



Quickly and easily connect your Results Information System with Practice Fusion's Electronic Health Record (EHR) System



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Introduction to Practice Fusion API Client

Practice Fusion API Client is an application that enables vendors to exchange results with Practice Fusion's Electronic Health Record (EHR) platform. The API client service monitors a specified directory on a computer at the site. Every 20 milliseconds the service scans the directory for Health Level Seven (HL7) files older than one minute. If the service finds a file, it performs some validation of its contents and then attempts to connect to the Practice Fusion Results API using credentials provided by Practice Fusion. If it connects successfully, it then sends the file to the API, which performs further validation. If the file passes the validation checks it is then added to the Practice Fusion database and is accessible to healthcare providers. The client service then moves the file on the lab computer to an archive directory and continues monitoring for other files to process. Files with errors are moved to a third directory so that you can examine them and resolve the problems.

The client also features Practice Fusion API Client User Interface (UI), which enables you to configure the settings that define the behavior of the service, as well as to view statistics about files that have been processed.



This document describes how to install, configure, and use Practice Fusion API Client.

Note

If you will not be using Practice Fusion API Client and will instead be invoking the Practice Fusion SOAP or RESTful services, refer to the HL7 Results Specification.



Preparing to Install Practice Fusion API Client

This section contains the following subsections:

- Determining Which Version of Windows You Are Running
- Configuring Folder Permissions
- Verifying and Installing the JRE
- Downloading Practice Fusion
- Installing a File Extraction Program

Figure 1: System Type Property

Determining Which Version of Windows You Are Running

At a couple points throughout this process you will need to know which version of Windows you are running. Do the following to find out:

- 1. In Windows Explorer, right-click "Computer" and select **Properties** from the menu.
- 2. Find the **System type** property about halfway down the page and note the value to the right of it; if it reads "64-bit Operating System" you are running 64-bit Windows. If it says "32-bit Operating System" you are running 32-bit Windows.

Sy	stem	
	Rating:	5.9 Windows Experience Index
	Processor:	Intel(R) Core(TM) i5-2520M CPU @ 2.50GHz 2.50 GHz
	Installed memory (RAM):	8.00 GB (7.89 GB usable)
	System type:	64-bit Operating System
	Pen and Touch:	No Pen or Touch Input is available for this Display

3. Remember which version you are running for later, and close the "Control Panel" window.

Configuring Folder Permissions

The client needs read, write, and execute permissions in the directory where it will read messages from so that it can function. Do the following to create the folder and make sure that it has the necessary permissions:

- 1. In Windows Explorer, select File > New > Folder to create a directories where you want to have the lab client create subdirectories to store the HL7 messages, such as C: \HL7Messages.
- 2. Right-click the directory and select Properties from the menu.
- 3. Click the "Security" tab.
- 4. Click Edit.



5. Confirm that the check boxes for the **Read & execute**, **Read**, and **Write** permissions are all enabled (with a check in them). If any are not enabled, click the check box to enable it.

Figure 5: Required Folder Permissions

General Sharing Security Object name: C:\HL7Me	Previous Versions ssages	Customize
Group or user names:		
& Authenticated Users		
& SYSTEM		
& Administrators (PPF02	66-T420\Administrators	;)
& Users (PPF0266-T420	\Users)	
To change permissions, clic	k Edit.	Edit
Users	Allow	Deny
Full control		*
Modify	~	
Read & execute	~	=
List folder contents	~	
Read	~	
Write	~	-
For special permissions or a	dvanced settings,	Advanced
click Advanced.		

- 6. Click **OK**.
- 7. Click **OK**.

Verifying and Installing the JRE

You can install Practice Fusion API Client on any computer with the Java Runtime Environment (JRE) version 6u37 or later installed on it. For a list of operating systems supported for the version 7u11 JRE, navigate to the following address in a browser:

http://www.oracle.com/technetwork/java/javase/downloads/jdk7-downloads-1880260.html

Verifying Installation of the JRE

If a supported JRE is already installed, do the following to verify the installation:



- 1. Select Start > All Programs > Accessories > Command Prompt.
- 2. Type the following at the command line, then press Enter:

java -version

The command prompt should produce output similar to the following:

```
java version "1.7.0_11"
Java(TM) SE Runtime Environment (build 1.7.0_11-b21)
Java HotSpot(TM) 64-Bit Server VM (build 23.6-b04, mixed mode)
```

If the command prompt does not display such output you must install the JRE.

Installing the JRE

Do the following to install the JRE:

- Navigate to the following website in an internet browser: <u>http://www.oracle.com/technetwork/java/javase/downloads/index.htm</u>
- 2. Click Download underneath "JRE".
- 3. Click the Accept License Agreement radio button.
- 4. Click the download link for the operating system you're running.
- 5. If you're running 64-bit Windows click the following link:

Windows x64	31.44 MB	ire-7u11-windows-x64.exe
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6. If you're running 32-bit Windows click the following link:

Windows x86 Offline 30.02 MB 🛓 jre-7u11-windows-i586.exe

7. At the "Java Setup – Welcome" window click Install.

The "Java Setup – Progress" window is displayed while the JRE is installed.

8. At the "Java Setup - Complete" window click Close.

After installing a supported JRE, follow the instructions in Verifying Installation of the JRE again. If verification still fails, you might need to follow the steps in Appendix A: Configuring JRE Environment Variables.

Downloading Practice Fusion API Client

Practice Fusion API Client is contained in a compressed file.

If you have not already contacted Practice Fusion's Business Development Team to enter into a partnership agreement, navigate to the following address and submit the form there:

http://www.practicefusion.com/pages/partner-contact-us.html



After the partnership relationship has been established, a business development representative will email you the URL where you can download the compressed file.

Installing a File Extraction Program

You must have software installed that is able to extract the compressed file to continue with installation.

Some Windows systems have the ability to extract a file; to determine if yours does, right-click a compressed file in Windows Explorer, then select **Extract All** from the context menu. If this menu item is not available you can install a program such as 7zip, which is available at the following address:

http://www.7zip.org



Installing Practice Fusion API Client

To install Practice Fusion API Client, you extract the compressed file that contains the application to a directory on your system. This section describes both how to perform a new installation of Practice Fusion API Client and how to upgrade an existing installation.

Table 1: API Client Files and Directories lists the files and directories created by extracting the file.

Table 1: API Client Files and Directories

File	Description
labclient-1.18.0.0.jar	The Java file for the client program
labclient-ui-1.18.0.0.jar	The Java file for the client UI
PFLabClient32.exe	The executable that starts the client service on 32-bit Windows
PFLabClient64.exe	The executable that starts the client service on 64-bit Windows
PFLabClientUI32.exe	The executable that starts the user interface for the API client on 32-bit Windows
PFLabClientUI64.exe	The executable that starts the user interface for the API client on 64-bit Windows
\source	This directory contains the source code for both the client service and the API client UI.

Performing a New Installation of Practice Fusion API Client

Do the following to install Practice Fusion API Client and verify the installation:

1. Create a directory to install the application in, such as C:\PFLabClient; configure the directory to have **Read**, **Write**, and **Read & execute** permissions as shown in Figure 2: Security properties of the Practice Fusion API Client installation directory.



Figure 2: Security properties of the Practice Fusion API Client installation directory

eneral Shanng Security	Previous Versions	Customize	
Object name: C:\PFLabCli	ient		
Group or user names:			
& Authenticated Users			
SYSTEM			
& Administrators (PPF026	6-T420\Administrator	s)	
& Users (PPF0266-T420)	Users)		
To change permissions, click	:Edit.	Edit	_
Permissions for Authenticated	1		
Users	Allow	Deny	
Full control			^
Modify	1		
Read & execute	1		
List folder contents	1		
Read	1		
Write	~		Ŧ
For special permissions or ad click Advanced.	vanced settings,	Advanced	ł
Learn about access control a	and permissions		

- 2. Use the program you installed in Installing a File Extraction Program to extract the file you downloaded in Downloading Practice Fusion into the new directory.
- 3. Proceed to the section titled Starting the API Client UI and Service.

Upgrading an Existing Installation of Practice Fusion API Client

Do the following to upgrade Practice Fusion API Client:

- 1. Follow the instructions in Stopping the Client Service to stop the service if it is currently running.
- 2. Delete the contents of the folder where the existing release of Practice Fusion API Client is installed.
- 3. Follow the instructions in Performing a New Installation of Practice Fusion to install the newer release.
- 4. Follow the instructions in Starting the API Client UI and confirm that the proper version is displayed in the lower-right-hand corner of the UI.

The upgraded API Client will automatically load your existing configuration from the previous version.



Note

If you are on Windows and have configured Practice Fusion API Client to run as a Windows service, you must restart the service at this time.



Starting the API Client UI and Service

The API client service is the process that monitors a directory for new HL7 messages and the UI is the tool you use to configure the behavior of the service.

Practice Fusion API Client includes an embedded Jetty server used for communication with the API client UI. Access to the server is restricted to local host access for security purposes. The Jetty server requires an open socket port. The default port is 8383 and can be changed as described in Starting the Client Service with a Windows Shortcut if port 8383 is being used by another process.

Starting the API Client UI

To start the API client UI in Windows Explorer, navigate to the directory where you extracted the compressed file, then double-click either PFLabClientUI32.exe or PFLabClientUI64.exe depending on the version of Windows you are running.

The user interface starts. If the client service is running when you start the UI, the Client Service Status element reads Waiting For Configuration; if it is not running the Client Service Status element reads Offline.



Figure 3: Practice Fusion API Client User Interface

lient Service Status Of	Start Client Service	
		Configure Client
Statistics Errors		
Total Messages Sent	0	
Daily Message Total	0	
Hourly Message Total	0	
Last Message Time	NA	
File Errors	0	
Last File Error Time	NA	
System Errors	0	
Last System Error Time	NA	
Class Empre		

To close the user interface, click **X**.

Starting the API Client Service

To start the client service from the UI, click **Start Client Service**.

Figure 4: "Start Client	Service" button
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Starting the Client Service with a Windows Shortcut

You can also create a shortcut to the PFLabClient32.exe or PFLabClient64.exe executable files to start the service. Do the following to modify the shortcut if you need to use a non-default port:



- 1. Right-click the shortcut and select **Properties** from the context menu.
- 2. Add the -port option with the desired port number at the end of the value in the **Target** field. For example, to use port 9393 in a 64-bit Windows environment the value in the **Target** field would be as shown in Figure 5: "Shortcut Properties" dialog.

General Shortcut Compating PFLabClient64 - Shortcut PFLabClient64 - Shortcut Image: Compating Target type: Application PFLabClient Target location: PFLabClient Image: C:\PFLabClient\PFLabClient64.exe -port Start in: C:\PFLabClient Image: C:\PFLabClient Shortcut key: None Image: C:\PFLabClient Shortcut key: None Image: Compating C	Security	Details	Previous Versions			
PFLabClient64 - Shortcut Farget type: Application Farget location: PFLabClient Farget: C:\PFLabClient\PFLabClient64.exe -port Start in: C:\PFLabClient Start in: C:\PFLabClient Shortcut key: None Run: Normal window Comment: Open File Location	General	Shortcut	Compatibility			
Farget type: Application Farget location: PFLabClient Farget: C:\PFLabClient\PFLabClient64.exe-port Start in: C:\PFLabClient Shortcut key: None Run: Normal window Comment: Open File Location Change Icon Advar	PF	LabClient64 - Shortcut				
Target location: PFLabClient Target: C:\PFLabClient\PFLabClient64.exe -port Start in: C:\PFLabClient Shortcut key: None Run: Nomal window Comment: Open File Location Change Icon Advar	Target type:	Application				
Target: C:\PFLabClient\PFLabClient64.exe -port Start in: C:\PFLabClient Shortcut key: None Run: Normal window Comment: Open File Location Change Icon Advar	Target location:	PFLabClient				
Start in: C:\PFLabClient Shortcut key: None Run: Normal window Comment: Open File Location Change Icon Advar	Target:	C:\PFLabClient\PFLab	Client64.exe -port 9393			
Shortcut key: None Run: Normal window Comment: Open File Location Change Icon Advar	Start in:	C:\PFLabClient				
Run: Normal window Comment: Open File Location Change Icon Advar	Shortcut key:	None				
Comment: Open File Location Change Icon Advar	Run:	Normal window	,			
Open File Location Change Icon Advar	Comment:					
	Open File Lo	cation Change lo	on Advanced			

Figure 5: "Shortcut Properties" dialog

3. Click **OK**.

Waking the Client from Standby

If the client experiences a system error, it enters standby mode and waits for a configurable period of time to resume processing files. To wake the client from standby mode manually instead of waiting for the configured time to pass, click **Wake From Standby** in the UI.

If another system error is encountered the client returns to standby mode.



Figure 6: "Wake From Standby" button

Client Service Status	Standby		Stop Client Service
		(Wake From Standby
			Configure Client

For more information about standby mode and configuring the length of the standby period, see the Practice Fusion API Client Usage Guide.

Stopping the Client Service

To stop the client service, click **Stop Client Service** in the API client UI.

You can also select the java.exe or PFLabClientXX.exe process of the service in Windows Task Manager, then click **End Process**.

Figure 7: Windows Task Manager

Applications	Processes	Services	Performa	nce N	letworking U:	sers	
Image Na	ame	ι	Jser Name	CPU	Memory (Description	
iexplore.	exe	r	mills	00	10,772 K	Internet	
iexplore.	exe *32	r	mills	00	81,396 K	Internet	
iexplore.	exe *32	r	mills	00	47,396 K	Internet	
iexplore.	exe *32	r	mills	00	94,636 K	Internet	
igfxpers.	exe	3r	mills	00	1,312 K	persisten	
igfxtray.	exe	r	mills	00	756 K	igfxTray	(
iusb3mon	.exe *32	r	mills	00	788 K	Intel(R) U	
java.exe		r	mills	00	38,536 K	Java(TM)	
lsass.exe		S	SYSTEM	00	8,304 K	Local Sec	
lsm.exe		5	SYSTEM	00	2,280 K	Local Ses	
lvvsst.ex	e	5	SYSTEM	00	1,556 K	Auto Scro	
McpServi	ce.exe	S	SYSTEM	00	5,296 K	McAfee Cl	
mcservice	e.exe	S	SYSTEM	00	332 K	mcservice	
mcservice	ncservice.exe	5	SYSTEM	00	69,256 K	mcservice	
mcshield.exe		5	SYSTEM	01	58,852 K	McAfee O	-
Show p	rocesses fro	m all users				5	and Process



Configuring a Service to Start Practice Fusion API Client

Practice Fusion recommends that you configure the Practice Fusion API Client service to run as a Windows service so you can manage it remotely and have it restart automatically in the event of a failure. You might decide to start and stop the service manually while you are in testing and configure it to run as a service when you go into production.

Do the following to configure Practice Fusion API Client as a Windows service:

- 1. Select Start > All Programs > Accessories > System Tools > Task Scheduler.
- 2. Select Action > Create Task from the menu bar.
- 3. Do the following at the "Create Task" dialog:
 - 1. Type Start Practice Fusion API Client in the Name field.
 - 2. Click Change User or Group.
 - 3. At the "Select User or Group" dialog, type the name of the user account under which the service should run in the **Enter the object name to select** field.
 - 4. Click **OK**.
 - 5. Click the **Run whether user is logged on or not** radio button.

NOTE

If you select the SYSTEM user account as shown in the screenshot, the **Run whether user is logged on or not** radio button is disabled.

6. Click the **Run with highest privileges** checkbox.



Figure 8: "Create Task" dialog

General In	ggers Actions	Conditions	Settings	
Name:	Start Practice	e Fusion Lab C	lient	
Location:	Υ			
Author:	HQ\rmills			
Description	6			
Security of When run	ning the task, u	se the followi	ng user account:	
NT AUTH	ORITY\SYSTEM			Change User or Group
Run or Registree Registree	ly when user is	logged on		, <u> </u>
💿 Run wł	nether user is lo	gged on or no	t	
Do	not store passv	vord, The task	will only have access to local	computer resources.
🔽 Run wi	th highest privi	leges		
Hidden	Config	ure for: Wine	dows Vista™, Windows Server	™ 2008 ▼

- 4. Click the "Triggers" tab, click **New**, and do the following:
 - 1. Select At startup from the Begin the task drop-down menu.
 - 2. Select the **Delay task for** check box.
 - 3. Type 5 minutes in the **Delay task for** field (it has a drop-down menu, but does not contain the value "5 minutes" by default, so you will have to type it in).

The delay allows the computer to start in the event of a reboot without Practice Fusion API Client consuming system resources.

- 4. Select the **Repeat task every** check box.
- 5. Type 5 minutes in the Repeat task every field.
- 6. Select Indefinitely from the for a duration of drop-down menu.



Figure 9: "New Trigger" dialog

Settings No additional settings required.	
No additional settings required.	
Advanced settings	
☑ Delay task for: 5 minutes ▼	
✓ Repeat task every: 5 minutes for a duration of: Indefinitely	
Stop all running tasks at end of repetition duration	
📄 Stop task if it runs longer than: 🛛 3 days 🚽	
Activate: 1/28/2013 • 9:42:35 AM • Synchronize across time zones	
Expire: 1/29/2014 Tex 0.42.25 AM	
LI CAPITO 1/20/2014 IF STACES AND IN STACE ACTOSS DIFFERENCES	

7. Click **OK**.

- 5. When returned to the "Create Task" dialog, click the "Actions" tab, click **New**, and do the following:
 - 1. Click New.
 - 2. Type the full path and filename of the Practice Fusion API Client executable in the **Program/script** field.

If the computer is running a 64-bit version of Windows the name of the executable is PFLabClient64.exe. If the computer is running a 32-bit version of Windows the name of the executable is PFLabClient32.exe.

For example, if you extracted the compressed application file to the C:\PFLabClient directory as suggested in this document and the computer is running the 64-bit version of Windows, you would type the following:



C:\PFLabClient\PFLabClient64.exe

3. If you will be running the Practice Fusion API Client service on a port other than the default port 8383, type -port *xxxx* in the **Add arguments (optional)** field, where *xxxx* is the four-digit port number to be used.

Figure 10: "New Action" dialog

w Actior		
You mu	st specify what action this task will perfo	orm.
Action:	Start a program	•
Setting	5	
Progra	m/script:	
C:\PFL	.abClient\PFLabClient64.exe	Browse
Add a	rguments (optional):	
Start in	n (optional):	
		OK Cancel

- 4. Click **OK**.
- 6. When returned to the "Create Task" dialog, click **OK**.
- 7. When returned to the "Task Scheduler" window, click **Task Scheduler Library**.



Figure	11:	"Task	Schedu	ler"	window
---------------	-----	--------------	--------	------	--------

Task Scheduler (Local)	Name		Status Trigger	s	Actions	
ask Scheduler Library	Practice Fus	sion Lab Client	Ready At syste	em startup - A	Task Scheduler Library	-
					🕑 Create Basic Task	
					🐌 Create Task	
					Import Task	
	< <u> </u>			F.	Display All Running Tasks	
	General Trigg	gers Actions	Conditions Set	tings 🚹 🕨	👔 Disable All Tasks History	
	Name:	Practice Fusion	Lab Client	*	📉 New Folder	
	Location:	١			View)
	Author:	HQ\rmills		-	Refresh	
	Description:				👔 Help	
					Selected Item	
					🕨 Run	

8. Select the task you created and confirm that it is configured with the desired settings.

Note

Because the service was configured to start when the computer starts, it will not be running at this point. To start the service now, select **Action > Run** from the menu bar.



Configuring and Using the API Client

At this point, follow the instructions in the Practice Fusion API Client Usage Guide to configure the API client and use it to process HL7 messages.



Appendix A: Configuring JRE Environment Variables

Environment variables are strings that contain information about a computer system. On some systems you must configure environment variables about the JRE installation so that Java programs can run.

After installing the JRE, perform the steps in Verifying Installation of the JRE; if the verification fails, you might need to configure the environment variables; do the following on Windows XP or Windows Server 2003 to configure the environment variables:

1. Determine the path of the bin directory of the JRE installation.

If you accepted the default installation directory it would be C:\Program Files (x86) \jre7\bin for the version 7u11 JRE on a 32-bit Windows system.

If you accepted the default installation directory it would be C:\Program File\jre7\bin for the version 7u11 JRE on a 64-bit Windows system.

If you installed the version 6 JRE the jre7 segments would be jre6.

- 2. In Windows Explorer, right-click **Computer** or **My Computer** depending on the operating system, then select **Properties** from the context menu.
- 3. On Windows 7 or Windows Server 2008 click Advanced System Settings.
- 4. Click the "Advanced" tab.
- 5. Click Environment Variables.
- 6. Select the Path entry in the "System variables" list, then click Edit.



Figure 12: Environment Variables

randore	Value
Path	C:\Program Files\Intel\WiFi\bin\;C:\Prog
TEMP	%USERPROFILE%\AppData\Local\Temp
TMP	%USERPROFILE%\AppData\Local\Temp
	New Edit Delete
	·
/stem variables	
Variable	Value
	Windows NT
OS	
OS Path	C: \Program Files \Common Files \Microsof
OS Path PATHEXT	C:\Program Files\Common Files\Microsof .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;
os Path PATHEXT PROCESSOR_A	C:\Program Files\Common Files\Microsof .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS; AMD64

- 7. Press End.
- 8. Type a semicolon followed by the path of the bin directory of the JRE installation as discovered in step 1.

Figure 13: Editing the path variable

Variable name:	Path
Variable value:	ssCommon\;C:\Program Files\Java\jre7\bir

- 9. Click **OK**.
- 10. Click **OK**.
- 11. Click **OK**.



12. Perform the steps in Verifying Installation of the JRE to confirm that the environment variable has been configured correctly.