use. To do this, open the `conf` folder and edit `caadapter-component.properties` as follows.

```
caadapter.hl7.transformation.activated=true
caadapter.hl7.csv.transformation.activated=true
caadapter.hl7.v2v3.conversion.activated=true
caadapter.web.service.activated=
caadapter.help.menu.activated=true
```

Understanding HL7 Specification Files

caAdapter 4.3 requires HL7 V3 specification files to transfer a CSV data or HL7 v2 message into a HL7 v3 message.

The following steps describe how to load the HL7 specification file and set up the application configuration file to support multiple HL7 normatives.

To use the caAdapter 4.3, you must get the following three resources from the HL7 organization:

- HL7 V3 MIF file (`mif.zip`)
- Coreschemas file folder
- Multicacheschemas file folder

The MIF file defines an individual HL7 v3 message. The coreschema file defines HL7 v3 datatypes.

Only HL7 members may access these resources. See www.hl7.org/membership for membership information.

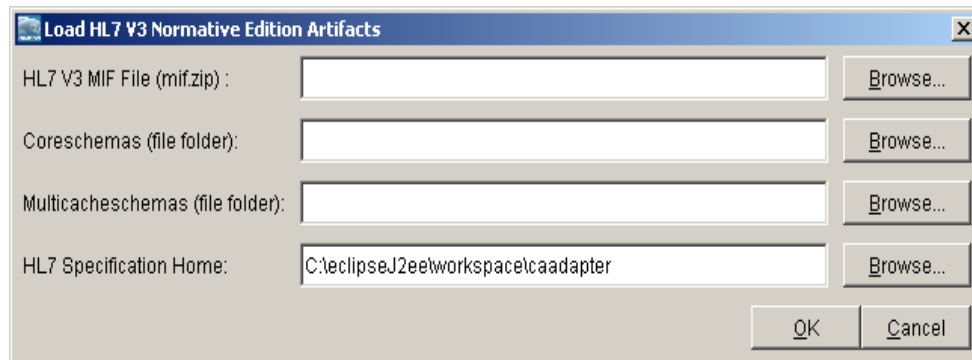
Once you have the HL7 resources, do the following:

1. Copy the resources to the `lib` folder where you installed caAdapter 4.3.
2. Load the resources into caAdapter 4.3. For more information, see *Loading HL7 Normative Edition Artifacts*, below.

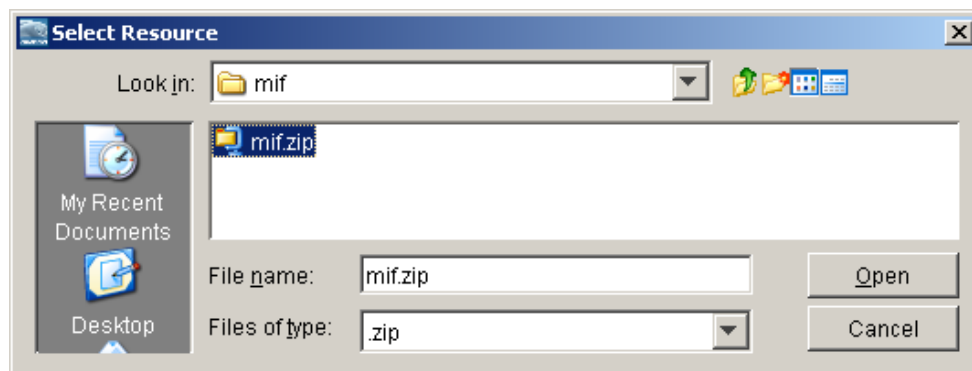
Loading HL7 Normative Edition Artifacts

Do the following to load HL7 v3 normative edition artifacts into caAdapter.

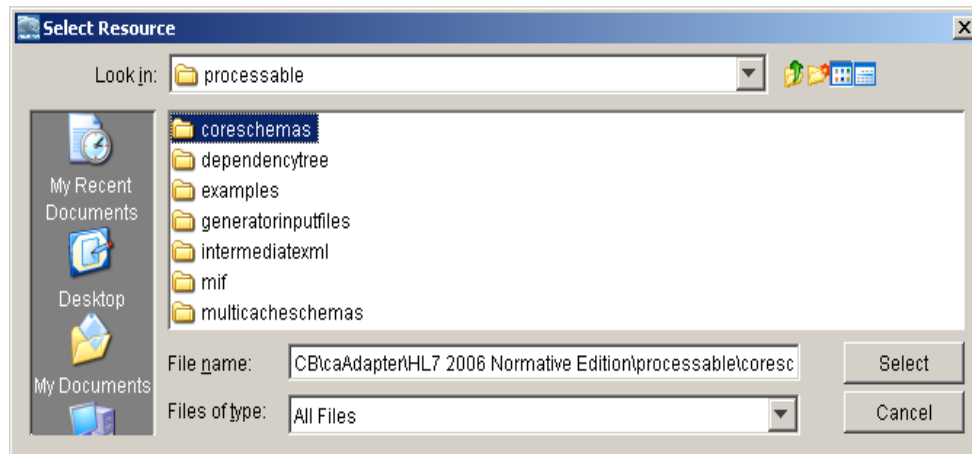
1. Select **Tools > Load HL7 V3 Normative Edition Artifacts**. The Load HL7 V3 Normative Edition Artifacts dialog box appears.



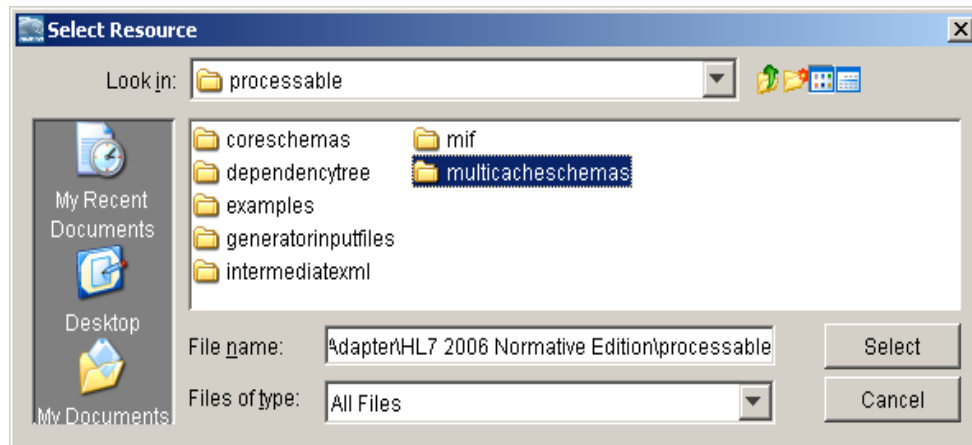
2. Click **Browse** to locate the `mif.zip` file on your computer. The Select Resource dialog box appears. Select it and click **Open**.



- Click **Browse** to locate the `coreschemas` folder on your computer. The Select Resource dialog box appears. Select it and click **Open**.

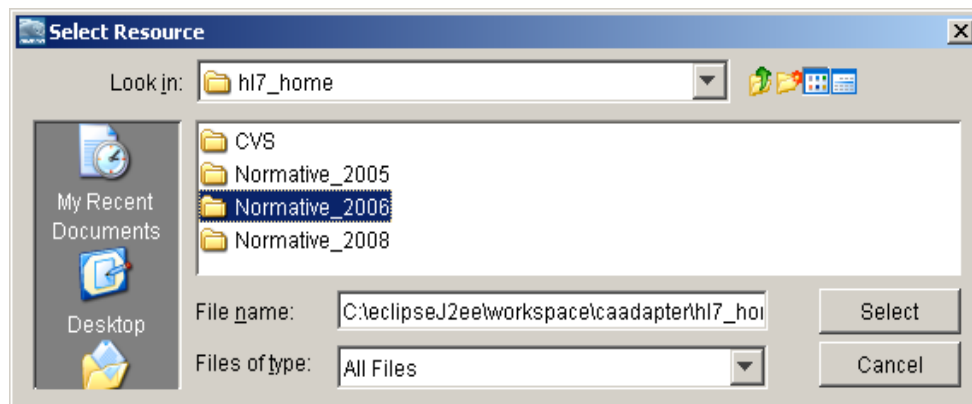


- Click **Browse** to locate the `multicacheschemas` folder on your computer. The Select Resource dialog box appears. Select it and click **Open**.

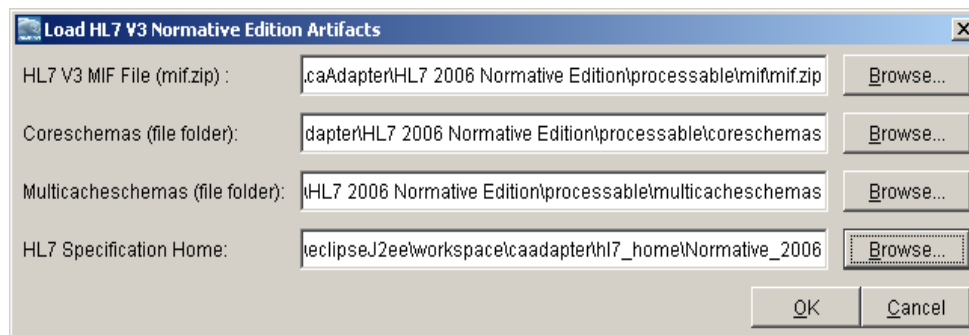


- Click **Browse** to specify the location of the HL7 Specification Home folder on your computer. This is the location where you will store all HL7 artifacts. Locate this folder within your caAdapter installation folder. The recommended folder name is `hl7_home/Normative_YYYY`.

The Select Resource dialog box appears. Select it and click **Open**.

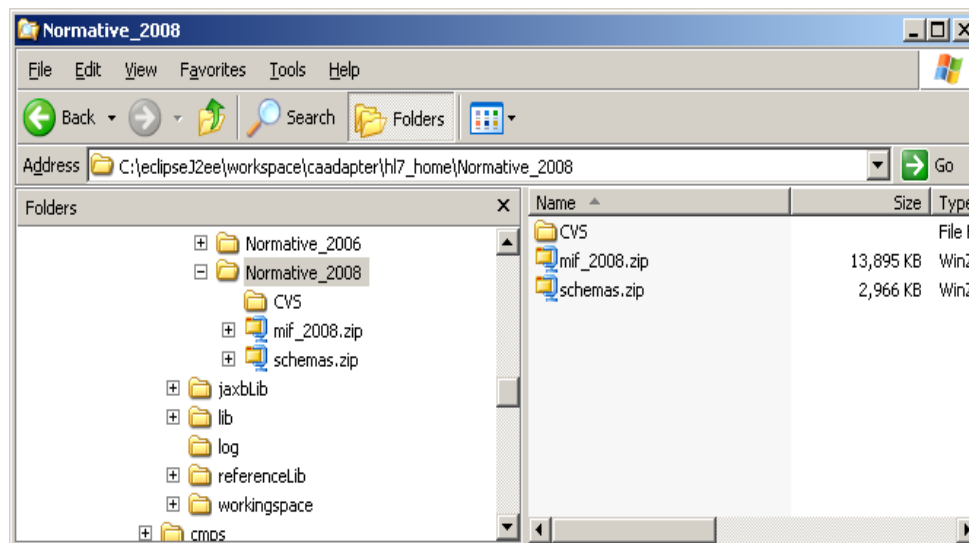


The Load HL7 V3 Normative Edition Artifacts dialog box now lists all of your selections.



6. Click **OK**.

caAdapter begins loading HL7 v3 artifacts. A confirmation message appears when caAdapter has completed the process. Refer to the screen below for an example of what your file system should look like after the artifacts are loaded.



Registering HL7 Normative Edition Artifacts

Since caAdapter supports multiple HL7 normatives, you have the option to load one or more HL7 artifacts (year 2005, year 2006, year 2009). Once the artifacts have been loaded, you must register it with caAdapter as follows:

1. From the `conf` folder, open the `hl7-normative-setting.xml` file.
2. Create the `normative` element within the `root` element.

```
<normative copyrightYear="2008" description="Normative 2008">
  <mifFile>hl7_home/Normative_2008/mif_2008.zip</mifFile>
  <schemaFile>hl7_home/Normative_2008/schemas.zip</schemaFile>
</normative>
```

3. Set the value for the `copyrightYear` attribute of the `normative` element. This value should be same as the `copyrightYear` value in the HL7 MIF file and must be unique in the application.

4. Set the value for the `description` attribute of the `normative` element. This value should describe how to create a new H3S.

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