Sabre Java Printing Module (SJPM)

User's Guide

Sabre Airline Solutions

This document provides detailed information for the install, uninstall, operation, configuration, and troubleshooting for SJPM in the Sabre Airline Solutions environment.

USER'S GUIDE

16 October 2014

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General Information 1

1.1 Purpose

This document is a detailed guide for the install, uninstall, operation, configuration, and support of **Sabre Java Printing Module** (SJPM).

This guide includes information on the following (**7**) SJPM Drivers:

"AEAIERIP"	Airline Ticket, Boarding Pass and Bag Tag printing via an **IER IP** printer only.
"ATB2Airline"	Airline Ticket, Boarding Pass and Bag Tag printing.
"File"	Printing to file(s) (**Text or PDF formats**).
"JavaPOS"	JavaPOS printer document printing.
"MQJMS"	IBM MQ data delivery.
"Printer"	**ASCII Data** printing to Hard Copy printers (**Serial and Parallel** interfaces).
"System"	System hardcopy printing.

1.2 Certified and Supported Operating Systems

SJPM is certified for use with the following operating systems. If the operating system is not listed below then it is not certified nor supported at this time.

- **Windows 7 32Bit**
- **Windows 7 64Bit**
- **Windows 8 64 Bit**
- **Windows 8.1 64 Bit**
- **Linux**

Installation

2

2.1 Installation

2.1.1 SJPM's Java Utilization

The Sabre Java Printing Module (SJPM) installation includes Java version **1.7.0_25**. The use of SJPM's installed Java is dependent on the "**JavaPOS Driver**" and the Windows "**SJPM_JAVA_HOME environment variable**" settings.

See also Appendix A and B for recommended and minimum requirements.

Uses PC's Java

- If the SJPM JavaPOS Driver is installed then the PC's installed Java will be used by SJPM. For the JavaPOS printer this should be a minimum version of **1.6**.

Uses SJPM's Java

- If the SJPM JavaPOS Driver is not installed then SJPM's installed Java will be used by SJPM.

Uses SJPM_JAVA_HOME environment variable's Java

- If the "**SJPM_JAVA_HOME environment variable**" is set and configured in Windows; the Java.exe that is in "**%SJPM_JAVA_HOME%/bin**" will be used.

Possible Error Conditions:

1) If Java is ***not*** installed and the SJPM JavaPOS Driver is selected to be installed. The SJPM JavaPOS Driver requires that Java version **1.6** minimum be installed on the PC and does not use SJPM's Java.

2) If the "**SJPM_JAVA_HOME environment variable**" is pointing to a Java version which is older than Java version **1.6**.
SJPM requires a Java version **1.6** minimum.

2.1.2 SJPM's Installation Options

SJPM can be installed one of two methods:

- **Typical**

  The Typical method installs the SJPM Client, Server and all drivers except for the "**JavaPOS**" driver.

- **Custom**

  The Custom method allows for custom component selection and installation. This method should be used to install only the SJPM device drivers you want to be visible and available for use in the SJPM device type drop down list in the "**SJPM – Add Device**" popup window (displays when the "**New**" button in the SJPM Client GUI is clicked).

2.1.3 SJPM's Upgrade Functionality

When installing a newer version of SJPM; SJPM's automatic upgrade functionality eliminates the need to uninstall the previous version of SJPM. All devices and configurations are saved and migrated to the new SJPM installation version automatically.

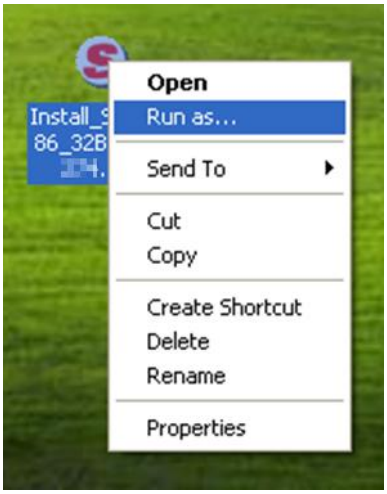
2.1.4 Running the SJPM Installation as an Administrator

In certain cases, e.g. when the current user is not an Administrator, SJPM must be installed as an Administrator using the Windows "**Run as…**" feature. This section describes the process for **Windows XP SP3** 32 Bit, **Windows 7** 32 Bit / 64 Bit, and **Windows 8** 64 Bit.

2.1.4.1 Windows XP SP3 32 Bit

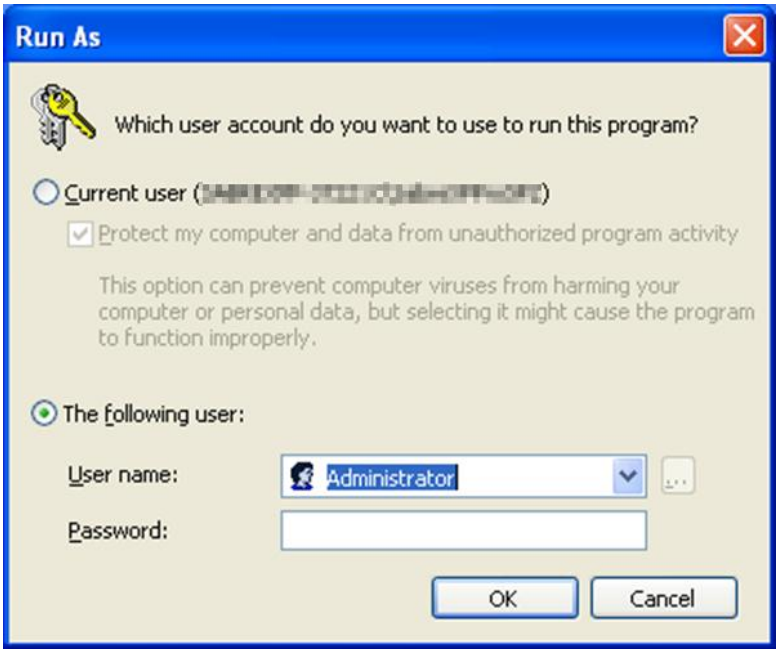
To run the SJPM installation exe (**Example:** "Install_SJPM_AS_x86_32Bit_x.x.x.exe") as an Administrator on **Windows XP SP3** 32 Bit, perform the following steps:

1. Right click on the SJPM installation exe file and then left click on the "**Run as…**" menu item.



2. The "**Run As**" window will appear.

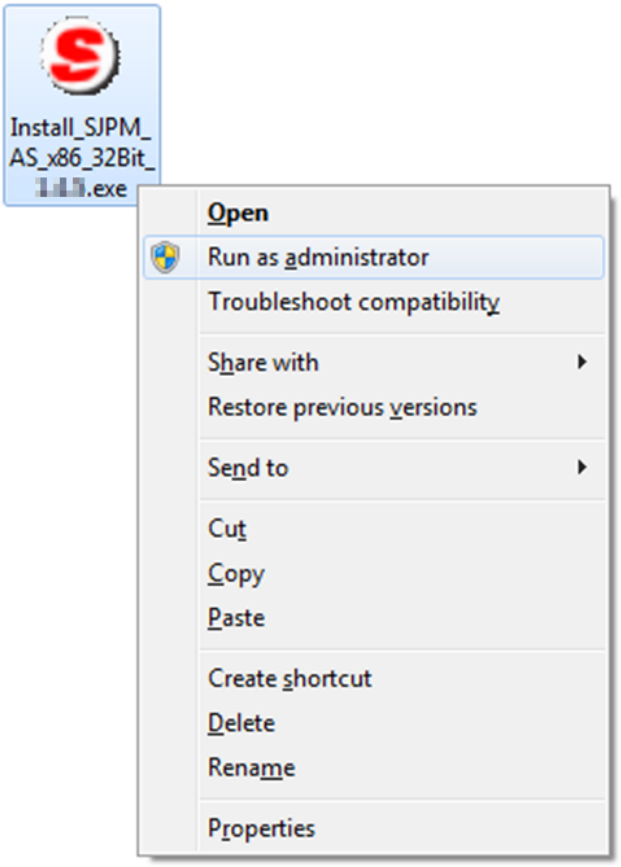
3. Click on the "**The following user:**" radio button. Click on the "**User name:**" drop down to select the user. Type the password into the "**Password:**" field. Click on the "**OK**" button when done.



2.1.4.2 Windows 7 32 Bit / 64 Bit and Windows 8 64 Bit

To run the SJPM installation exe (**Example:** "Install_SJPM_AS_x86_32Bit_x.x.x.exe") as an Administrator on **Windows 7** 32 Bit / 64 Bit and **Windows 8** 64 Bit, perform the following steps:

1. Right click on the SJPM installation exe file and then left click on the "**Run as administrator**" menu item.



2.1.5 Typical Installation

This section describes SJPM's "**Typical**" installation. The "**Typical**" installation of the SJPM installer installs the **SJPM Client**, **SJPM Server** and the following SJPM drivers:

AEAIERIP

ATB2Airline

File

MQJMS

Printer

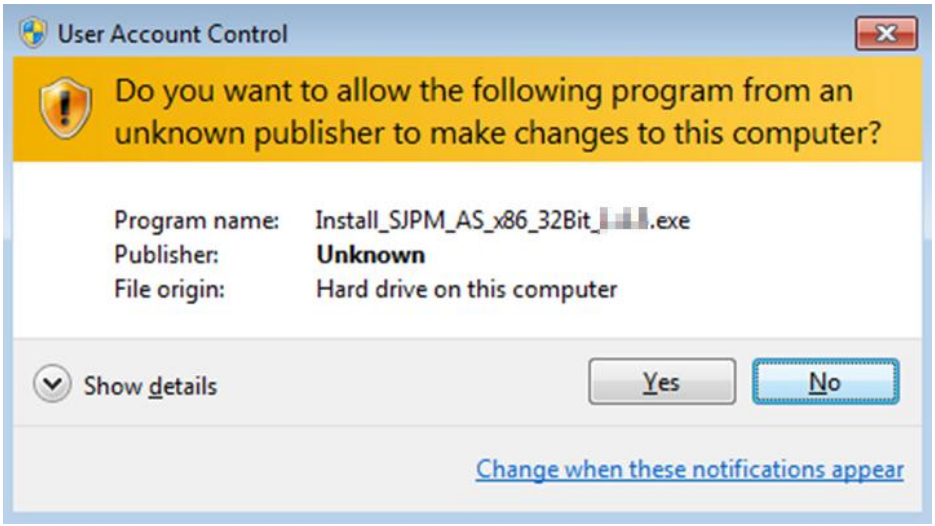
System

Note: With the "**Typical**" installation the "**JavaPOS**" driver IS NOT installed.

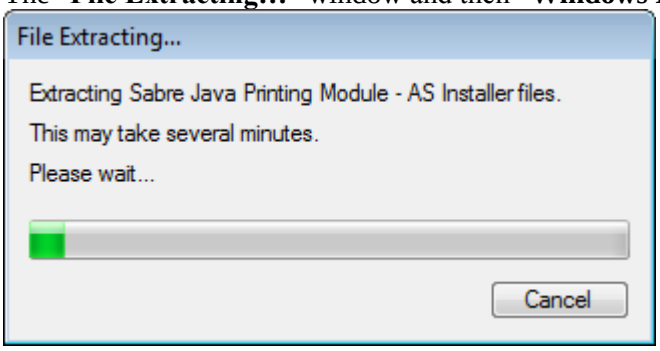
To install the "**JavaPOS**" driver use the "**Custom**" installation method.

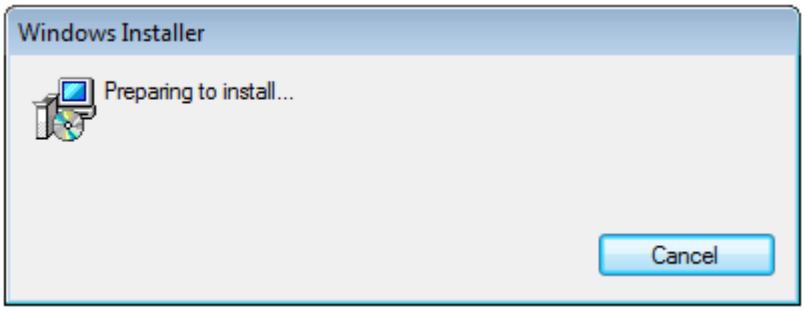
1. Right click on the Sabre Java Printing Module (SJPM) installation executable file (**Example:** "Install_SJPM_AS_x86_32Bit_x.x.x.exe") and then select the "**Run as…**" or "**Run as administrator**" menu item according to the operating system you are using.

   Windows 7 and Windows 8 Operating Systems:
   If you see the following window click on the "**Yes**" button:

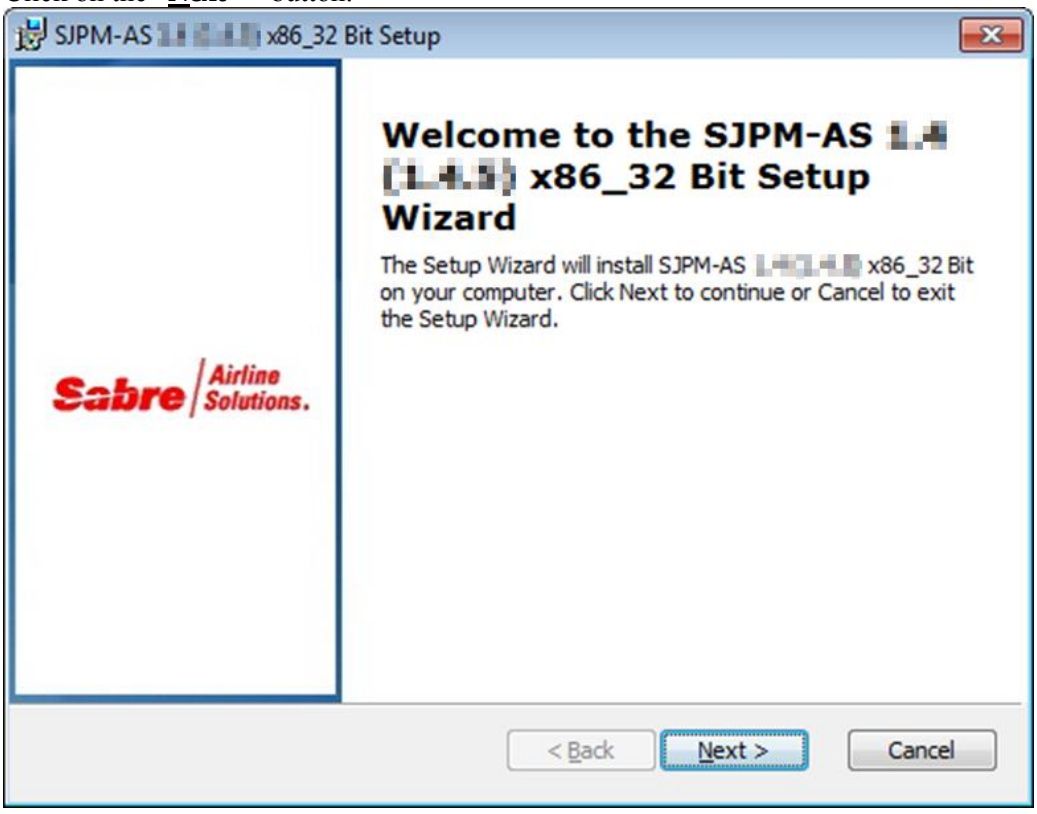


The "**File Extracting…**" window and then "**Windows Installer**" window will appear:

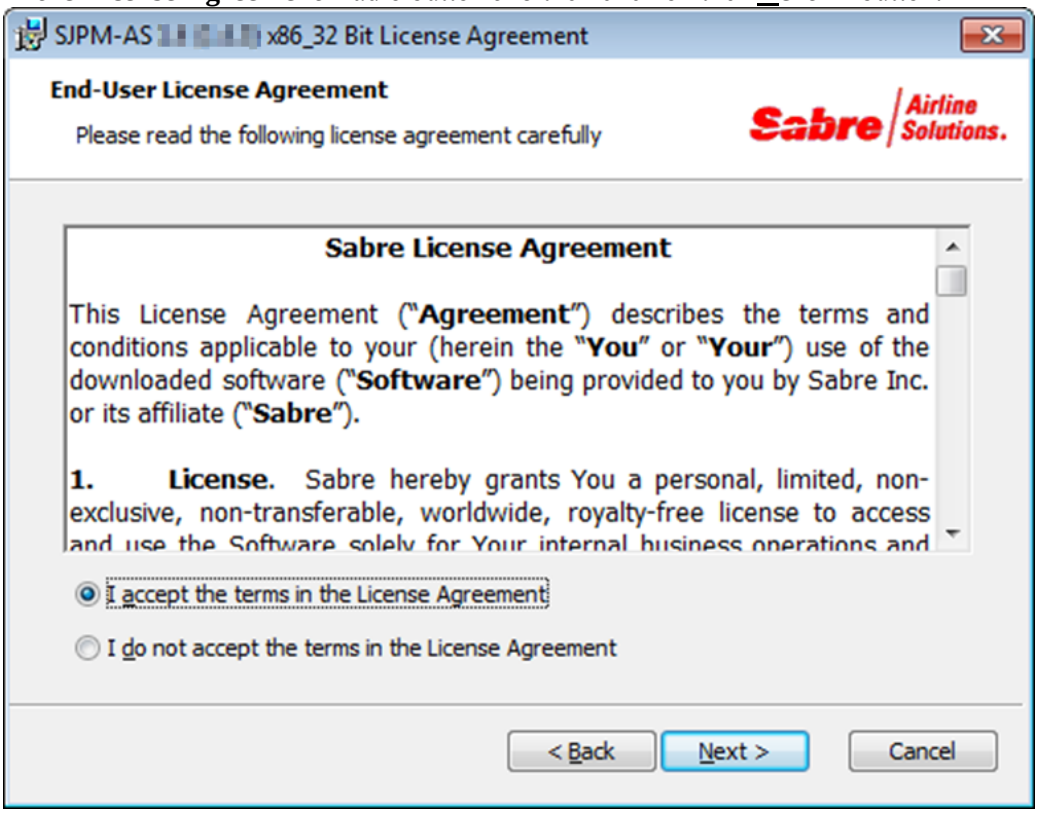




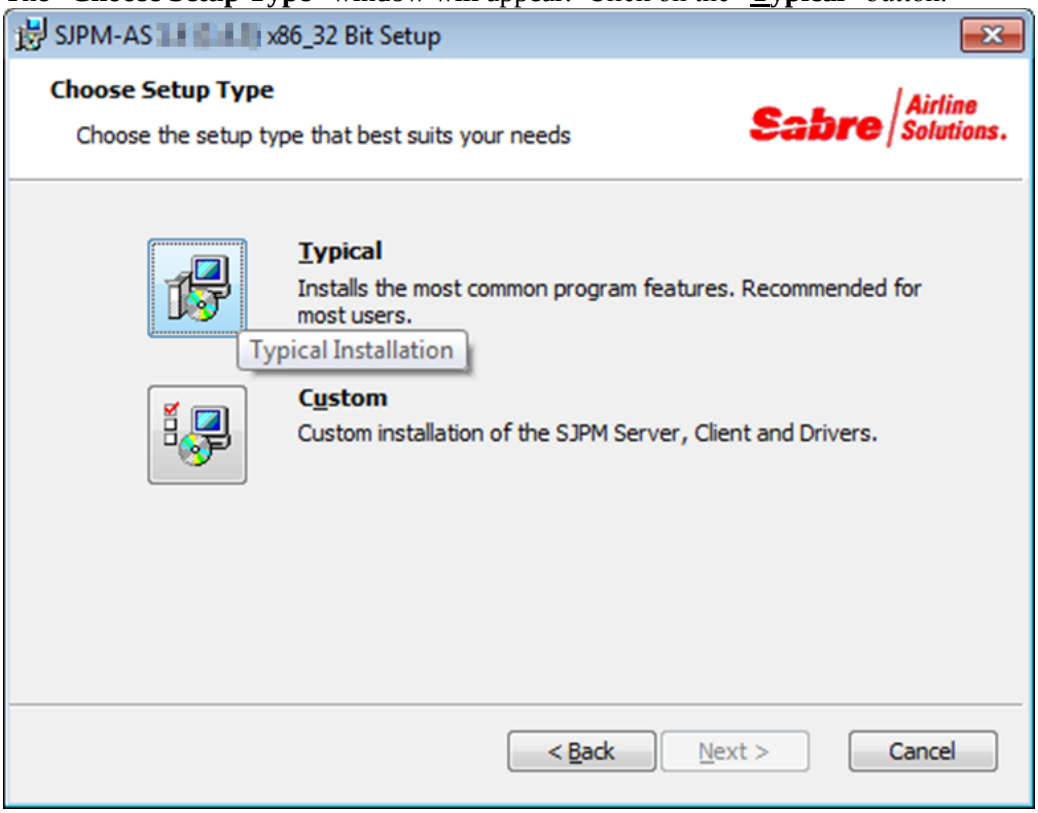
After file extraction and installation preparation the "**SJPM Setup**" window will appear. Click on the "**Next >**" button.



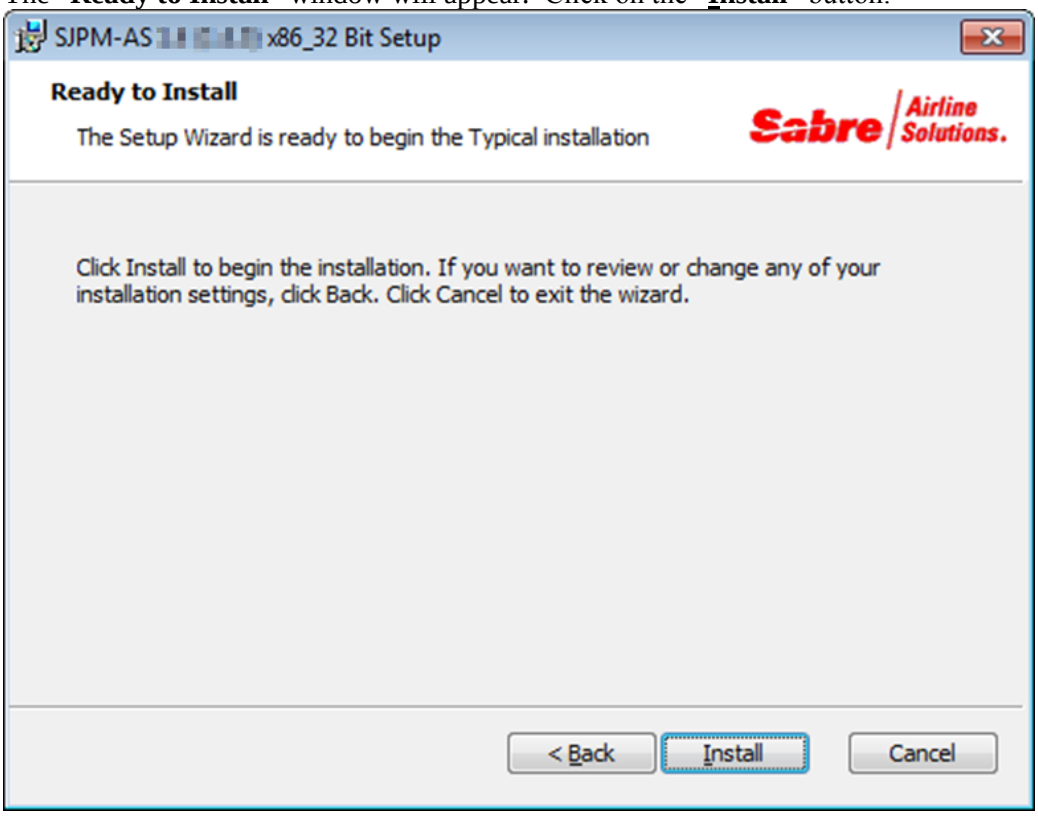
2. The "**End-User License Agreement**" window will appear. Click on the "**I accept the terms in the License Agreement**" radio button and then click on the "**Next >**" button.



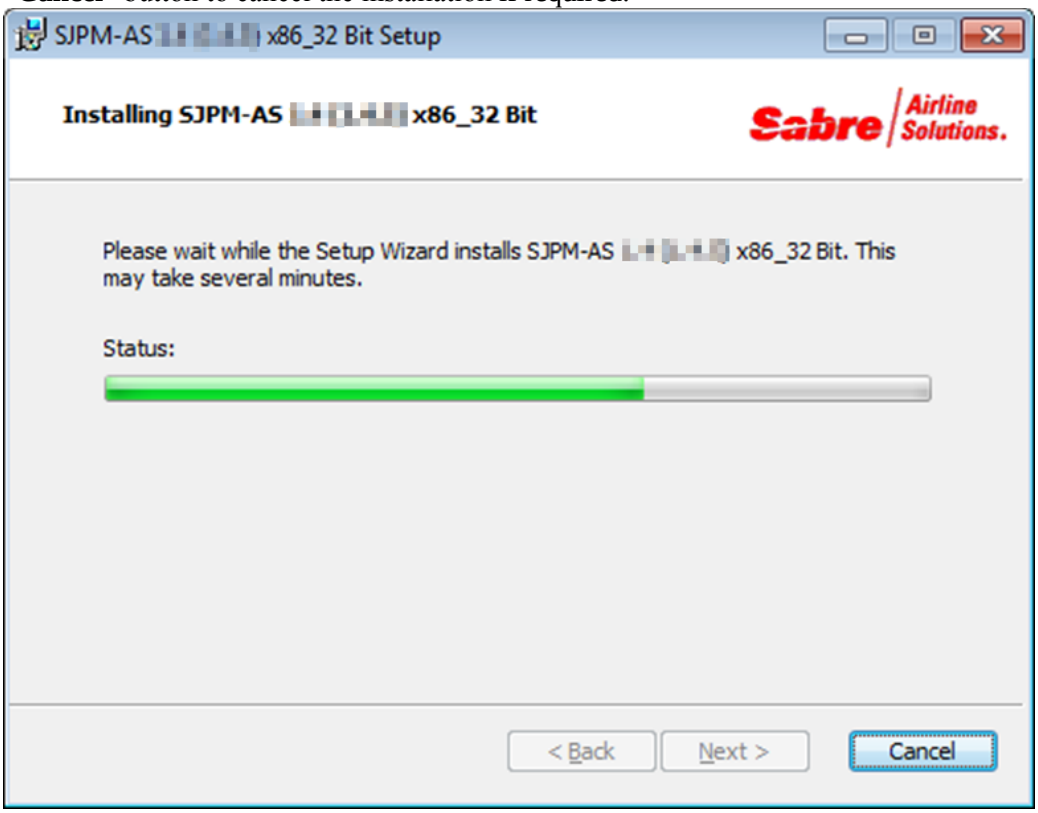
3. The "**Choose Setup Type**" window will appear. Click on the "**Typical**" button.



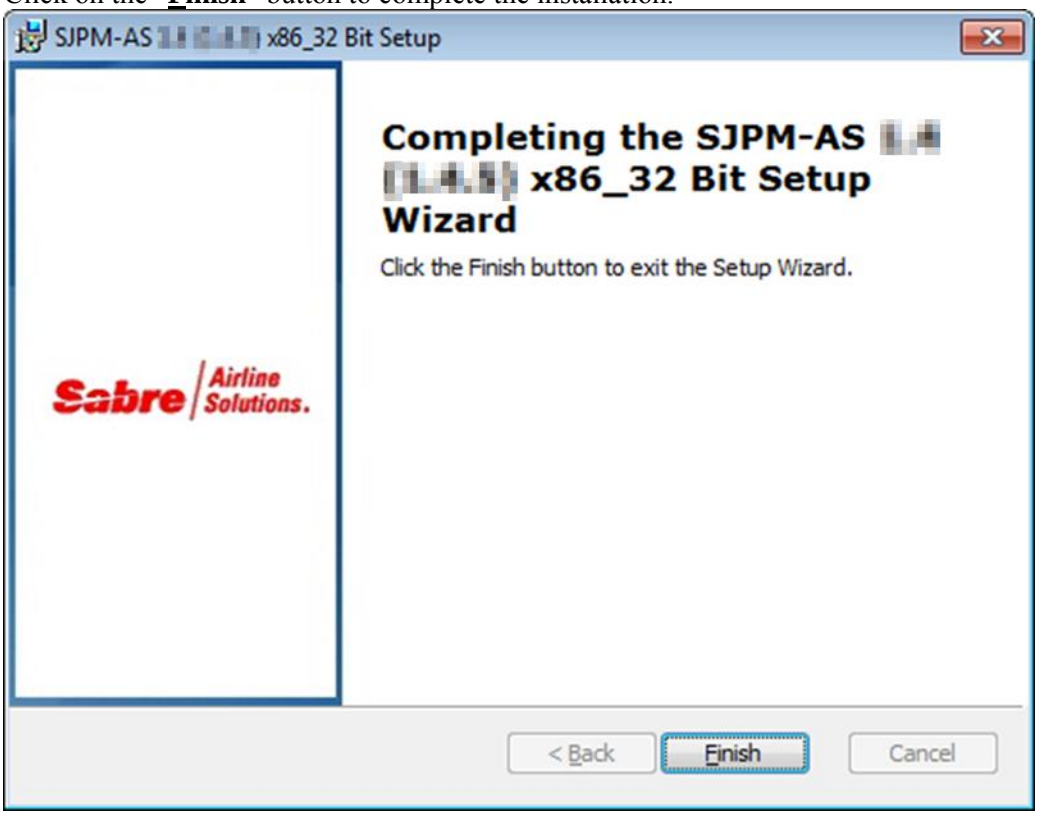
4. The "**Ready to Install**" window will appear. Click on the "**Install**" button.



5. The "**Installing SJPM-AS x.x (x.x.x) x86_32 Bit**" window will appear. Click on the "**Cancel**" button to cancel the installation if required.



6. Click on the "**Finish**" button to complete the installation.



2.1.6 Custom Installation

This section describes SJPM's "**Custom**" installation. The "**Custom**" installation of the SJPM installer allows selection of the "**Client**" installation, "**Server**" installation and selection of SJPM drivers. The following SJPM drivers are available for selection:

AEAIERIP

ATB2Airline

File

JavaPOS

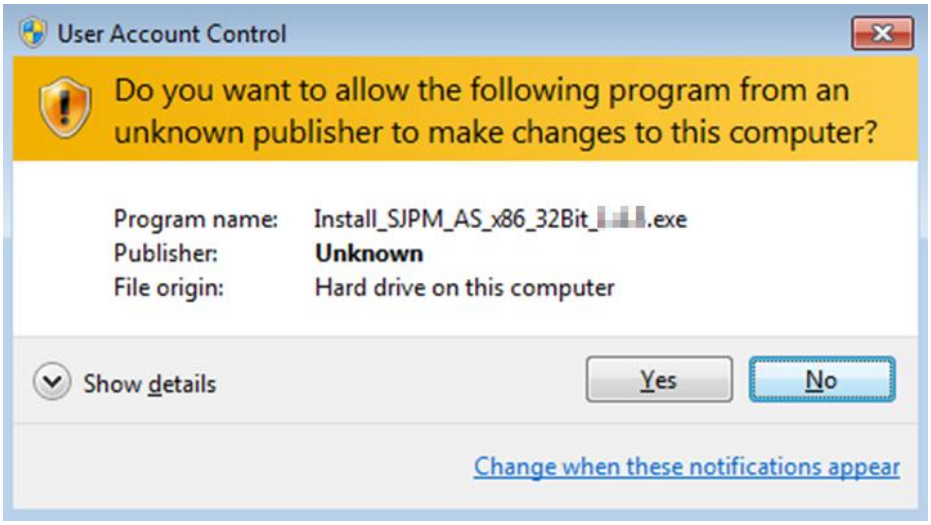
MQJMS

Printer

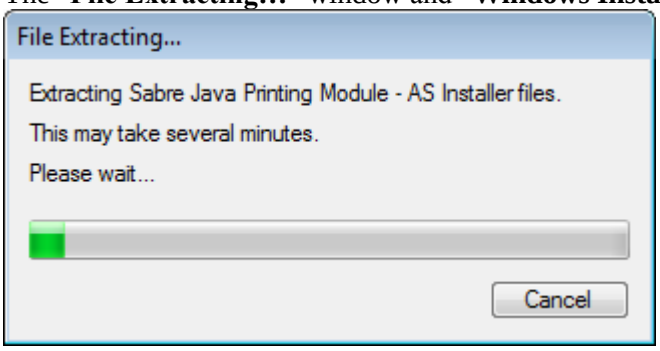
System

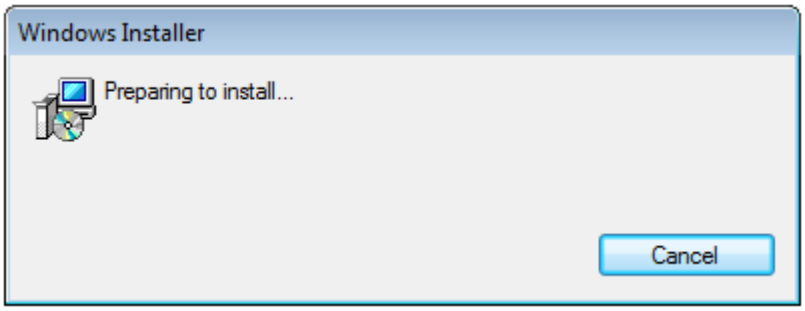
1. Right click on the Sabre Java Printing Module (SJPM) installation executable file (**Example:** "Install_SJPM_AS_x86_32Bit_x.x.x.exe") and then select the "**Run as…**" or "**Run as administrator**" menu item according to the operating system you are using.

   Windows 7 and Windows 8 Operating Systems:
   If you see the following window click on the "**Yes**" button:

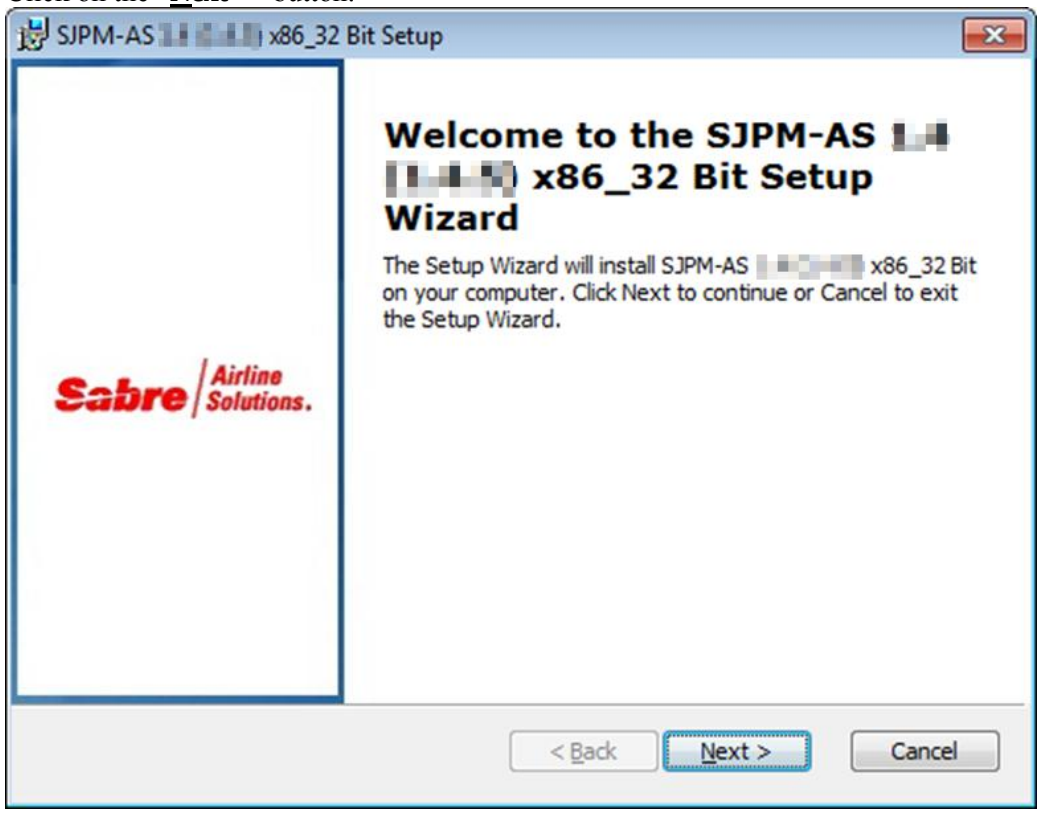


The "**File Extracting…**" window and "**Windows Installer**" window will appear:

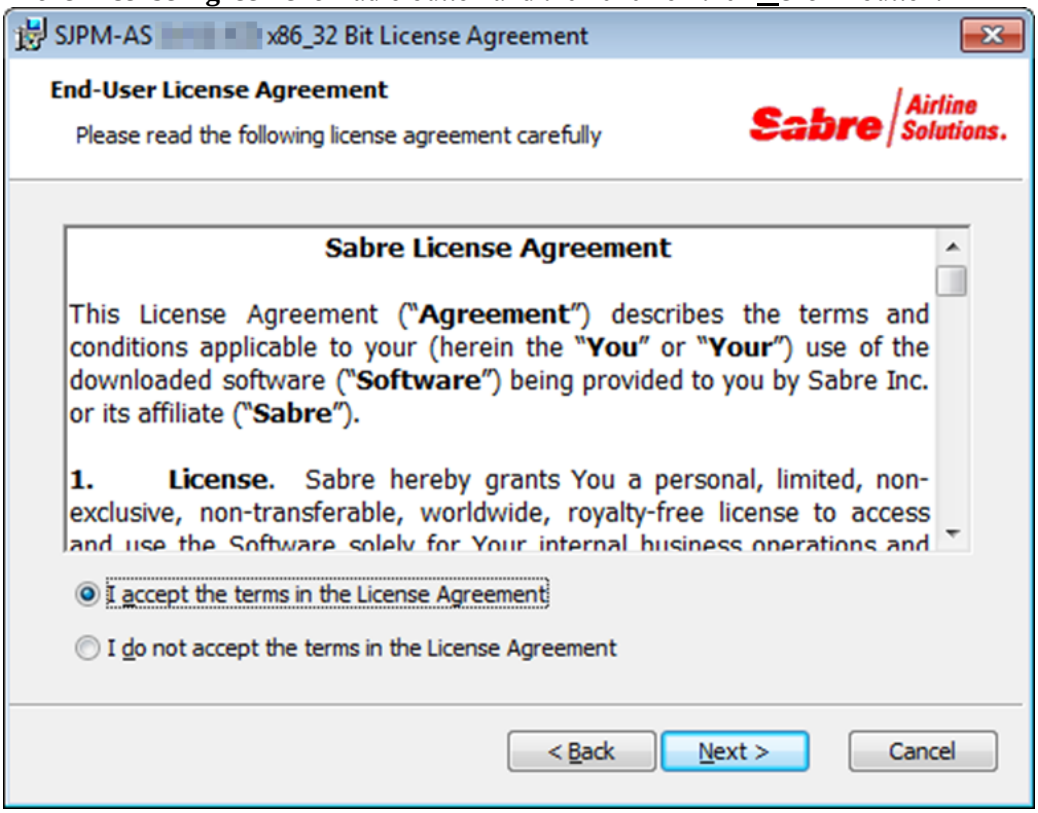




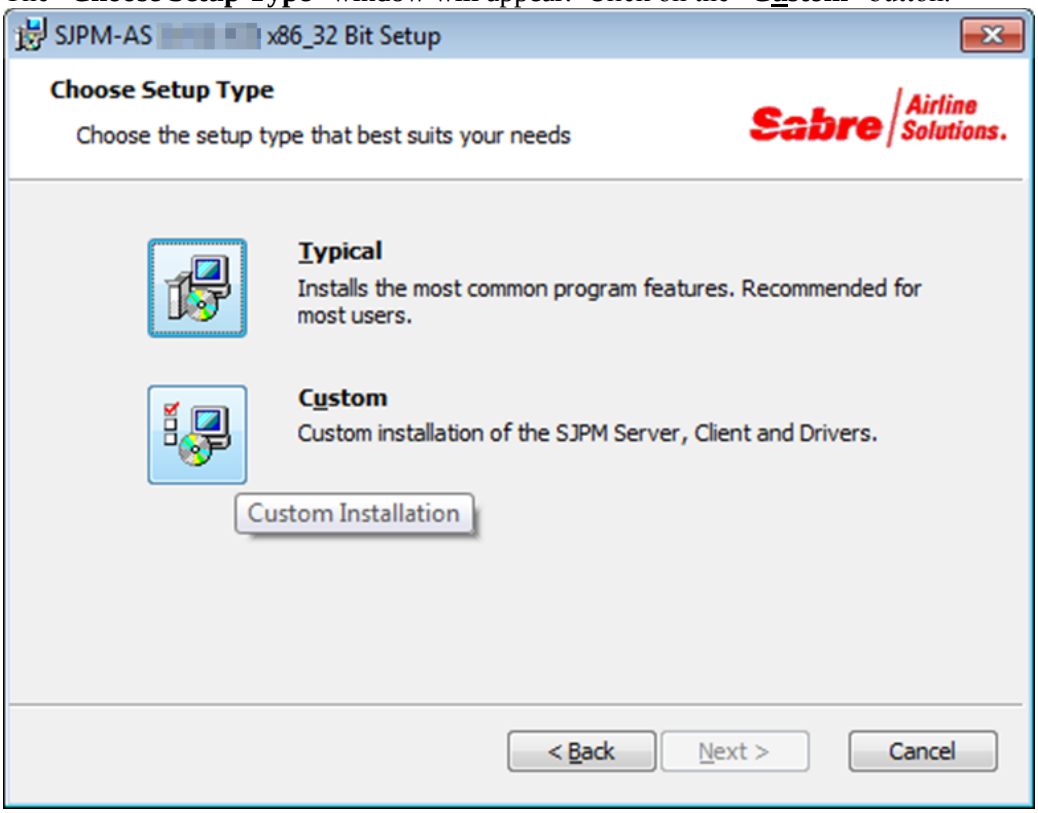
After file extraction and installation preparation the "**SJPM Setup**" window will appear. Click on the "**Next** >" button.



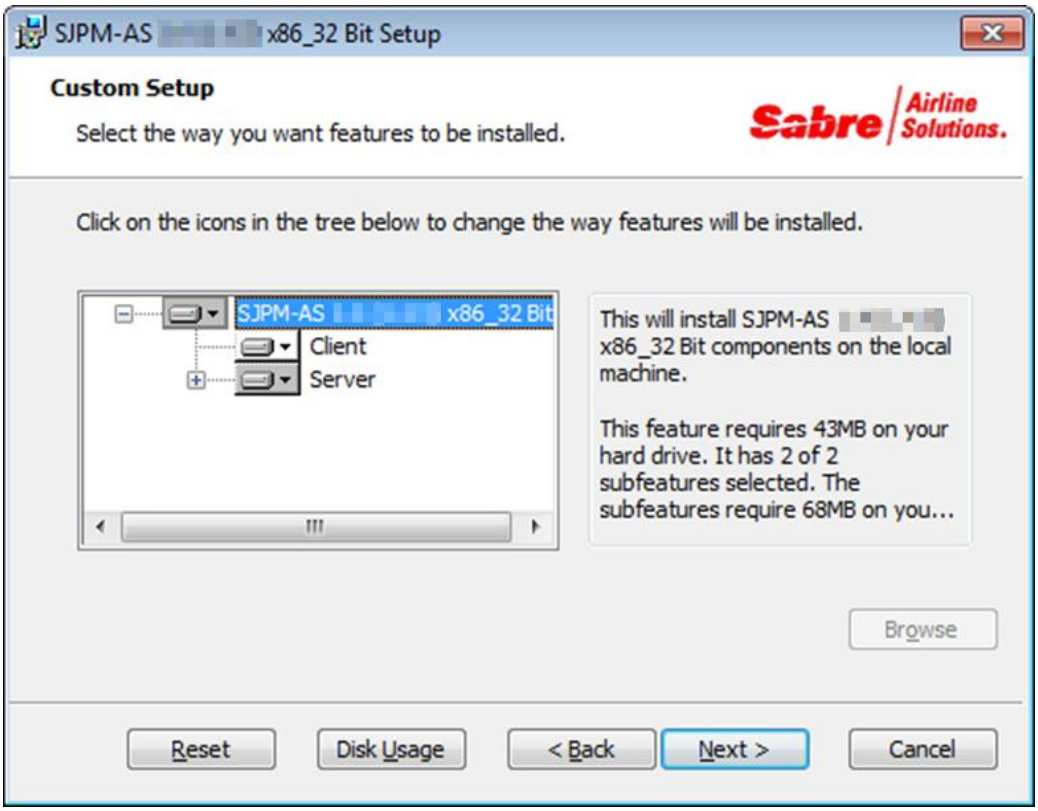
2. The "**End-User License Agreement**" window will appear. Click on the "**I accept the terms in the License Agreement**" radio button and then click on the "**Next >**" button.



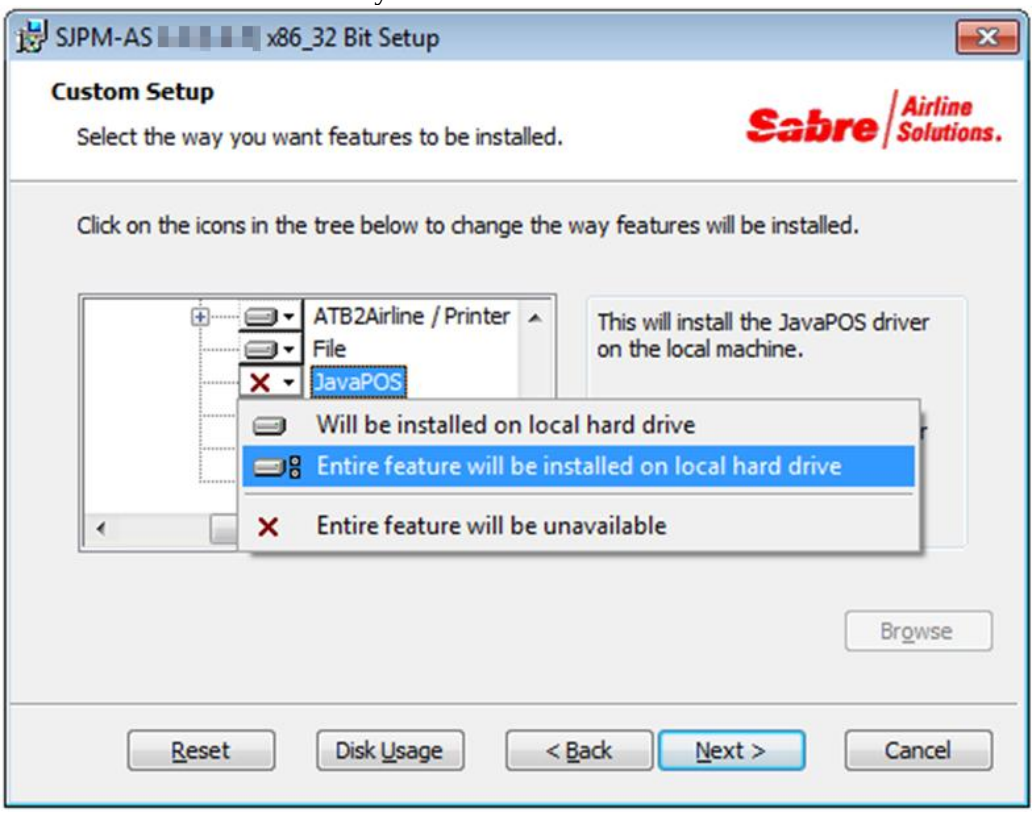
3. The "**Choose Setup Type**" window will appear. Click on the "**Custom**" button.



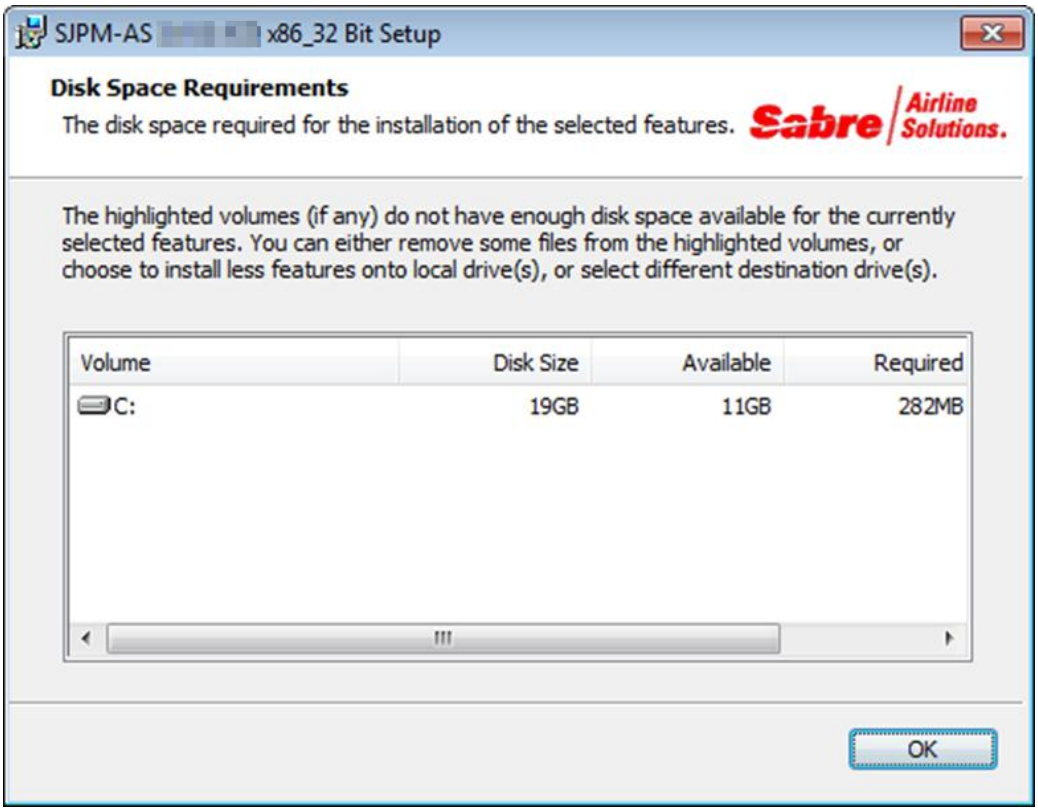
4. The "**Custom Setup**" window will appear. Click on the "**plus signs**" to see all the available items that can be installed.



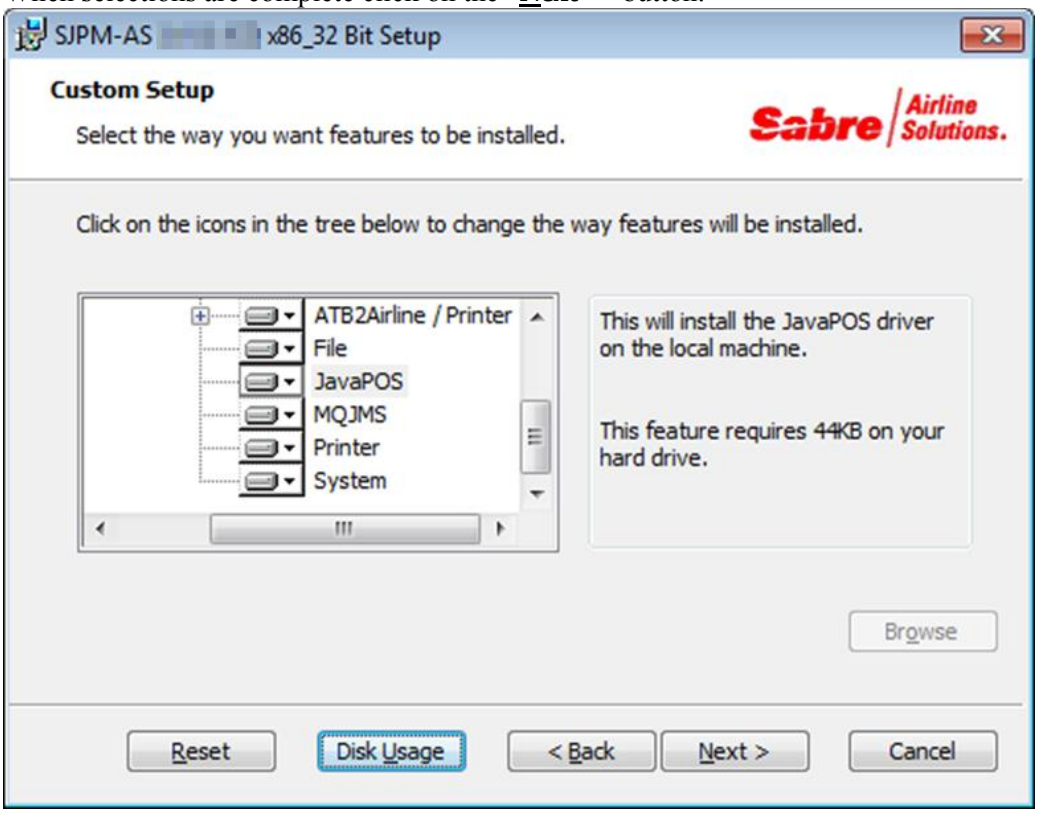
5. Click on the icons in the tree to select which items will be installed. Click on the "**Reset**" button to reset features to factory defaults.



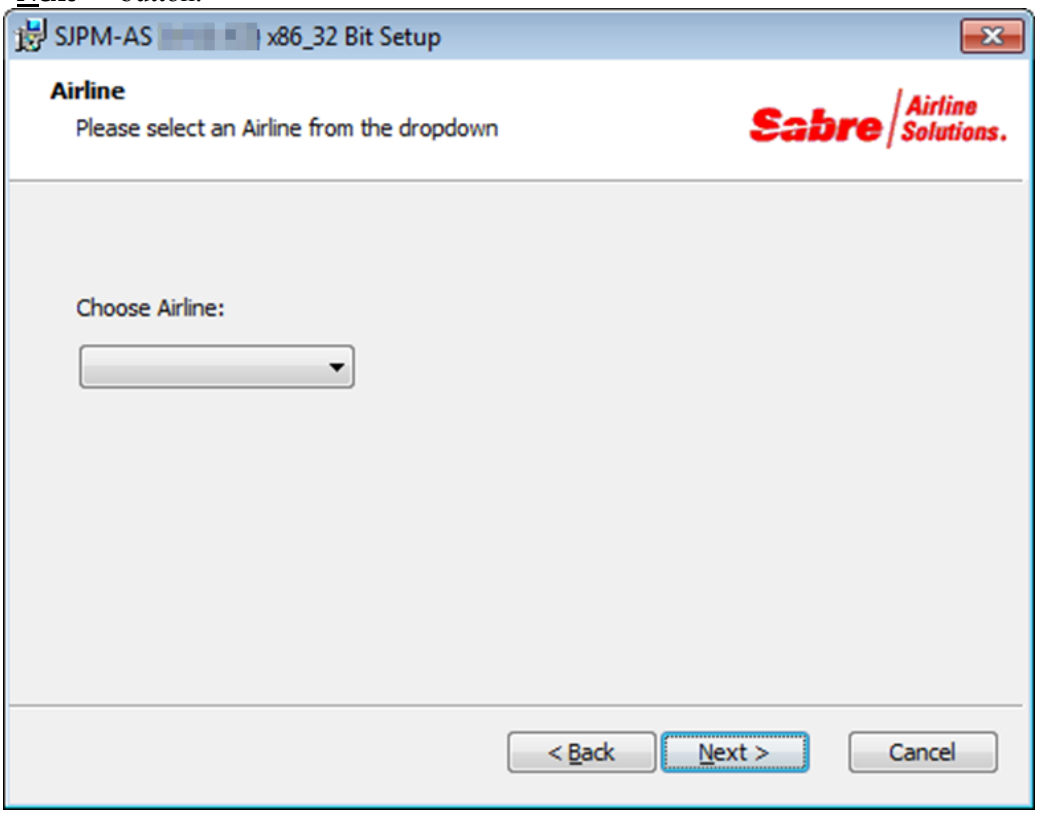
Click on the "**Disk Usage**" button to view disk space for installation (**Optional**). Click on the "**OK**" button to return to the installation.



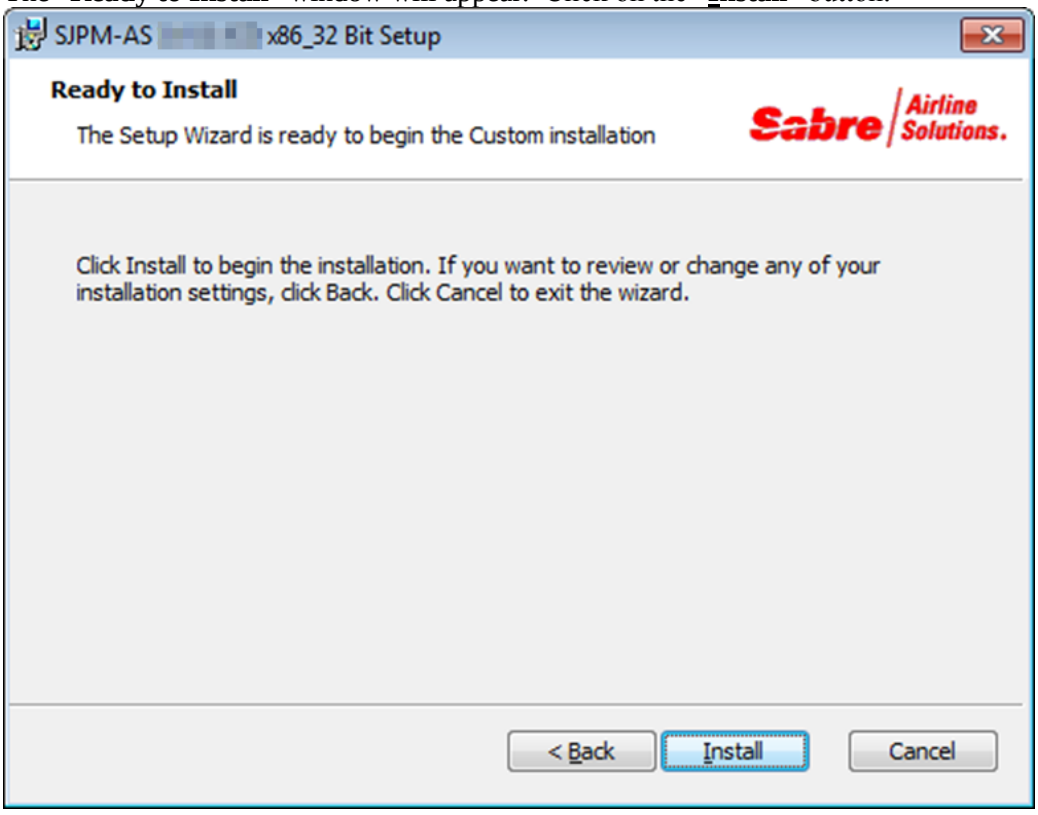
6. When selections are complete click on the "**Next** >" button.



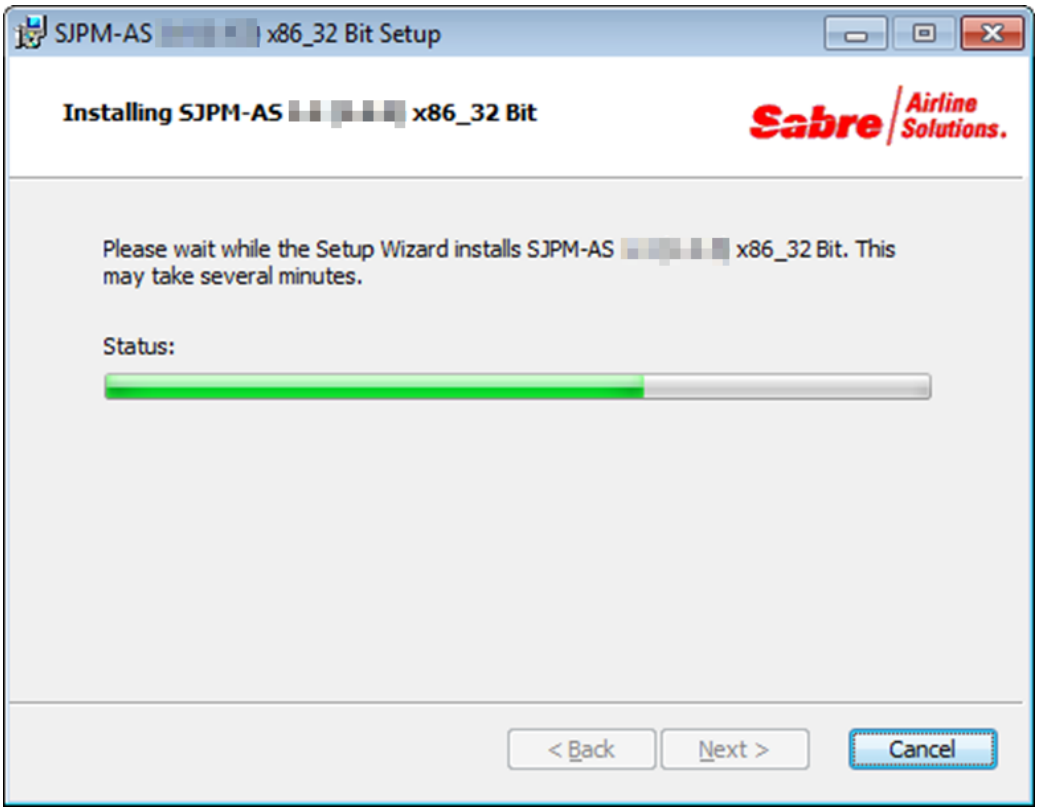
7. The "**Airline**" window will appear if the "**JavaPOS**" driver has been selected for installation. Click on the "**Choose Airline:**" drop down list and then select an airline. Then click on the "**Next >**" button.



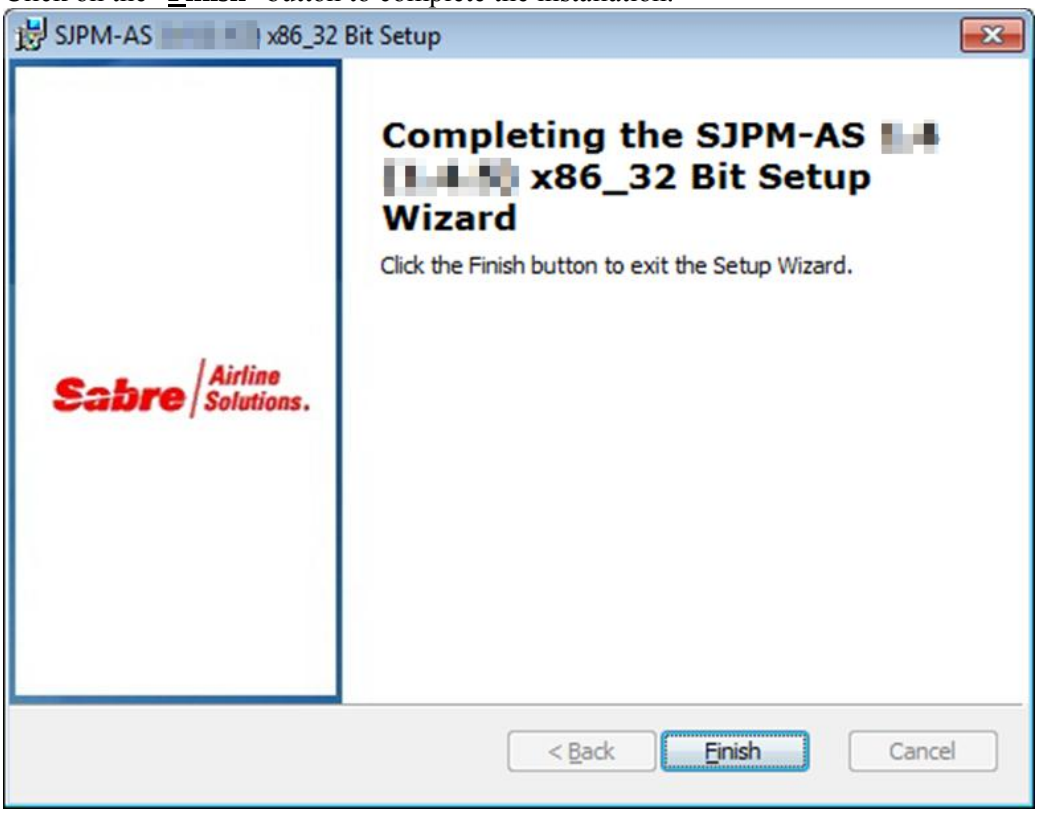
8. The "**Ready to Install**" window will appear. Click on the "**Install**" button.



9. The "**Installing SJPM-AS x.x (x.x.x) x86_32 Bit**" window will appear. Click on the "**Cancel**" button to cancel the installation.



10. Click on the "**Finish**" button to complete the installation.

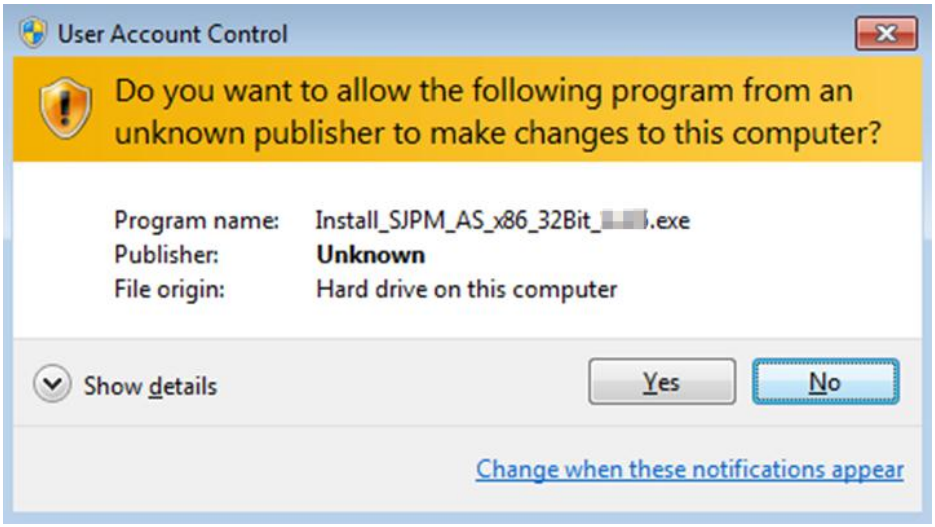


2.1.7 SJPM's Installation Repair

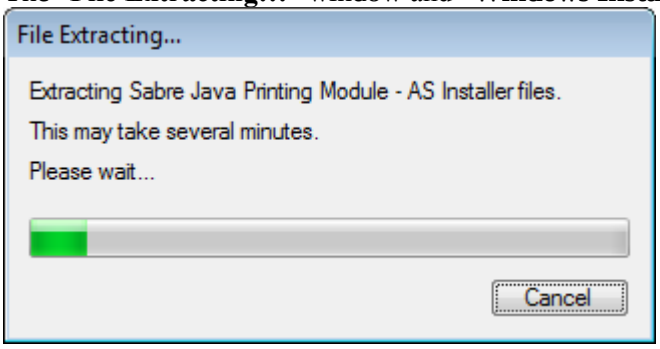
The Sabre Java Printing Module (SJPM) installation package also includes an installation repair feature that can be used, in cases where SJPM is not operating properly, to repair SJPM to a functional state.

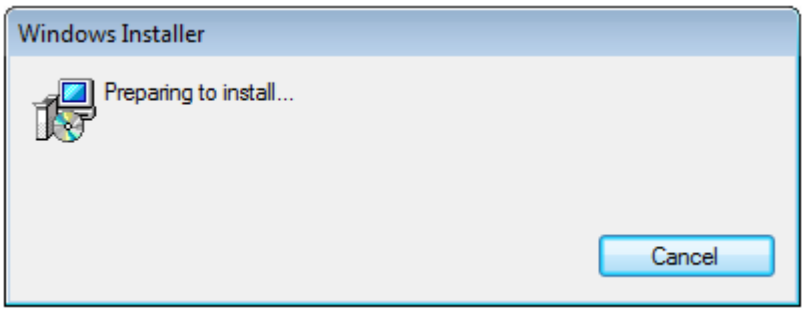
1. Right click on the Sabre Java Printing Module (SJPM) installation executable file (**Example:** "Install_SJPM_AS_x86_32Bit_x.x.x.exe") and then select the "**Run as…**" or "**Run as administrator**" menu item according to the operating system you are using.

   Windows 7 and Windows 8 Operating Systems:
   If you see the following window click on the "**Yes**" button:



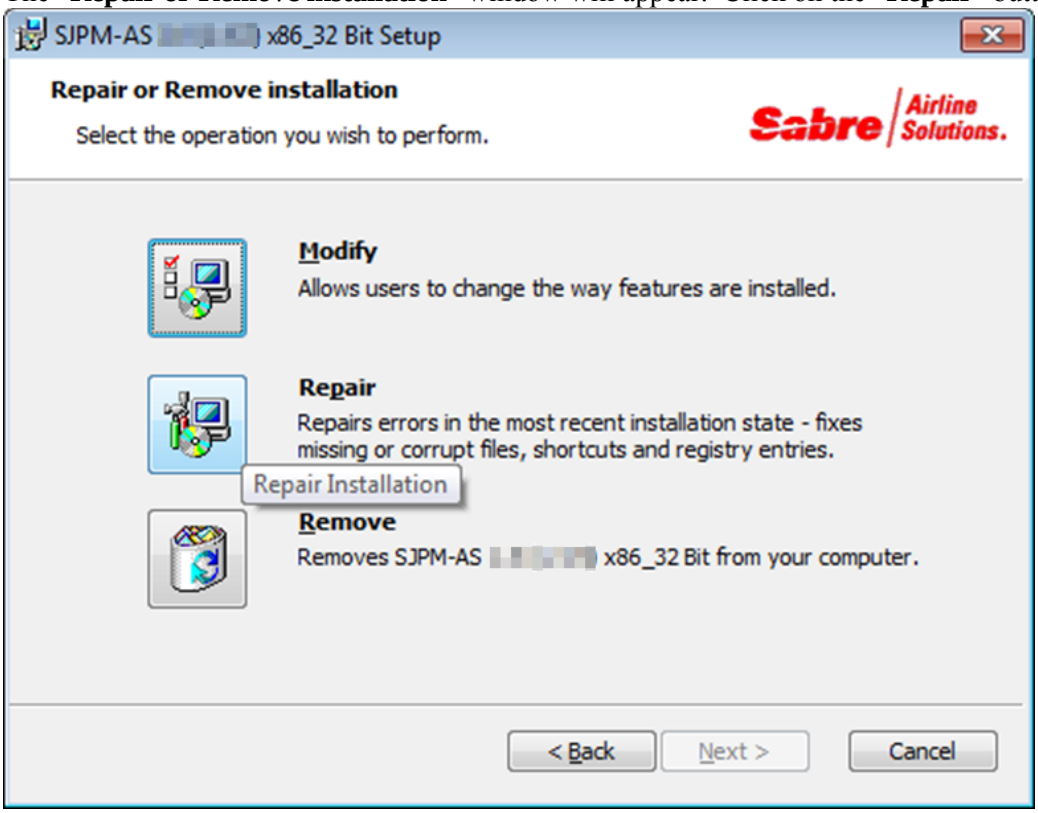
   The "**File Extracting…**" window and "**Windows Installer**" window will appear:



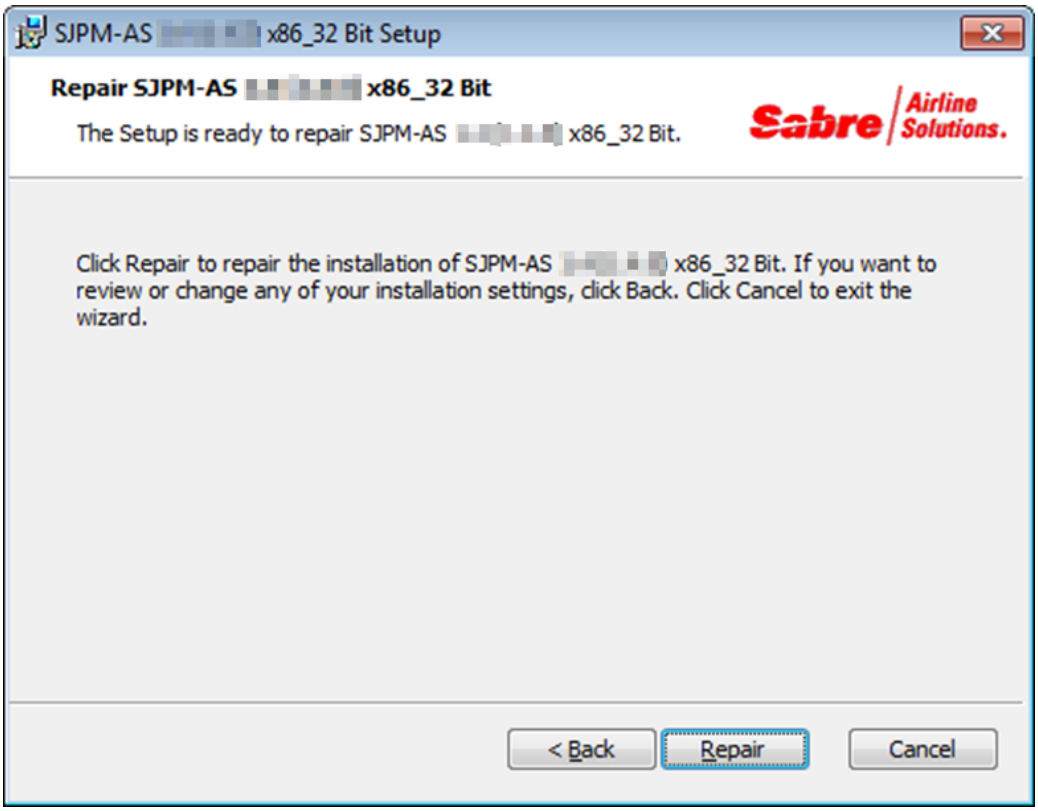


After file extraction and installation preparation the "**SJPM Setup**" window will appear. Click on the "**Next** >" button.

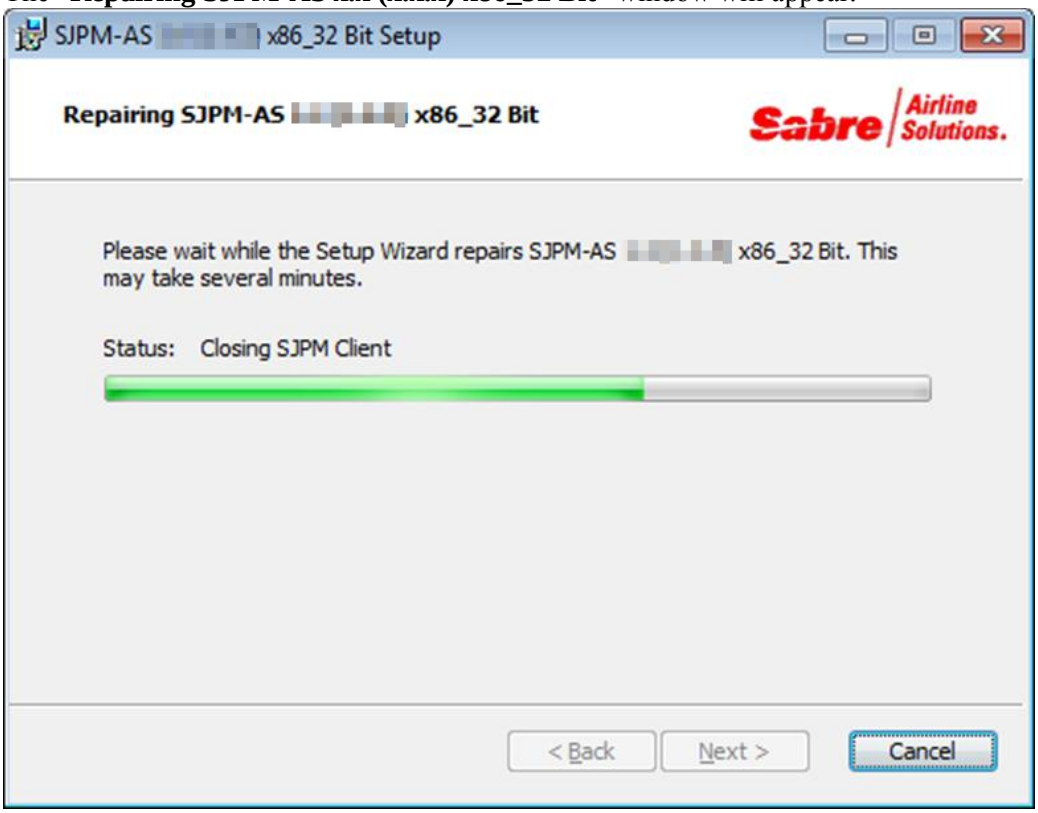
2. The "**Repair or Remove installation**" window will appear. Click on the "**Repair**" button.



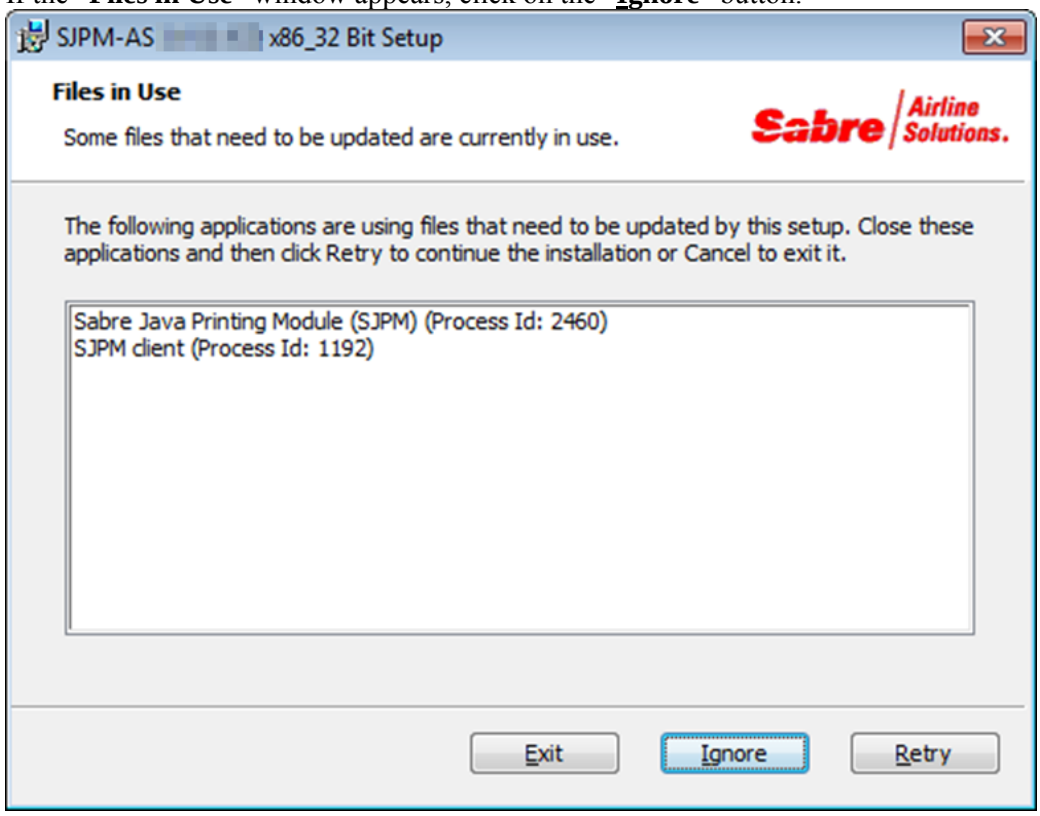
3. The "**Repair SJPM-AS x.x (x.x.x) x86_32 Bit**" window will appear. Click on the "**Repair**" button.



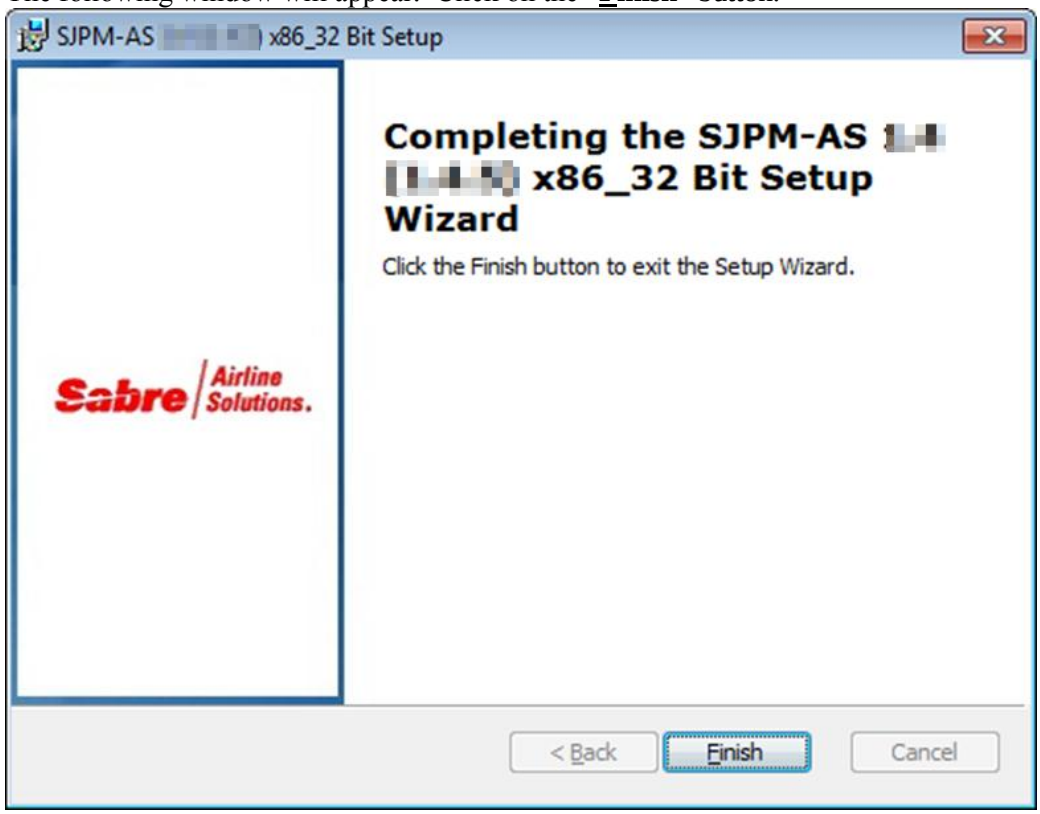
4. The "**Repairing SJPM-AS x.x (x.x.x) x86_32 Bit**" window will appear.



If the "**Files in Use**" window appears, click on the "**Ignore**" button.



5. The following window will appear. Click on the "**Finish**" button.



Uninstallation 3

3.1 Uninstallation

SJPM can be uninstalled one of two (2) ways. SJPM can be uninstalled from the **Windows Start Menu** or from the **SJPM Executable File (Example:** Install_SJPM_AS_x86_32Bit_x.x.x.exe**)**.

3.1.1 Windows Start Menu Uninstallation

This section describes the process for uninstallation of SJPM from the Windows "**Start**" Menu for **Windows XP SP3, Windows 7** and **Window 8 and 8.1**.

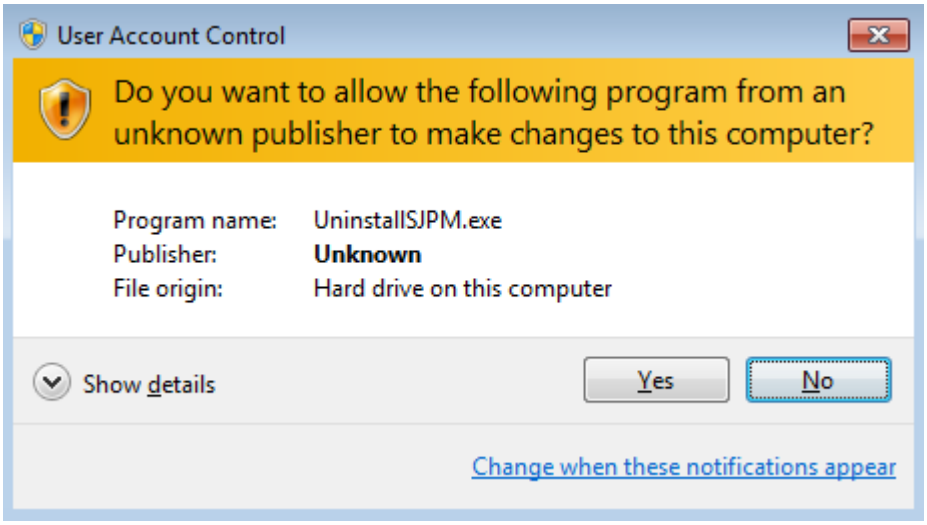
1. **Windows XP SP3:**
   Click on the Windows "**Start**" button, then click on the "**Programs**" folder, then click on the "**SJPM**" folder, and then click on the "**Uninstall SJPM**" menu item.

   Windows 7:
   Click on the Windows "**Start**" button, then click on "**All Programs**", then click on the "**SJPM**" folder, then right click on the "**Uninstall SJPM**" menu item and then select "**Run as administrator**".

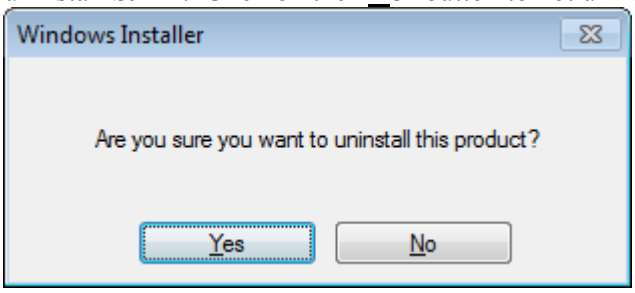
   Windows 8:
   Click on Windows "**Start**", then right click on the "**Uninstall SJPM**" icon on the Windows desktop, and then click on the "**Run as administrator**" icon on the menu bar.

   Windows 8.1:
   Click on the Windows "**Start**" button on the Windows taskbar. Click on the "**Circled Down Arrow**" icon on the Windows desktop. Right click on the "**Uninstall SJPM**" icon on the Windows desktop. Click on the "**Run as administrator**" icon on the menu bar.

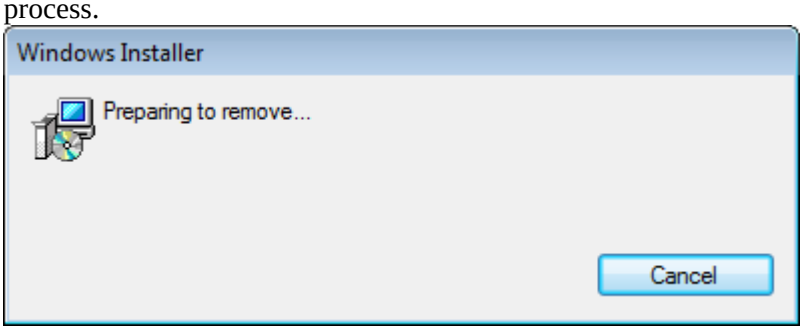
Windows 7 and Windows 8 Operating Systems:
If the following window appears click on the "**Yes**" button:

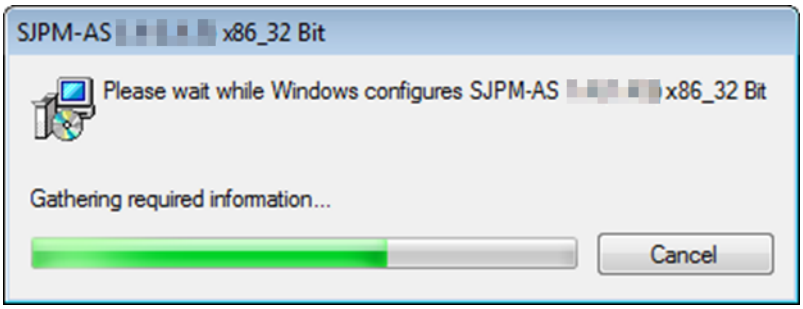


2. The "**Windows Installer**" window will appear. Click on the "**Yes**" button to continue and uninstall SJPM. Click on the "**No**" button to not uninstall SJPM.

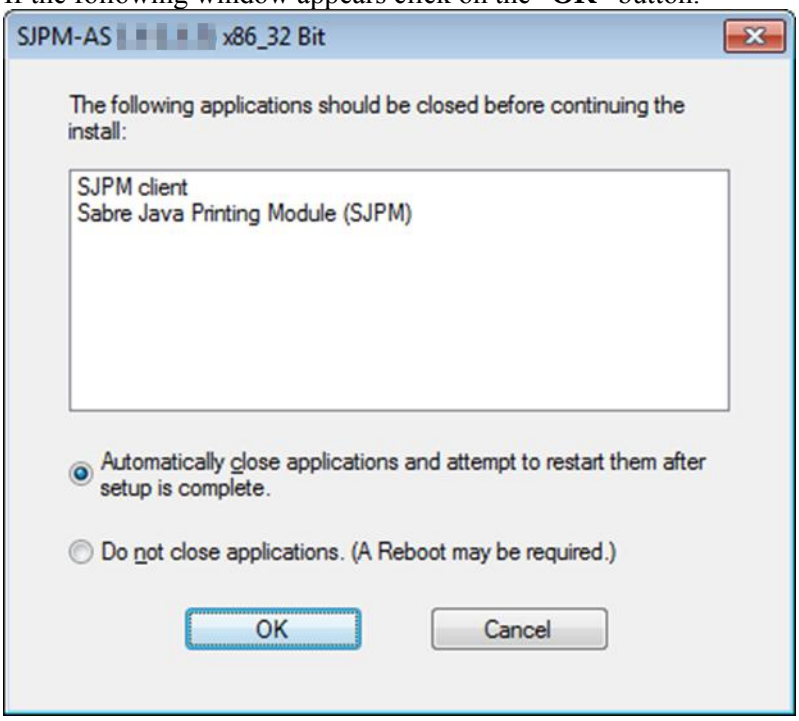


3. The "**Windows Installer**" window and "**SJPM-AS x.x (x.x.x) x86_32 Bit**" window will appear if "**Yes**" was clicked. Click on the "**Cancel**" button to cancel the uninstallation process.





If the following window appears click on the "**OK**" button:

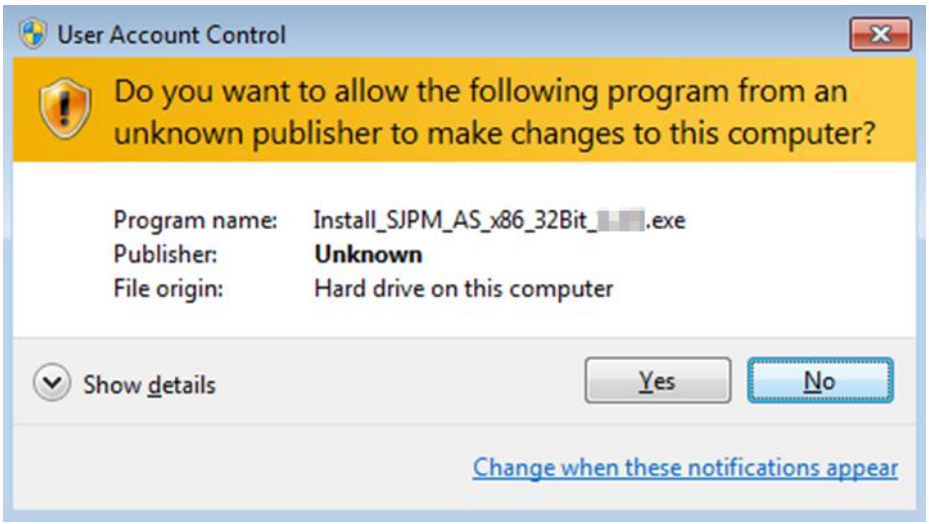


3.1.2 SJPM Executable File Uninstallation

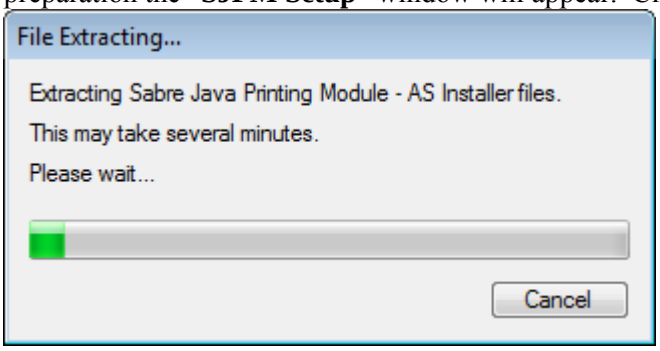
This section describes the process for uninstallation of SJPM using the SJPM executable file. The process is the same for **Windows XP SP3**, **Window 7**, **Window 8** and **Windows 8.1**.

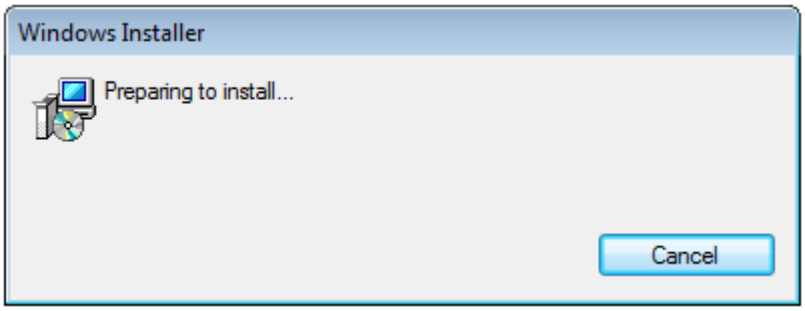
1. Right click on the Sabre Java Printing Module (SJPM) executable file (**Example:** "Install_SJPM_AS_x86_32Bit_x.x.x.exe") and then select the "**Run as…**" or "**Run as administrator**" menu item according to the operating system you are using.

   Windows 7 and Windows 8 Operating Systems:
   If you see the following window click on the "**Yes**" button:

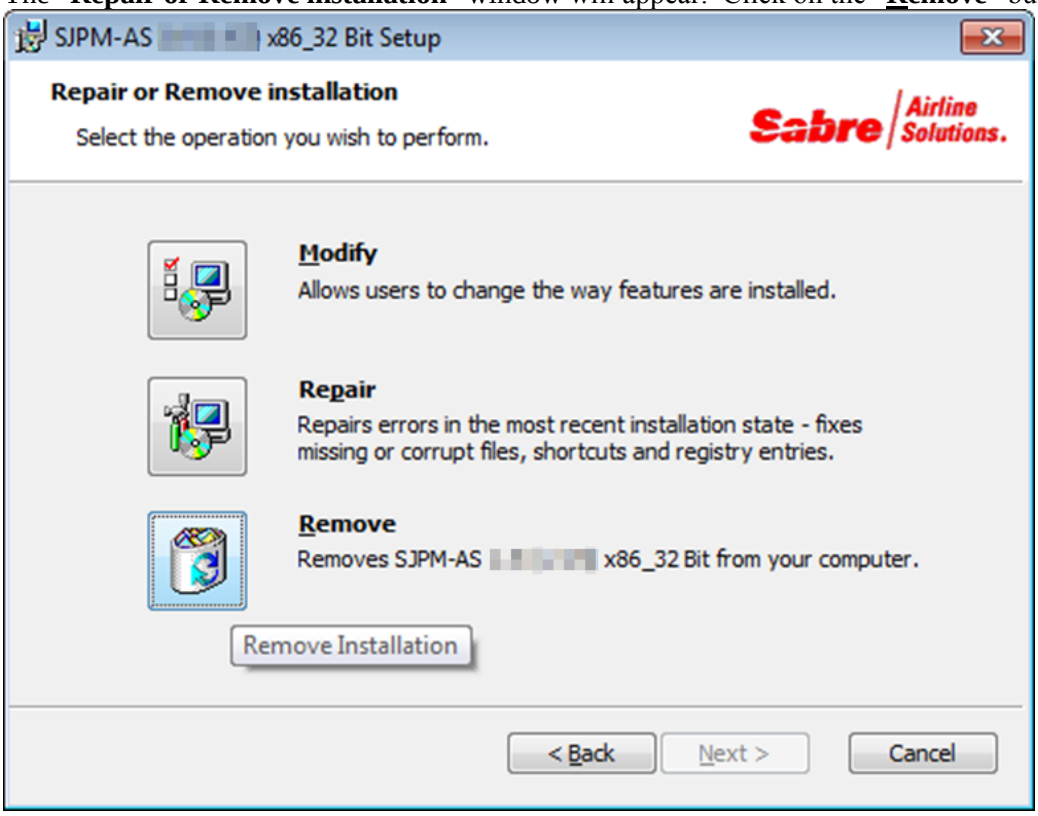


2. The "**File Extracting…**" window and "**Windows Installer**" window will appear. Click on the "**Cancel**" button to cancel the uninstallation process. After file extraction and installation preparation the "**SJPM Setup**" window will appear. Click on the "**Next >**" button.

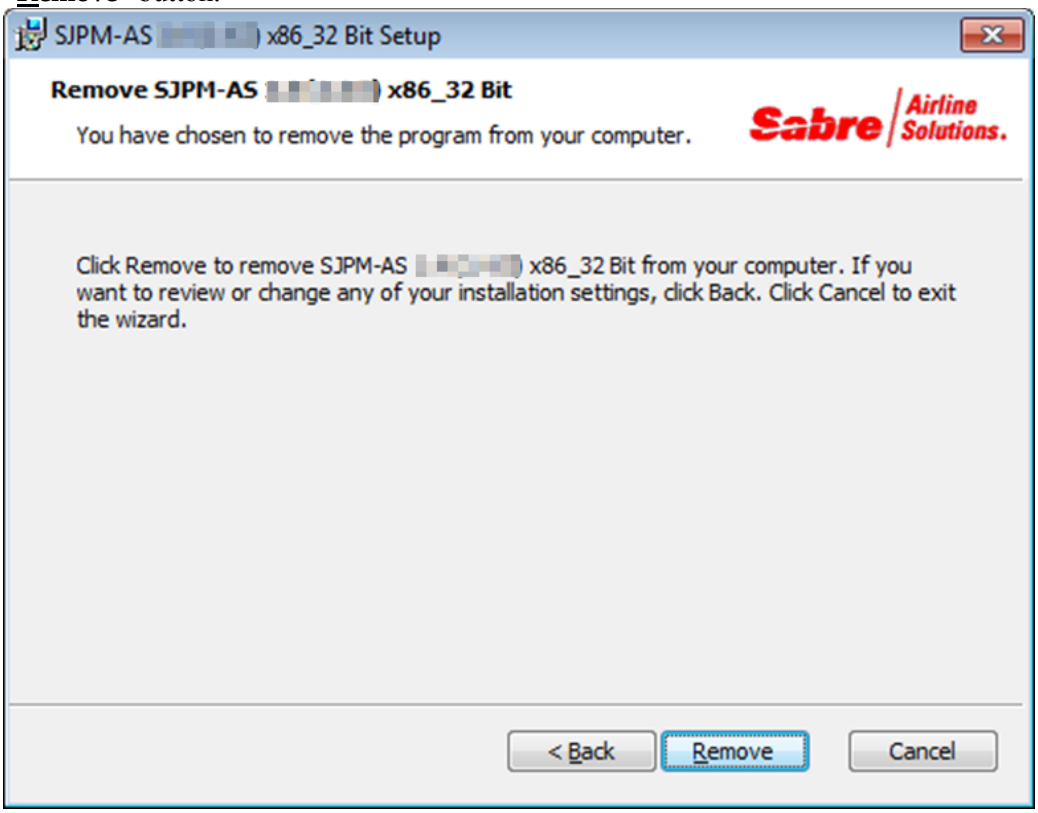




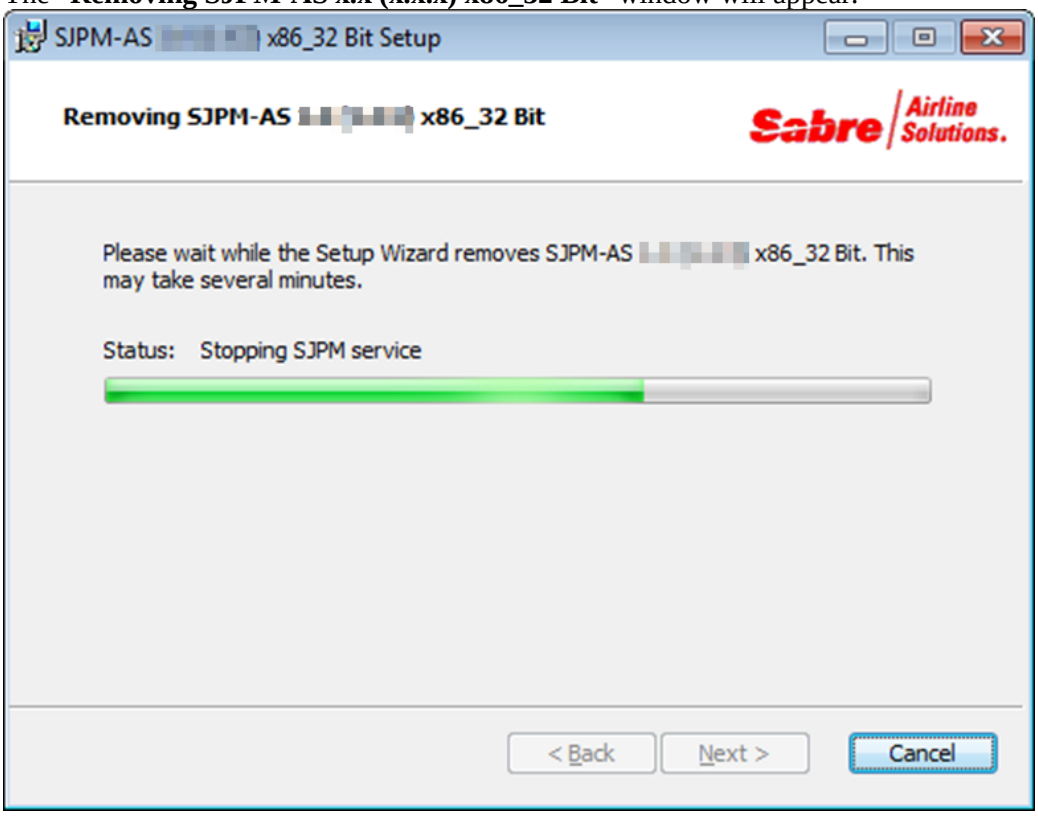
3. The "**Repair or Remove installation**" window will appear. Click on the "**Remove**" button.



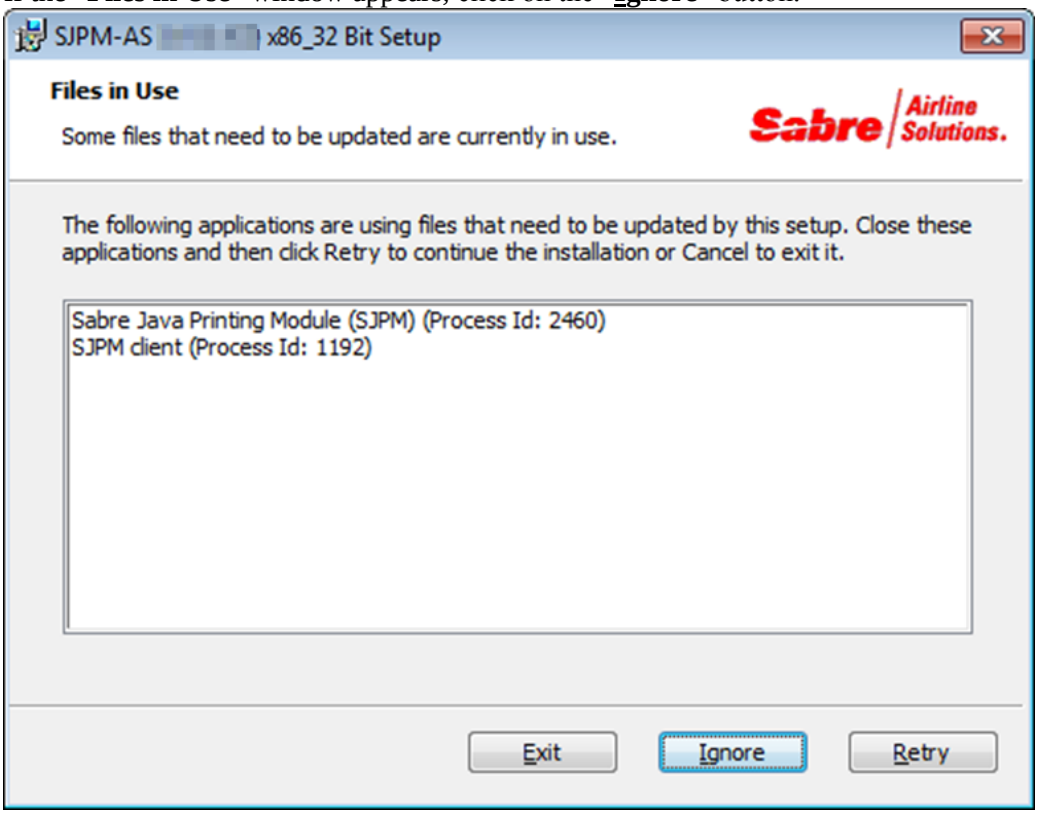
4. The "**Remove SJPM-AS x.x (x.x.x) x86_32 Bit**" window will appear. Click on the "**Remove**" button.



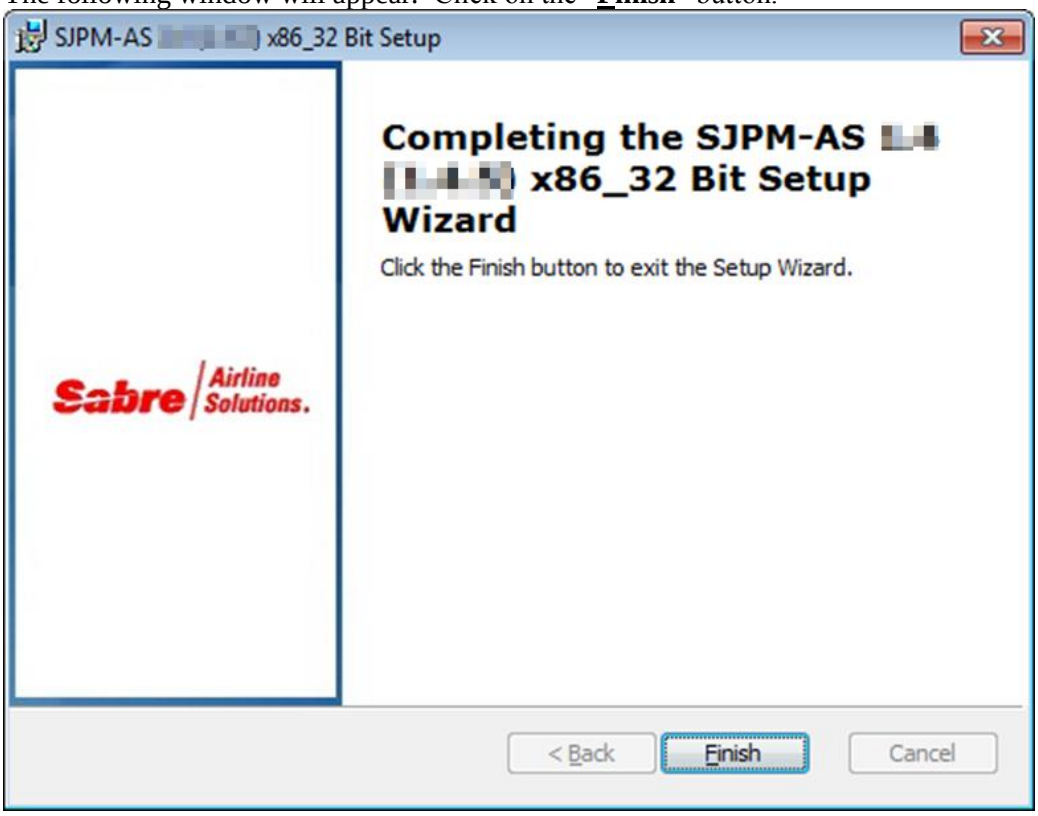
5. The "**Removing SJPM-AS x.x (x.x.x) x86_32 Bit**" window will appear.



If the "**Files in Use**" window appears, click on the "**Ignore**" button.



6. The following window will appear. Click on the "**Finish**" button.



Running SJPM

4

4.1 Running the SJPM Client GUI

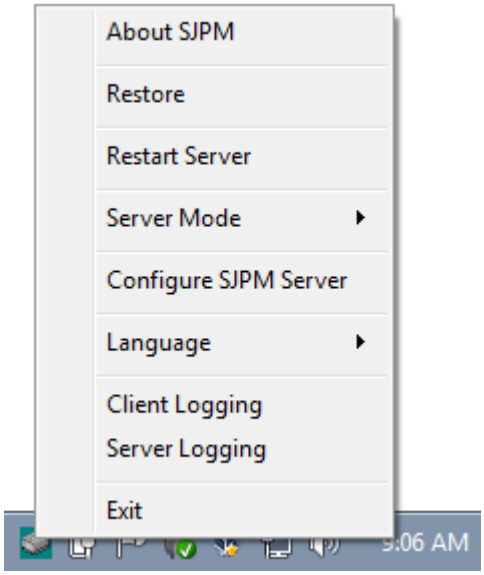
Sabre Java Printing Module (SJPM) consists of three (3) main components (**Client, Server, and Drivers**). Upon SJPM installation the Client and Server will run automatically if installed and SJPM will run as a **Service** by default.

Note: The SJPM "**Server**" must be running for the SJPM "**Client**" and "**Drivers**" to function.

After SJPM installation the SJPM "**Client**" will automatically run in the Windows System Tray with an icon. The SJPM "**Client**" will also automatically run in the Windows System Tray with an icon upon boot-up.

4.1.1 SJPM Windows System Tray Icon Menu

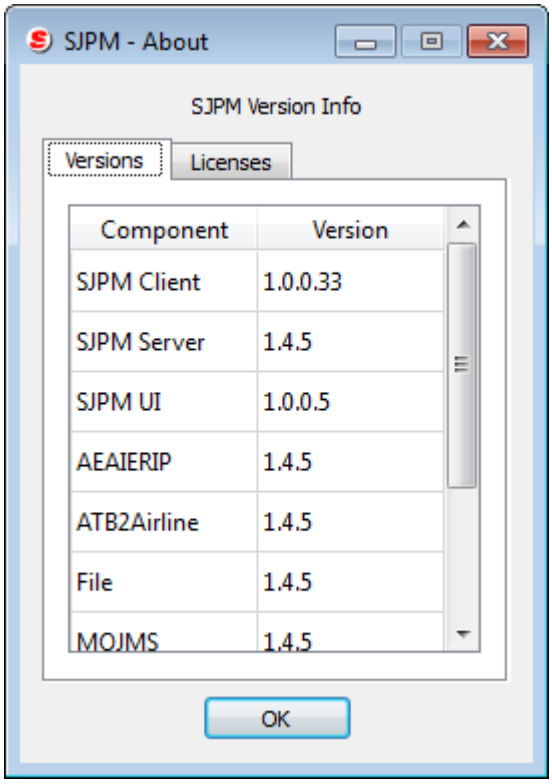
To display the SJPM Windows System Tray Icon Menu right click on the SJPM Windows System Tray Icon.



4.1.2 SJPM Windows System Tray Icon Menu Items

About SJPM

The "**About SJPM**" menu item opens the "**SJPM - About**" window and provides version information for the installed SJPM Client, Server, and Device Drivers. License information is also provided in the "**Licenses**" tab.



Restore

The "**Restore**" menu item restores (opens) the SJPM Client GUI.

Restart Server

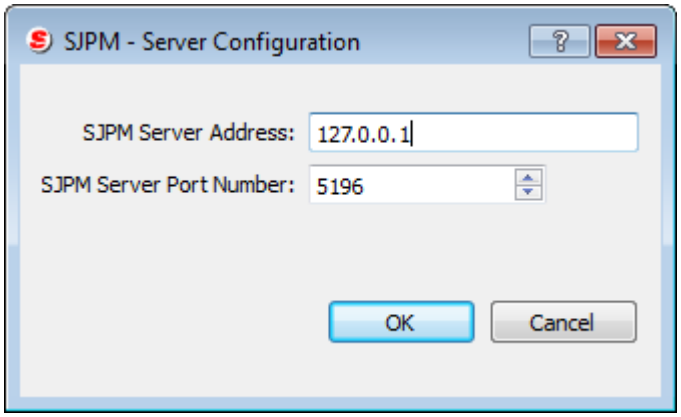
The "**Restart Server**" menu item restarts the SJPM Server.

Server Mode

The "**Server Mode**" menu item changes the SJPM mode of operation. The available modes are "**Service**" and "**Application**".

Configure SJPM Server

The "**Configure SJPM Server**" menu item opens the "**SJPM - Server Configuration**" window.



Language

The "**Language**" menu item changes the SJPM language. The current languages available are **English** and **Spanish**.

Client Logging

The "**Client Logging**" menu item, when selected, will turn on/off logging for the SJPM Client. The SJPM service must be restarted for the logging to take effect. Selection will be noted on the menu with a check.

Server Logging

The "**Server Logging**" menu item, when selected, will turn on/off logging for the SJPM Server. The SJPM service must be restarted for the logging to take effect. Selection will be noted on the menu with a check.

Exit

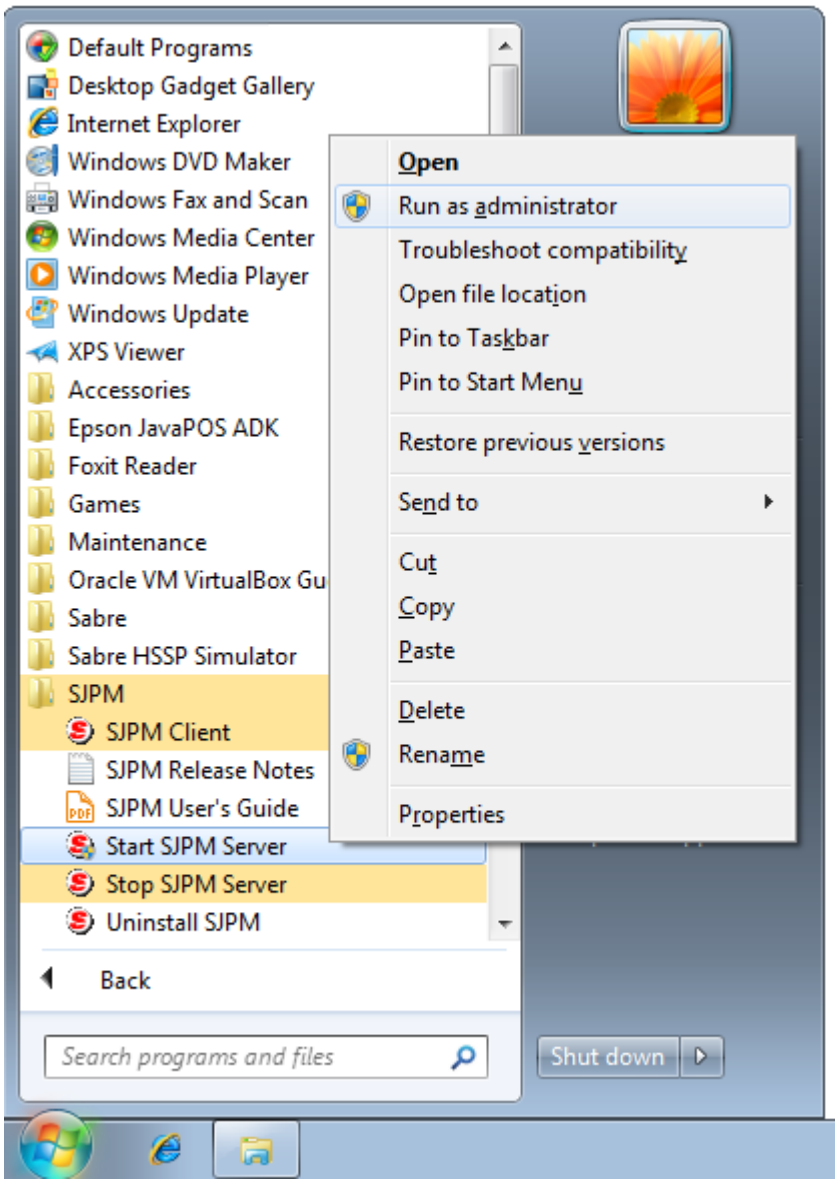
The "**Exit**" menu item closes the SJPM Client GUI. The SJPM Client GUI can be restarted from the Windows "**Start**" menus. See section **4.1.5**.

4.1.3 Running SJPM as an Application

By default SJPM is installed to run as a **Service**. Use the SJPM Windows System Tray Icon to change SJPM to run as an **Application**.

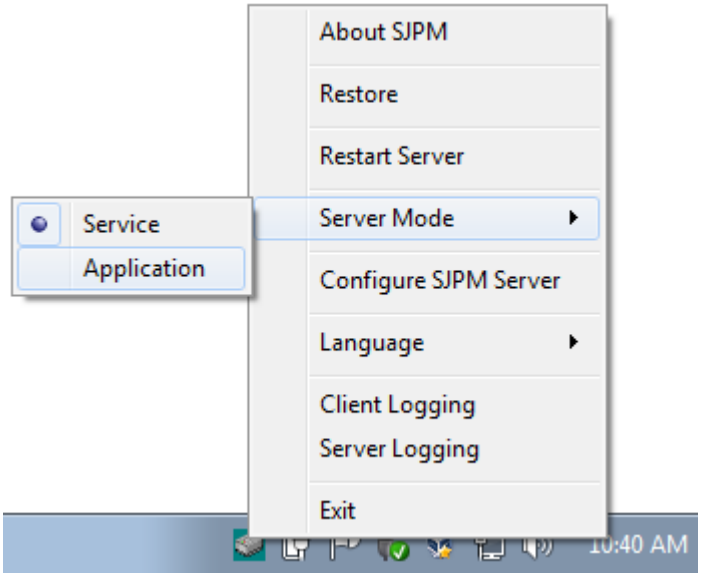
Important Note:

When running SJPM as an **Application** it will be necessary to run "**Start SJPM Server**", as the administrator, from the Windows Start Menu each time after a system reboot or startup.

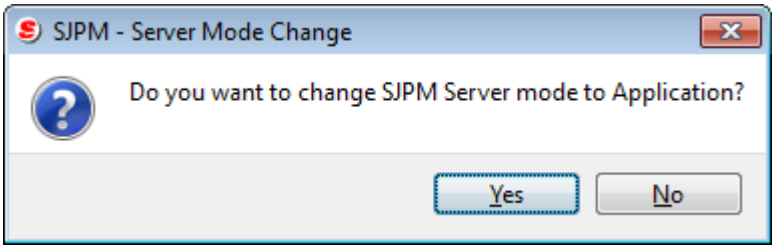


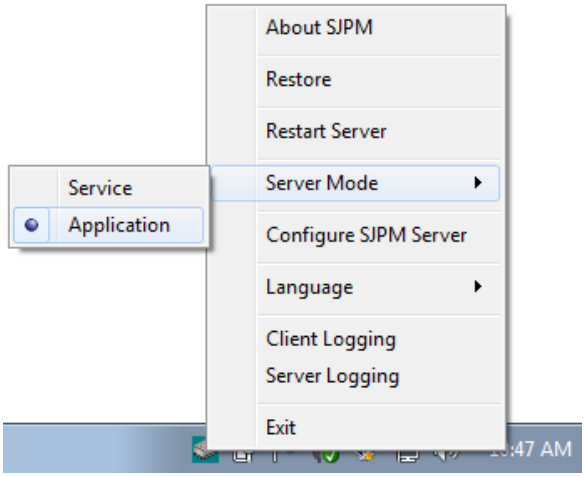
Run SJPM as an Application:

1. Right click on the SJPM Icon in the Windows System Tray.
2. Click on the "**Server Mode**" menu item.
3. Click on the "**Application**" menu item.

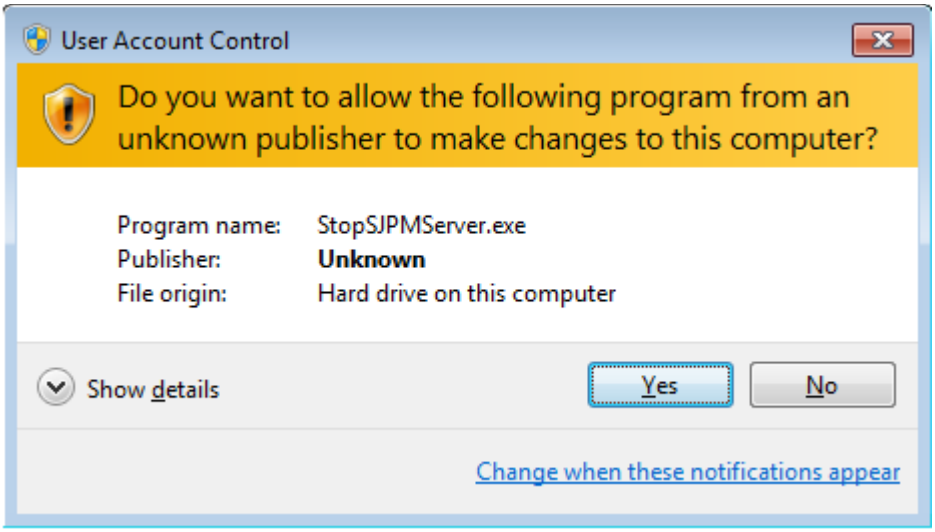


4. The "**SJPM – Server Mode Change**" window will appear. Click on the "**Yes**" button. SJPM will restart and run as an Application.

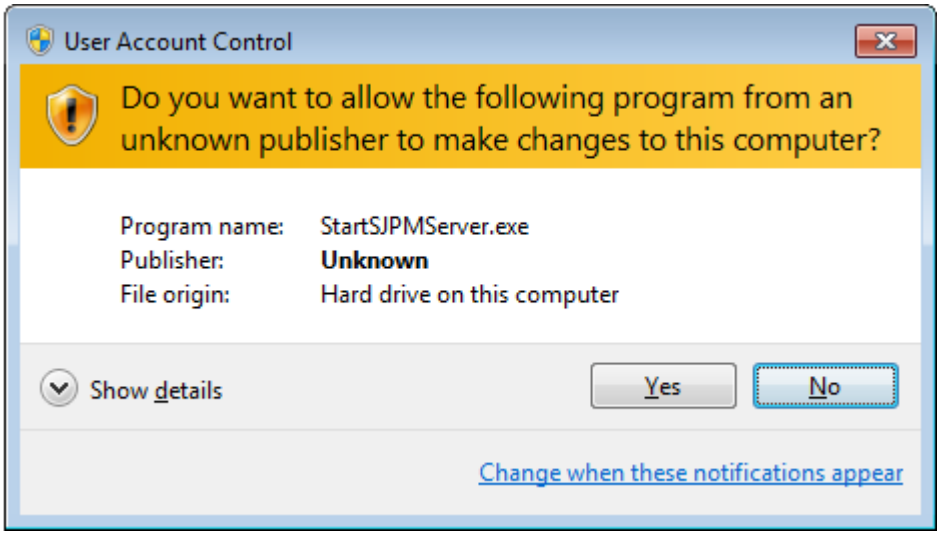




5. Click on the Windows "**Start**" button, then click on "**All Programs**", then click on the "**SJPM**" folder, then right click on the "**Stop SJPM Server**" menu item, and then click on "**Run as administrator**". Click on the "**Yes**" button on the "**User Account Control**" window.



6. Click on the Windows "**Start**" button, then click on "**All Programs**", then click on the "**SJPM**" folder, then right click on the "**Start SJPM Server**" menu item, and then click on "**Run as administrator**". Click on the "**Yes**" button on the "**User Account Control**" window.



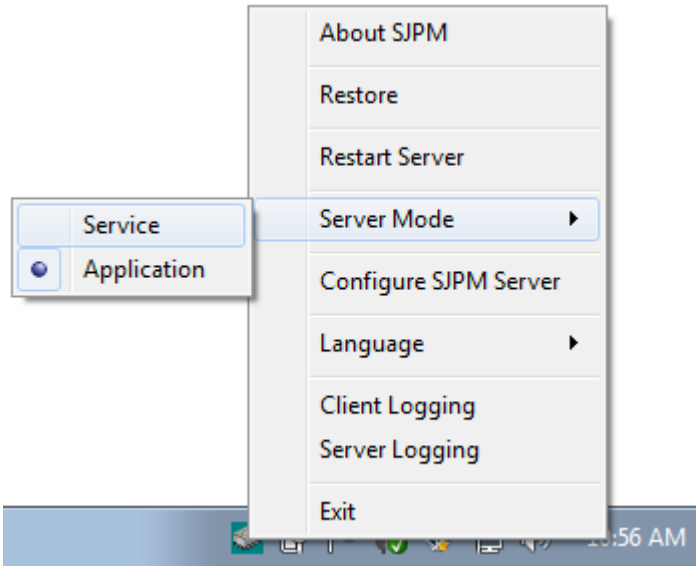
Steps 5 and 6 are necessary to set the SJPM Application to run as the administrator user and not the System user.

4.1.4 Running SJPM as a Service

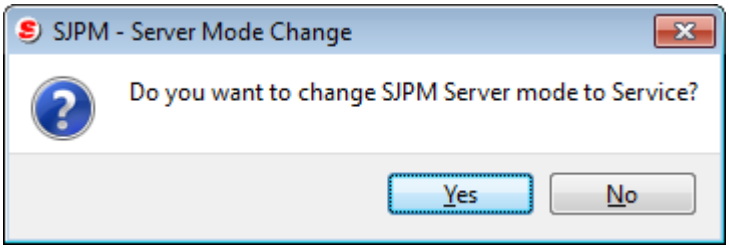
By default SJPM is installed to run as a **Service**. If SJPM has been changed to run as an **Application** you can change it to run as a **Service** from the SJPM Windows System Tray Icon menu.

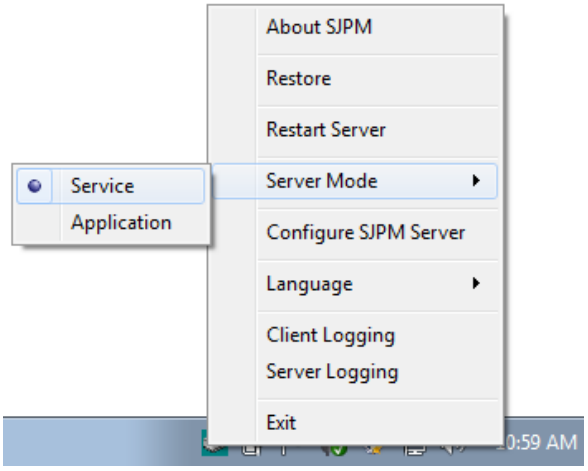
Run SJPM as a Service:

1. Right click on the SJPM Icon in the Windows System Tray.
2. Then click on the "**Server Mode**" menu item.
3. Then click on the "**Service**" menu item.



4. The "**SJPM – Server Mode Change**" window will appear. Click on the "**Yes**" button. SJPM will restart and run as a Service.



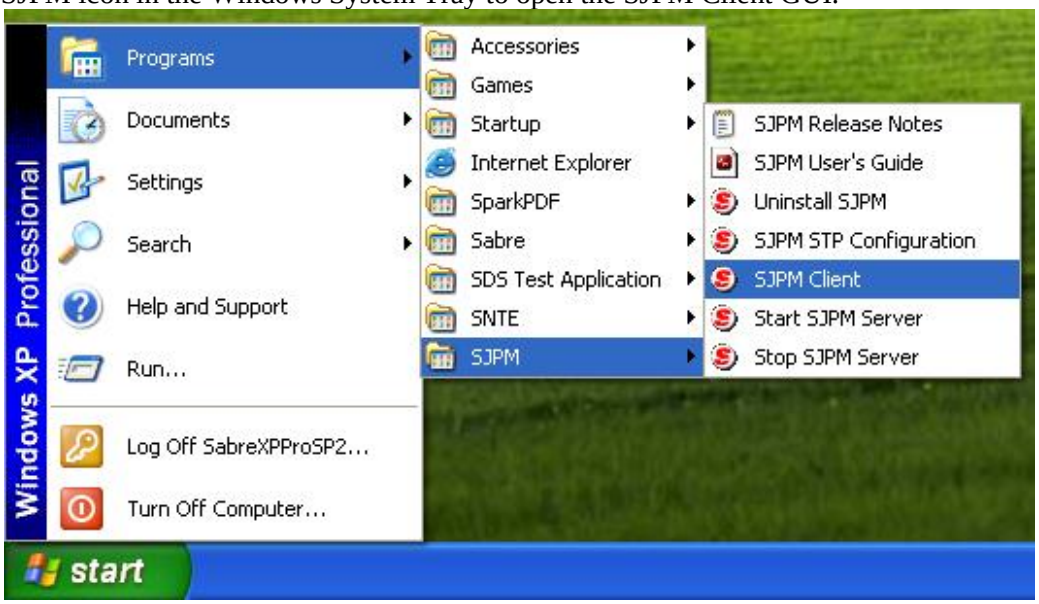


4.1.5 Manually Running the SJPM Client GUI

If the SJPM Client GUI is not displayed in the Windows System Tray and is not running you can start it manually using the following steps in the sections below:

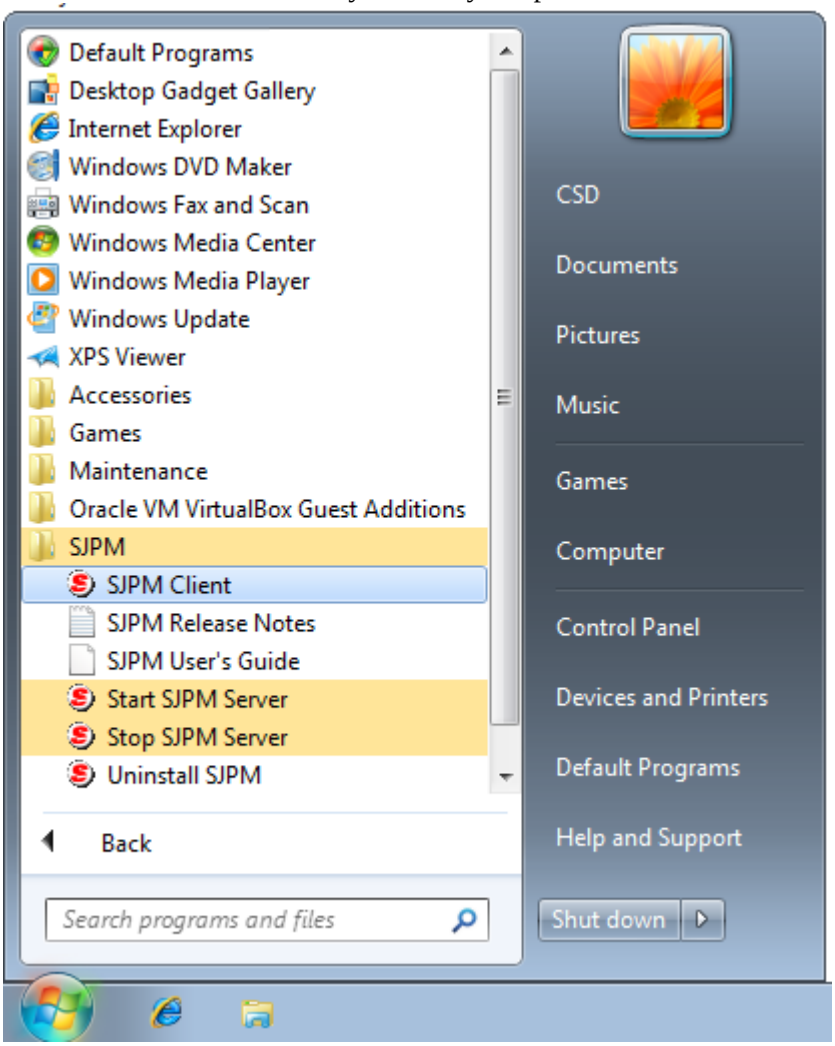
4.1.5.1 Windows XP SP3

1. Click on the Windows "**Start**" button, then click on the "**Programs**" folder, then click on the "**SJPM**" folder, and then click on the "**SJPM Client**" menu item. This will start the SJPM Client GUI and the SJPM icon will appear in the Windows System Tray. Double click on the SJPM icon in the Windows System Tray to open the SJPM Client GUI.



4.1.5.2 Windows 7

1. Click on the Windows "**Start**" button, then click on "**All Programs**", then click on the "**SJPM**" folder, and then click on the "**SJPM Client**" menu item. This will start the SJPM Client GUI and the SJPM icon will appear in the Windows System Tray. Double click on the SJPM icon in the Windows System Tray to open the SJPM Client GUI.



4.1.5.3 Windows 8

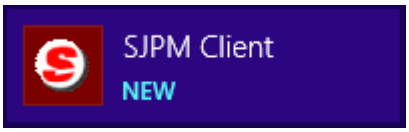
1. Move the mouse pointer to the bottom left corner of the screen. Click on Windows "**Start**", and then click on the "**SJPM Client**" icon on the Windows desktop. This will start the SJPM Client GUI and the SJPM icon will appear in the Windows System Tray. Double click on the SJPM icon in the Windows System Tray to open the SJPM Client GUI.

4.1.5.4 Windows 8.1

1. Click on the Windows "**Start**" button on the Windows Taskbar.

2. Click on the "**Circled Down Arrow**" icon on the Windows desktop.

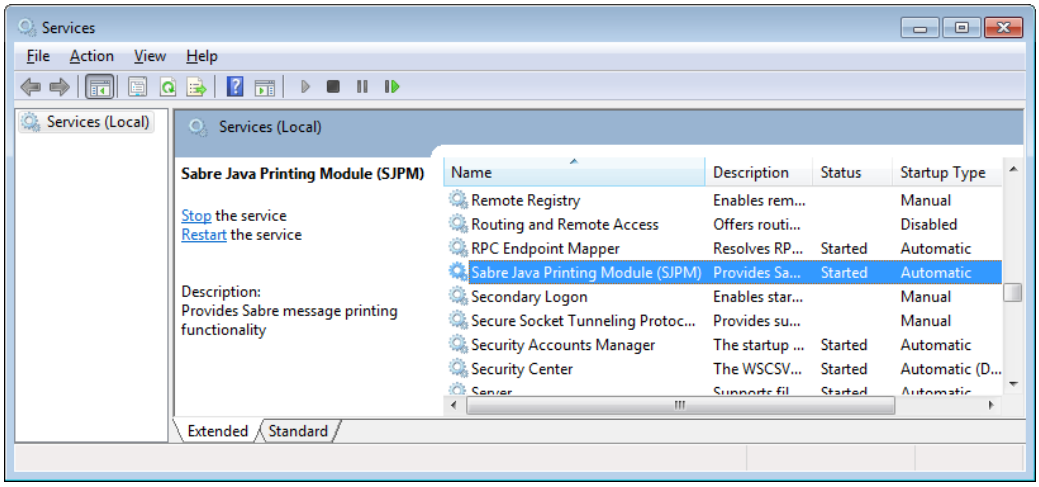
3. Click on the "**SJPM Client**" icon on the Windows desktop. This will start the SJPM Client GUI and the SJPM icon will appear in the Windows System Tray. Double click on the SJPM icon in the Windows System Tray to open the SJPM Client GUI.



4.2 Starting and Stopping the SJPM Service

Upon installation SJPM will install as a Service and the SJPM Server will run automatically in Windows "**Services**". The SJPM service name is "**Sabre Java Printing Module (SJPM)**". See sections **4.2.2.1**, **4.2.2.2**, and **4.2.2.3**.

Note: The SJPM Server must be installed on one computer in the office in order to make the connection to the Sabre Host.

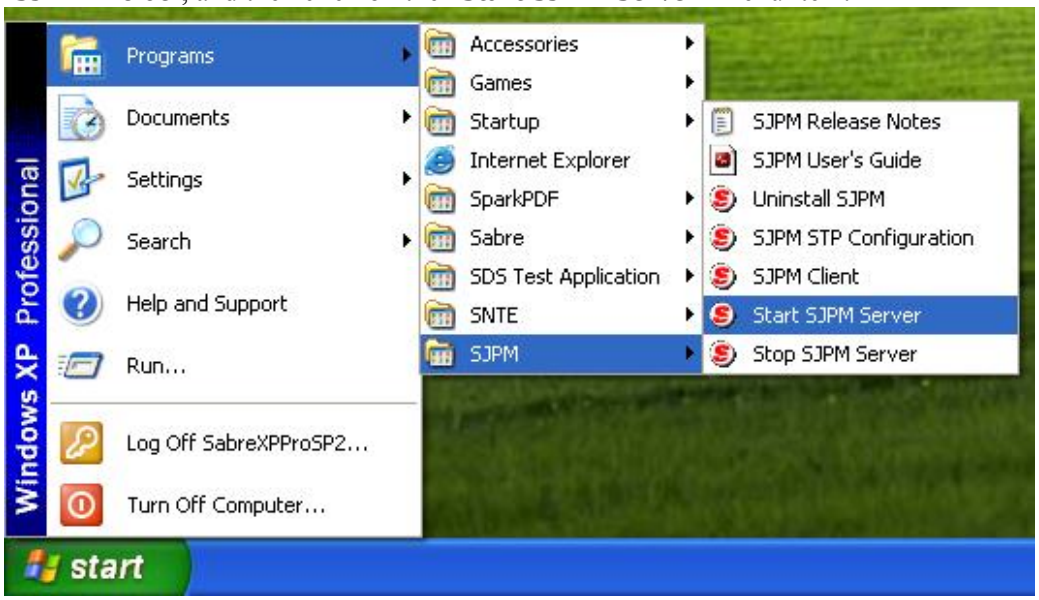


4.2.1 Starting / Stopping the SJPM Server - Windows "Start" Menus

This section describes the process for starting and stopping the SJPM Server in Windows XP SP3, Windows 7, Windows 8, and Windows 8.1. You must be logged in as the Administrator to start or stop the server.

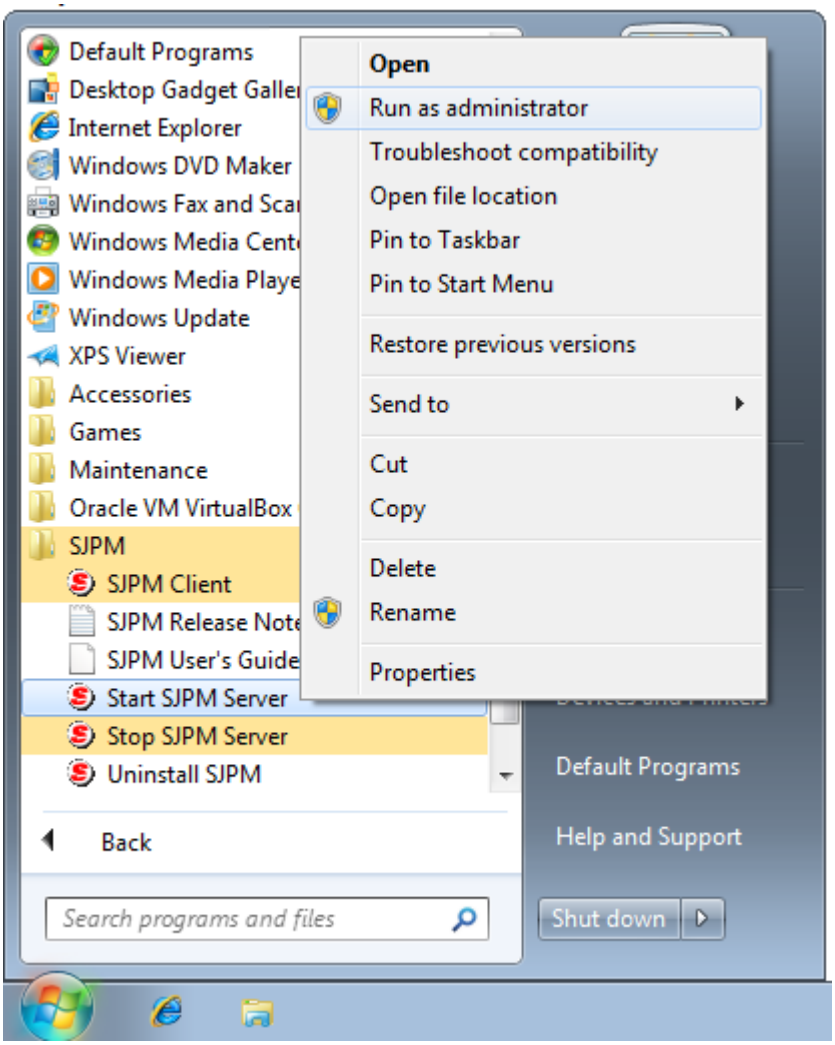
4.2.1.1 Starting the SJPM Server – Windows XP XP3

1. Click on the Windows "**Start**" button, then click on the "**Programs**" folder, then click on the "**SJPM**" folder, and then click on the "**Start SJPM Server**" menu item.

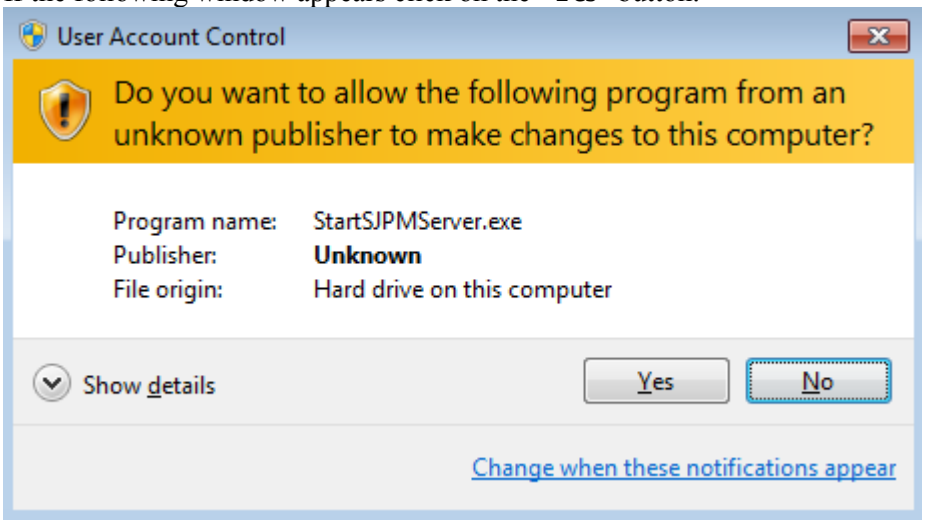


4.2.1.2 Starting the SJPM Server – Windows 7

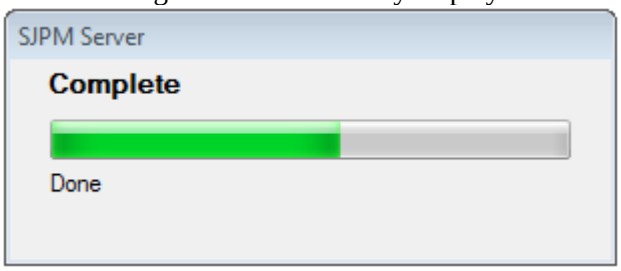
1. Click on the Windows "**Start**" button, then click on "**All Programs**", then click on the "**SJPM**" folder, then right click on the "**Start SJPM Server**" menu item and then select "**Run as administrator**".



If the following window appears click on the "**Yes**" button:



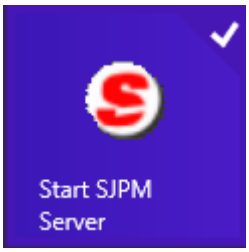
The following window will briefly display.



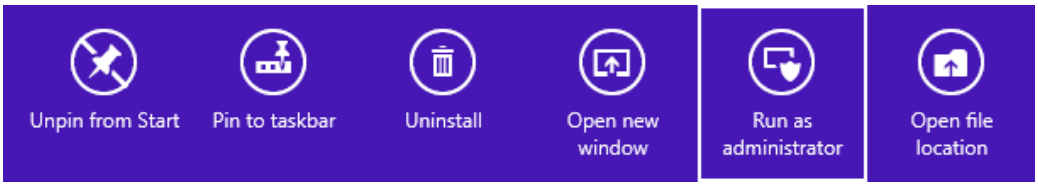
4.2.1.3 Starting the SJPM Server – Windows 8 and Windows 8.1

Windows 8

1. Move the mouse pointer to the bottom left corner of the screen. Click on Windows "**Start**", and then right click on the "**Stop SJPM Server**" icon on the Windows desktop.



2. Click on the "**Run as administrator**" icon on the menu bar.

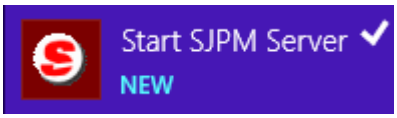


Windows 8.1

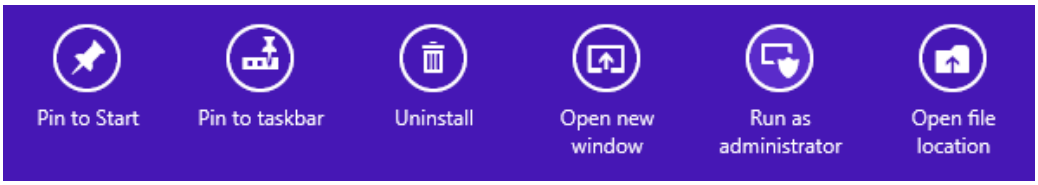
1. Click on the Windows "**Start**" button on the Windows Taskbar.

2. Click on the "**Circled Down Arrow**" icon on the Windows desktop.

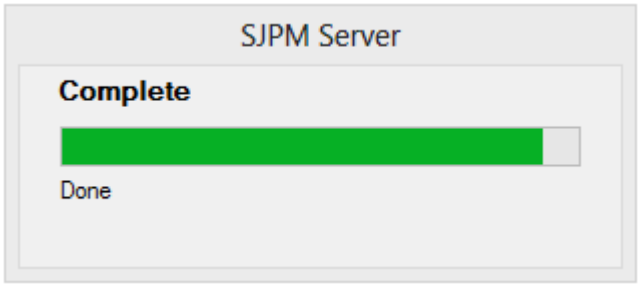
3. Right click on the "**Stop SJPM Server**" icon on the Windows desktop.



4. Click on the "**Run as administrator**" icon on the menu bar.

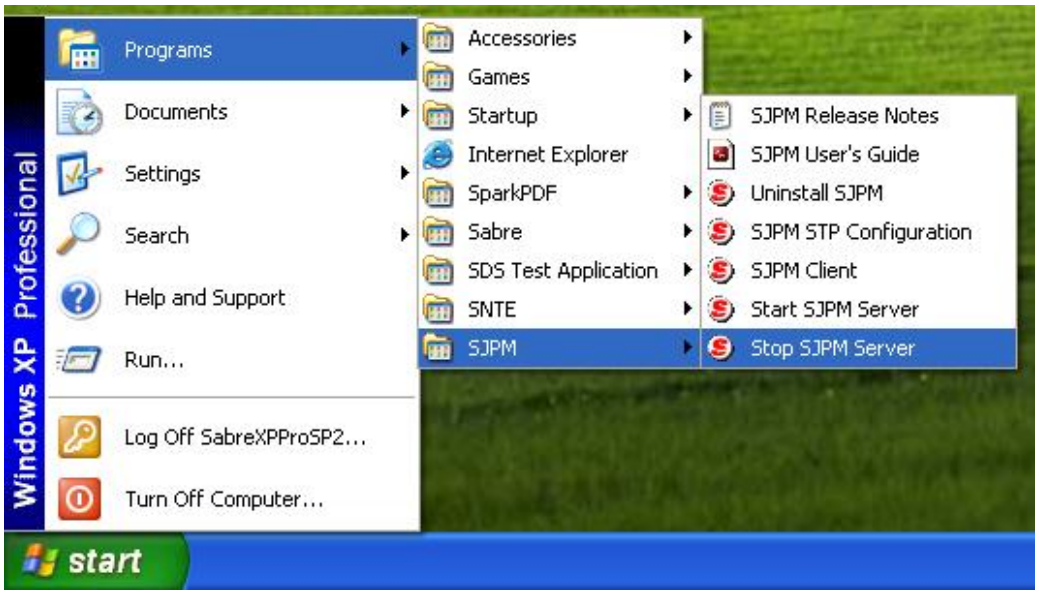


5. The following window will briefly display.



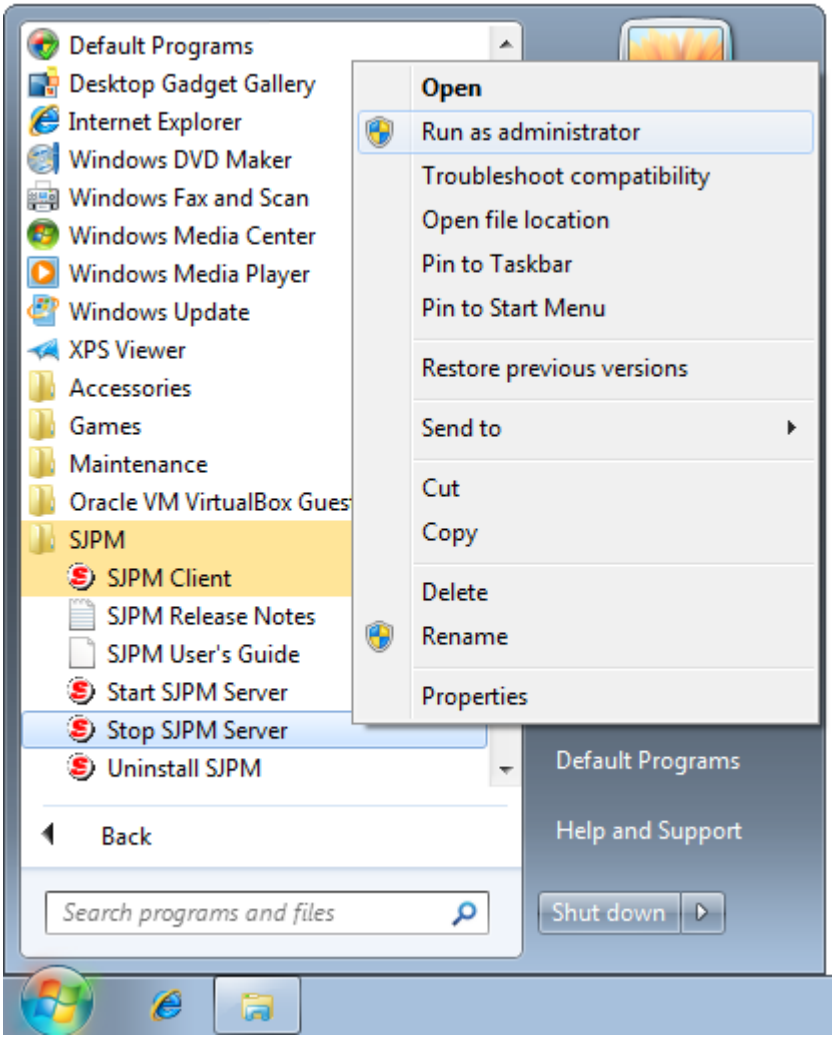
4.2.1.4 Stopping the SJPM Server – Windows XP SP3

1. Click on the Windows "**Start**" button, then click on the "**Programs**" folder, then click on the "**SJPM**" folder, and then click on the "**Stop SJPM Server**" menu item.

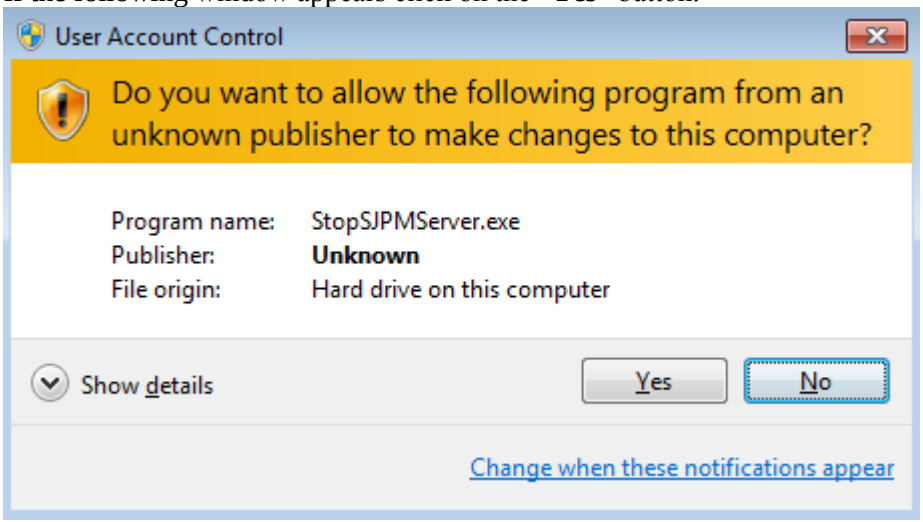


4.2.1.5 Stopping the SJPM Server – Windows 7

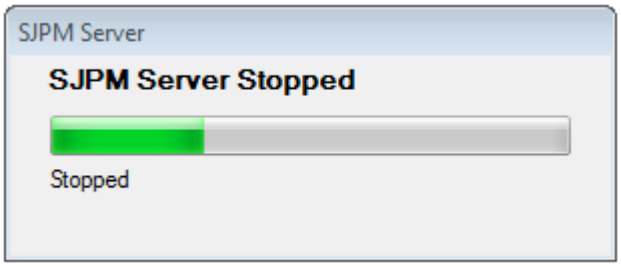
1. Click on the Windows "**Start**" button, then click on "**All Programs**", then click on the "**SJPM**" folder, then right click on the "**Stop SJPM Server**" menu item and then select "**Run as administrator**".



If the following window appears click on the "**Yes**" button:



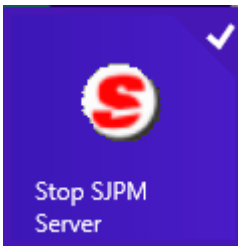
The following window will briefly display.



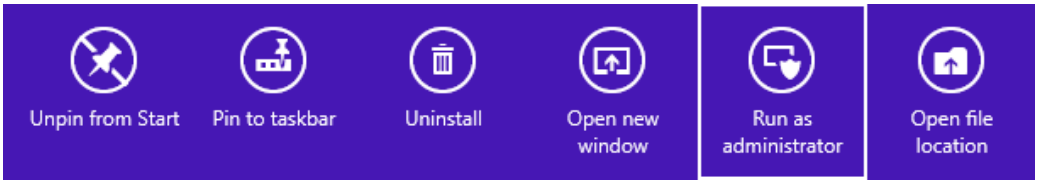
4.2.1.6 Stopping the SJPM Server – Windows 8 and Windows 8.1

Windows 8

1. Move the mouse pointer to the bottom left corner of the screen. Click on Windows "**Start**", and then right click on the "**Stop SJPM Server**" icon on the Windows desktop.



2. Click on the "**Run as administrator**" icon on the menu bar.



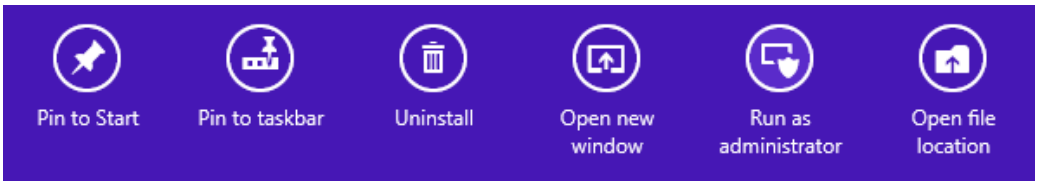
Windows 8.1

1. Click on the Windows "**Start**" button on the Windows Taskbar.

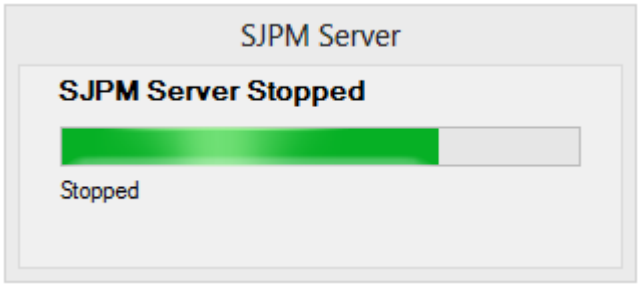
2. Click on the "**Circled Down Arrow**" icon on the Windows desktop.

3. Right click on the "**Stop SJPM Server**" icon on the Windows desktop.

4. Click on the "**Run as administrator**" icon on the menu bar.



5. The following window will briefly display.



4.3 Running SJPM on Linux

This section provides information on SJPM Linux installation, setup and operation in a Linux environment.

This assumes the operator has technical knowledge of Linux operations.

4.3.1 Prerequisites

Prerequisite:

Software:

a) SJPM zip (**Example:** SJPM 1.5.2.sabre.zip).

4.3.2 Install/Setup/Operate SJPM on Linux – Browse SJPM from Linux

This option is for running SJPM in a browser from the Linux machine.

1. Copy the SJPM zip file (**Example:** SJPM 1.5.2.sabre.zip) to the Linux machine and then unzip it. This will create the following folders and files:
   client - folder
   jre - folder
   server - folder
   ReleaseNotes.txt - file
   SJPMUsersGuide.pdf - file

2. In the folder where you unzipped SJPM, go into the "**server**" folder.

3. Open the "**server.properties**" file.
   Set the "**sjpm.drivers=**" property value to "**AEAIERIP,File,IFQ,MQJMS**".
   The **AEAIERIP**, **File**, **IFQ**, and **MQJMS** Drivers are the only supported drivers on Linux.
   (**Example:** sjpm.drivers= AEAIERIP,File,IFQ,MQJMS)

4. Save and close the "**server.properties**" file.

5. Run the command "**chmod +x RunSJPM.sh**".

6. Then run the command "**./RunSJPM.sh**".

7. Open a browser on the Linux machine and then browse to the following address:
   http://127.0.0.1:5196/

4.3.3 Install/Setup/Operate SJPM on Linux – Browse SJPM from Windows

This option is for running SJPM in a browser from a Windows machine.

1. Copy the SJPM zip file (**Example:** SJPM 1.5.2.sabre.zip) to the Linux machine and then unzip it. This will create the following folders and files:
   client - folder
   jre - folder
   server - folder
   ReleaseNotes.txt - file
   SJPMUsersGuide.pdf - file

2. In the folder where you unzipped SJPM, go into the "**server**" folder.

3. Open the "**server.properties**" file.
   Set the "**sjpm.drivers=**" property value to "**AEAIERIP,File,IFQ,MQJMS**".
   The **AEAIERIP**, **File**, **IFQ**, and **MQJMS** Drivers are the only supported drivers on Linux.
   (**Example:** sjpm.drivers= AEAIERIP,File,IFQ,MQJMS)

4. Uncomment the "**sjpm.server.hostAddr=127.0.0.1**" property by deleting the "**#**" sign before it. Change the IP address to the IP address of the Linux machine where SJPM is running.

5. Save and close the "**server.properties**" file.

6. Run the command "**chmod +x RunSJPM.sh**".

7. Then run the command "**./RunSJPM.sh**".

8. Open a browser on a Windows machine and then browse to the following address:
   http://x.x.x.x:5196/

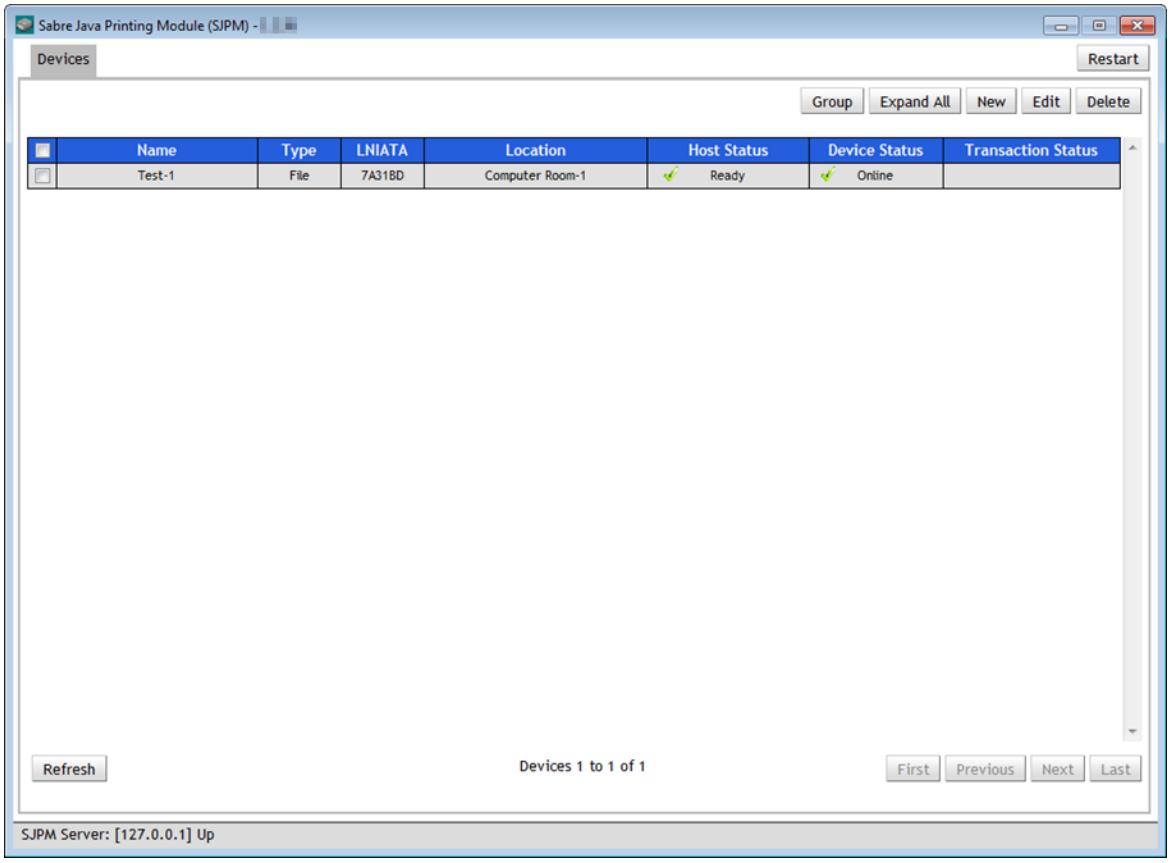
   x.x.x.x = IP address of the Linux machine where SJPM is running.

SJPM Client GUI

5

5.1 SJPM Client GUI Description

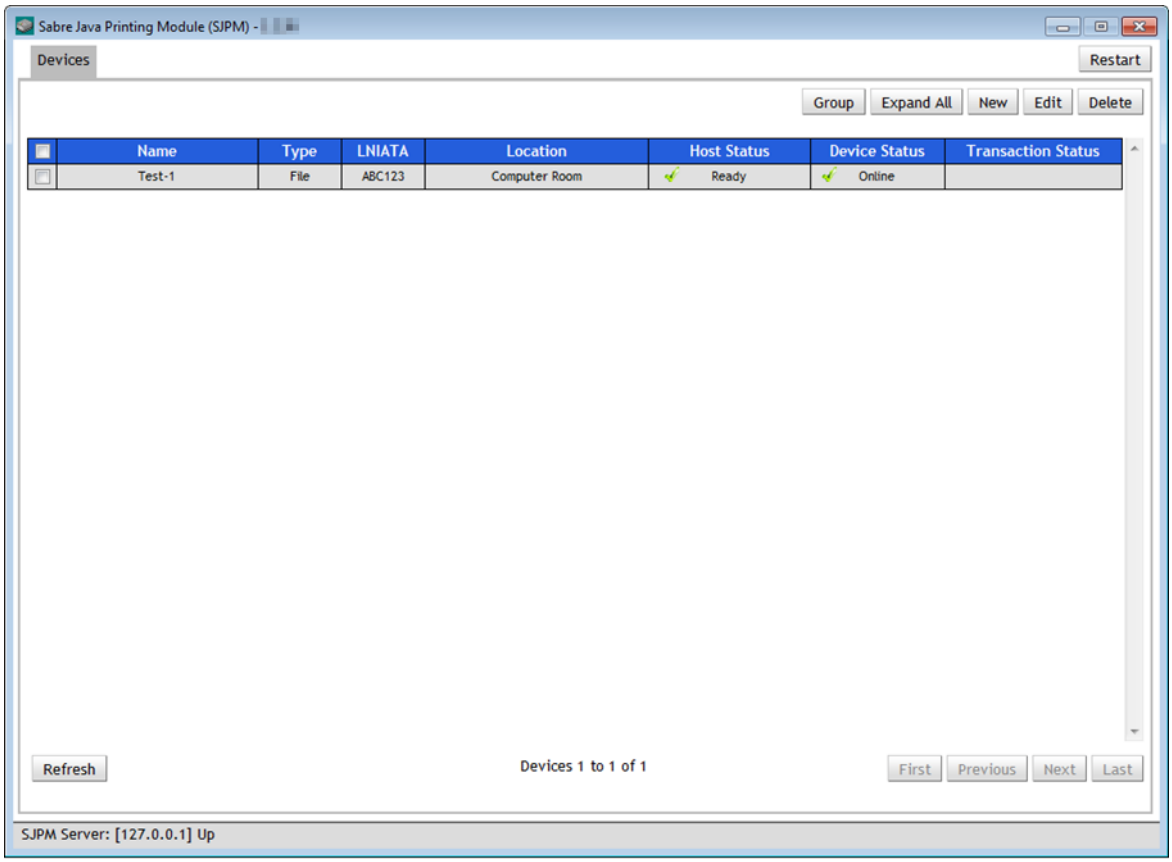
This section describes the SJPM Client GUI and its components.



5.1.1 Device Line Fields

Field Name	Description	Example(s)
Name	This field displays the name identifying the configured device. This is provided during "**New**" device creation and it is not editable after creation.	**Test-1**
Type	This field displays the configured device driver's name. This can only be selected during "**New**" device creation and is not editable after creation.	**File**
LNIATA	This field displays the device's configured LNIATA. This is provided during "**New**" device creation and can be edited after device creation.	**ABC123**
Location	This field displays the pseudo name or a physical location of the device. This is provided during "**New**" device creation and can be edited after device creation.	**Computer Room-1**
Host Status	This field displays the current state of the SJPM's connection to the Sabre Host.	**Connecting** **Ready** **Down**
Device Status	This field displays the current state of the SJPM's connection to the device.	**Online** **Disconnected**
Transaction Status	This field displays the last state of the last transaction sent to the device.	**Sending to Device** **Last Send Successful** **Last Send Failed**

5.1.2 GUI Buttons



Restart Button

The "**Restart**" button is located in the upper right corner of the SJPM Client GUI window. The "**Restart**" button restarts the SJPM Server service. This action (**Restart**) is required after all device additions, device deletions, device disable, device enable, device configuration change and enable/disable Server logging.

Group/Ungroup Buttons

The "**Group**" and "**Ungroup**" buttons are located in the upper right corner of the SJPM Client GUI, inside the "**Devices**" tab, under the "**Restart**" button when a device is configured. The "**Group**" button groups together like device lines based on the "**Location**" field of the device lines. The "**Ungroup**" button ungroups grouped device lines.

Expand All/Collapse All Buttons

The "**Expand All**" and "**Collapse All**" buttons are located in the upper right corner of the SJPM Client GUI, in the "**Devices**" tab, under the "**Restart**" button when a device is configured. The "**Expand All**" button expands all device lines to show their status in detail. The "**Collapse All**" button collapses all device lines to show the device status in a single line. The device line can also be clicked on to expand and collapse the device view.

New Button

The "**New**" button is located in the upper right corner of the SJPM Client GUI, in the "**Devices**" tab, under the "**Restart**" button when no devices are configured and between the "**Expand All**" and "**Edit**" buttons when a device is configured. The "**New**" button is used to create a new device in the SJPM Client GUI.

Edit Button

The "**Edit**" button is located in the upper right corner of the SJPM Client GUI, in the "**Devices**" tab, under the "**Restart**" button between the "**New**" and "**Delete**" buttons when a device is configured. The "**Edit**" button is used to edit selected device lines.

Delete Button

The "**Delete**" button is located in the upper right corner of the SJPM Client GUI, in the "**Devices**" tab, under the "**Restart**" button to the right of the "**Edit**" button when a device is configured. The "**Delete**" button is used to delete selected device lines.

Refresh Button

The "**Refresh**" button is located in the lower left corner of the SJPM Client GUI. The "**Refresh**" button is used to manually update the SJPM Client GUI to the most current state.

Pagination Buttons

The **Pagination** buttons are located in the bottom right corner of the SJPM Client GUI. The **Pagination** buttons are used to navigate through devices

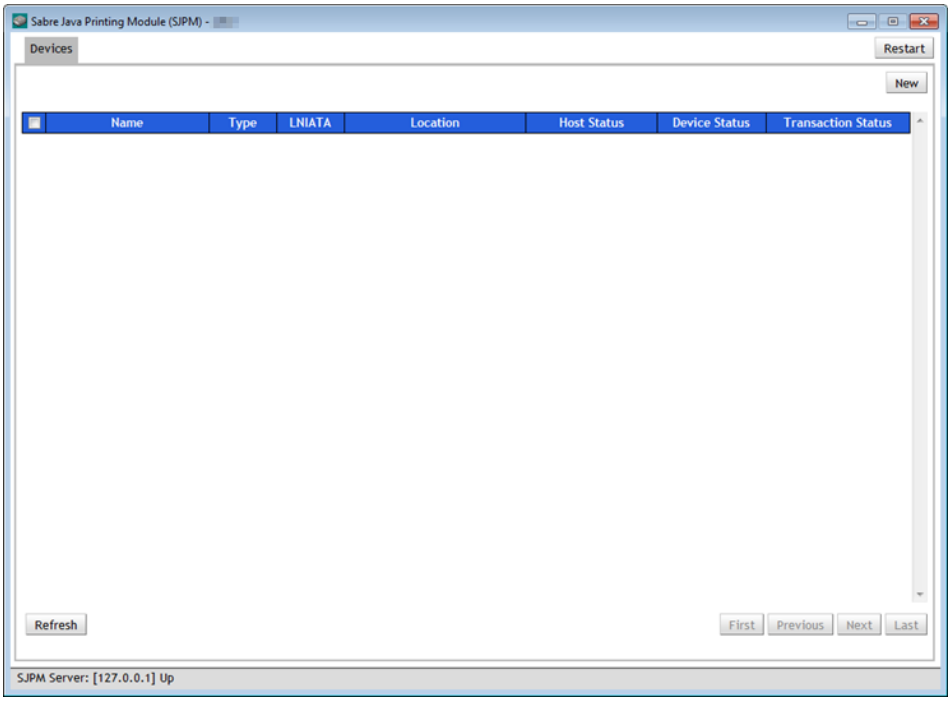
The SJPM Client GUI will display up to 15 devices per page and will activate pagination if there are more than 15 devices. The "**Next**", and "**Last**" buttons will be active when on the first page. The "**First**" and "**Previous**" buttons will be active when on the second page. If there are more than two pages of devices then all buttons will be active on the second page.

5.1.3 Adding and Deleting a Device

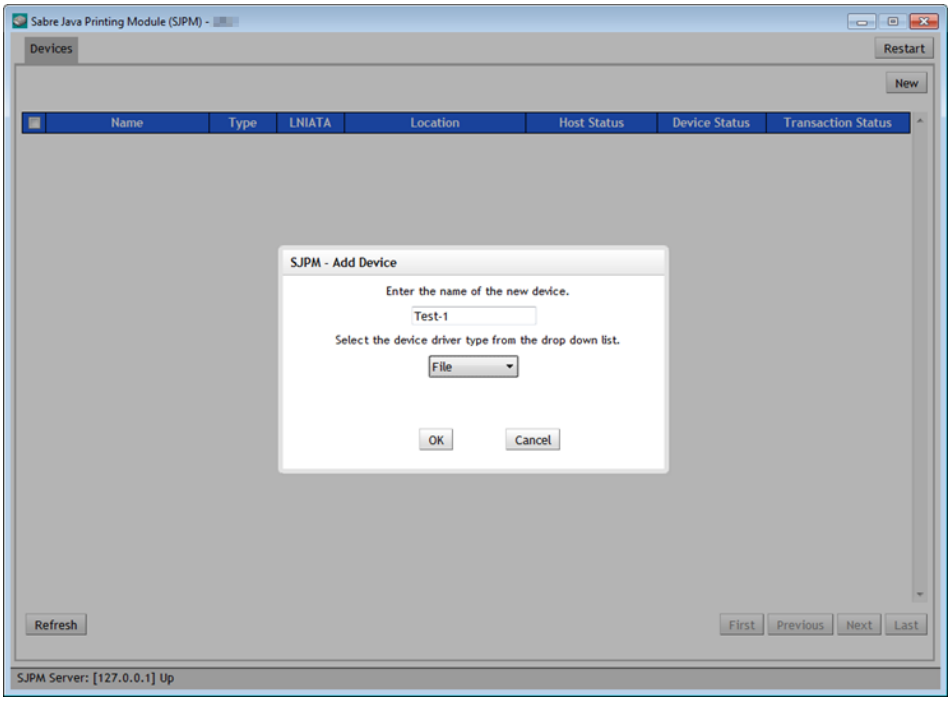
This section describes the processes for adding and deleting a device in the SJPM Client GUI.

5.1.3.1 Adding a Device

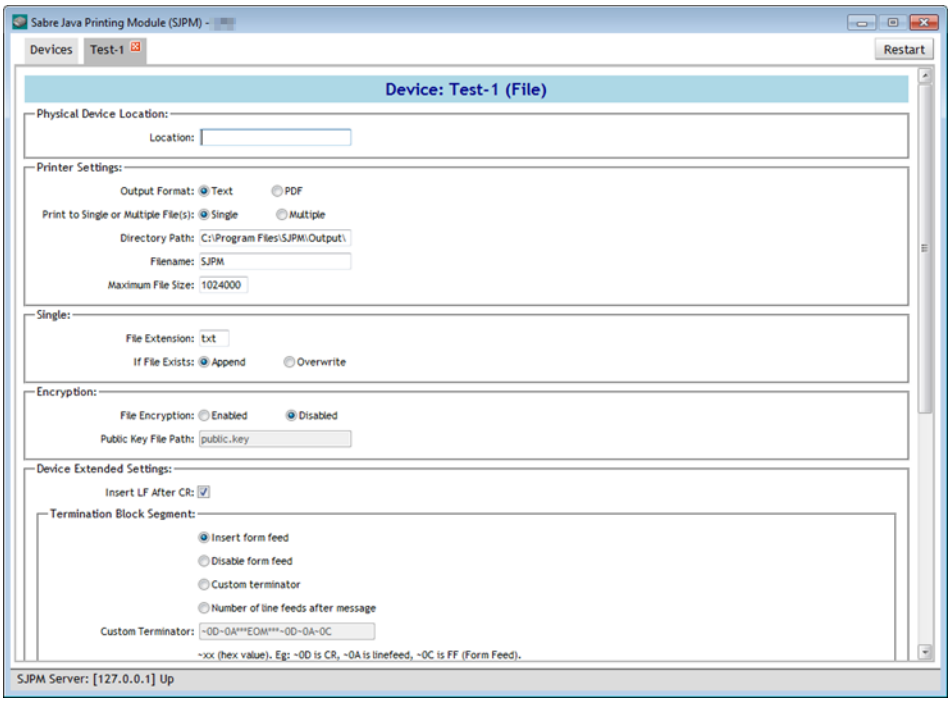
1. Click on the "**New**" button.



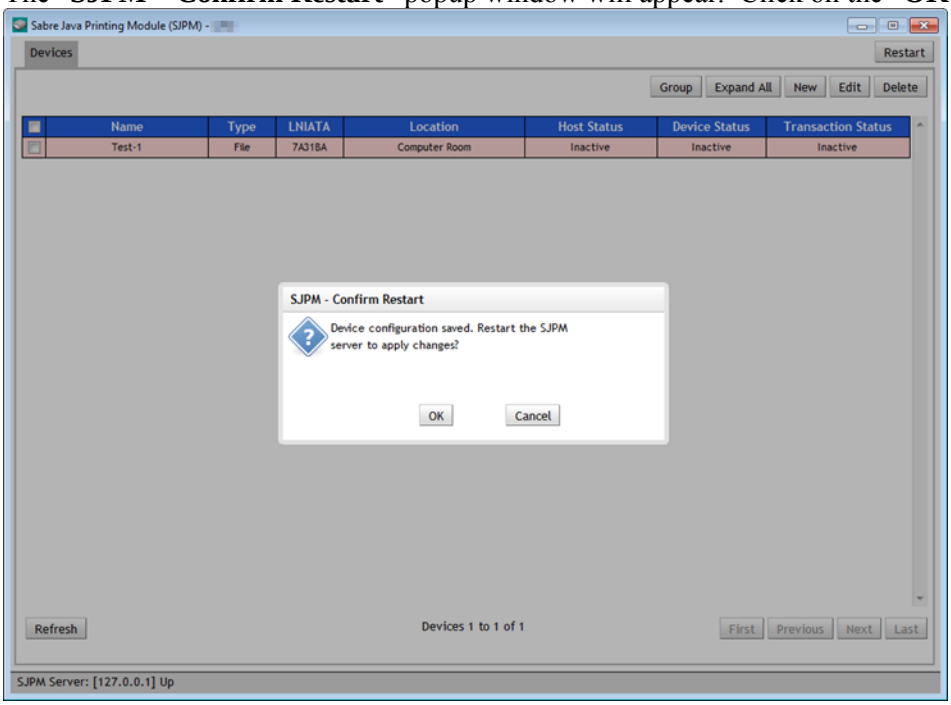
2. The "**SJPM – Add Device**" popup window will appear. Type in a device name in the field and then click on the device driver drop down list and select a driver. Click on the "**OK**" button.



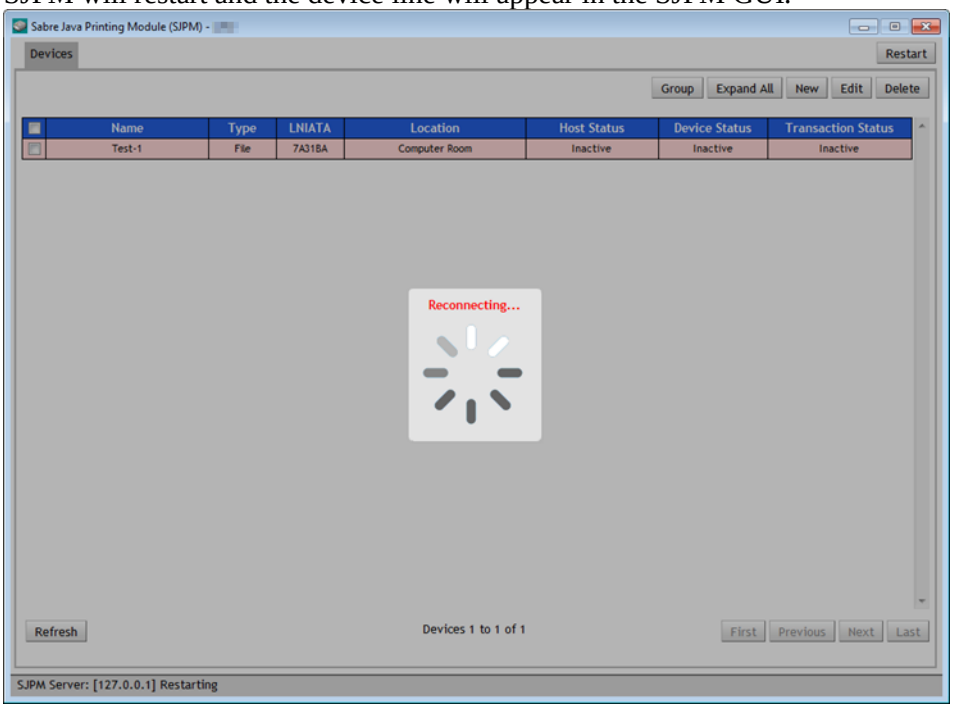
3. The device's configuration tab will appear. Configure the device (refer to section **6.2**) and then click on the "**Save**" button.

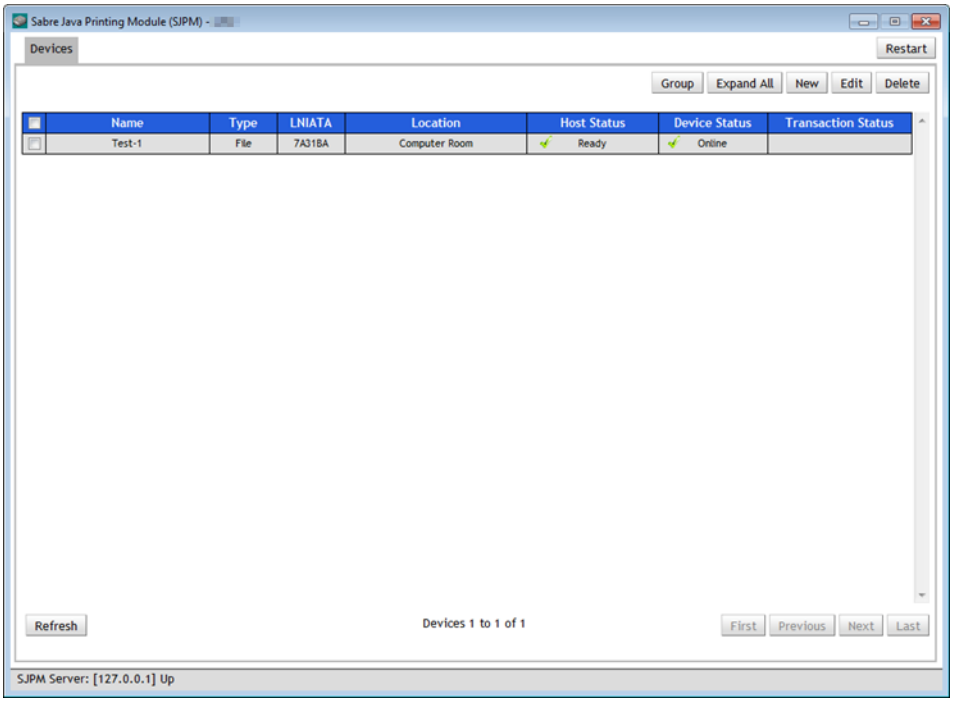


4. The "**SJPM – Confirm Restart**" popup window will appear. Click on the "**OK**" button.



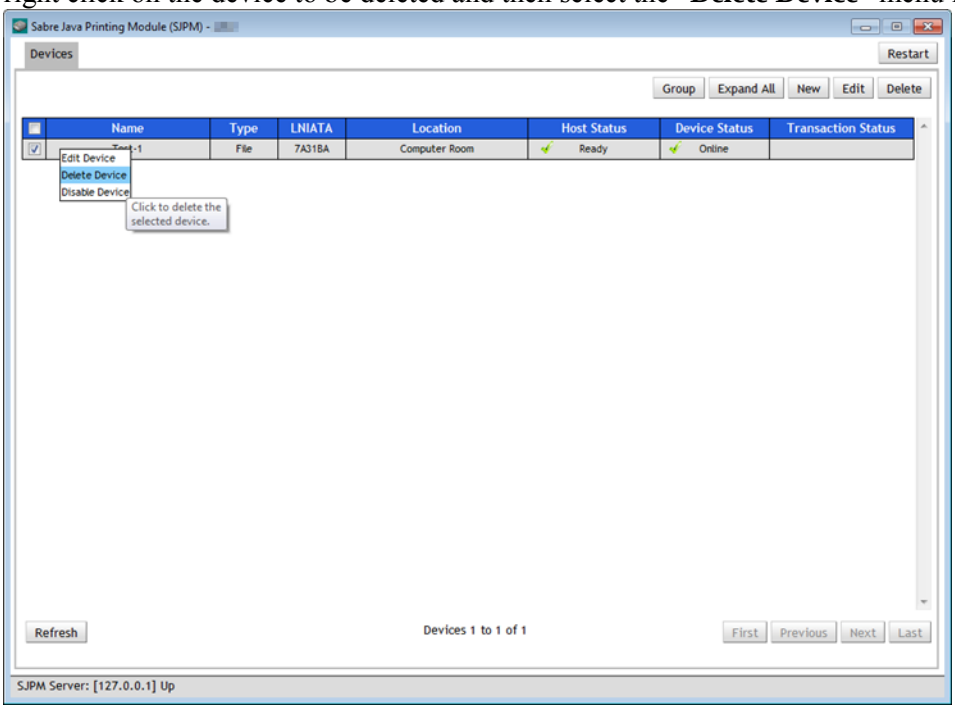
5. SJPM will restart and the device line will appear in the SJPM GUI.



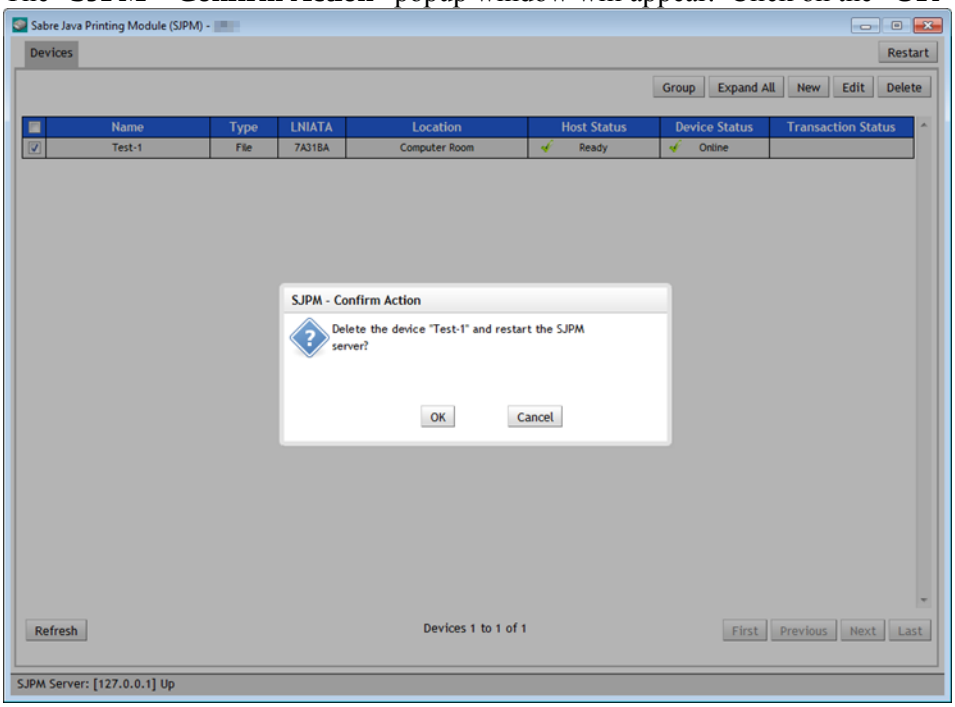


5.1.3.2 Deleting a Device

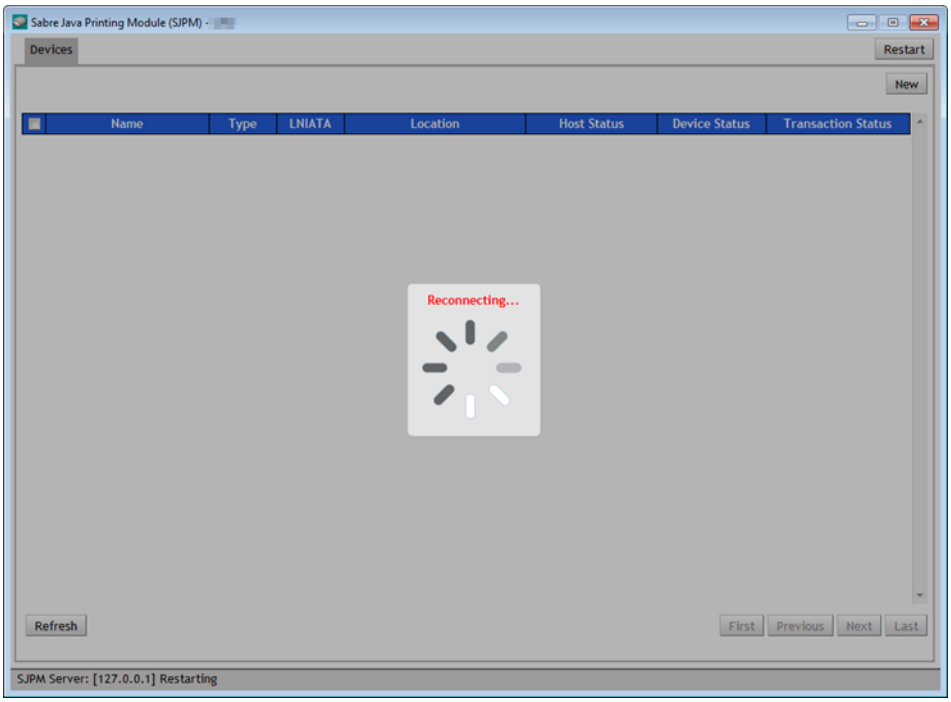
1. Click on the checkbox for the device to be deleted and then click on the "**Delete**" button or right click on the device to be deleted and then select the "**Delete Device**" menu item.

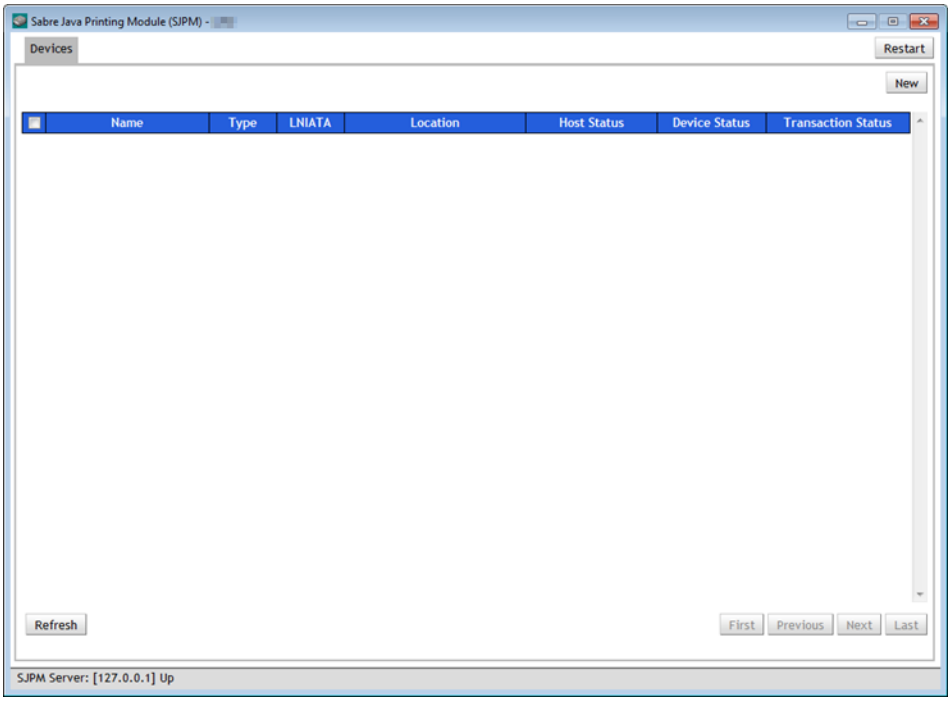


2. The "**SJPM – Confirm Action**" popup window will appear. Click on the "**OK**" button.



3. SJPM will restart and the device will be deleted.



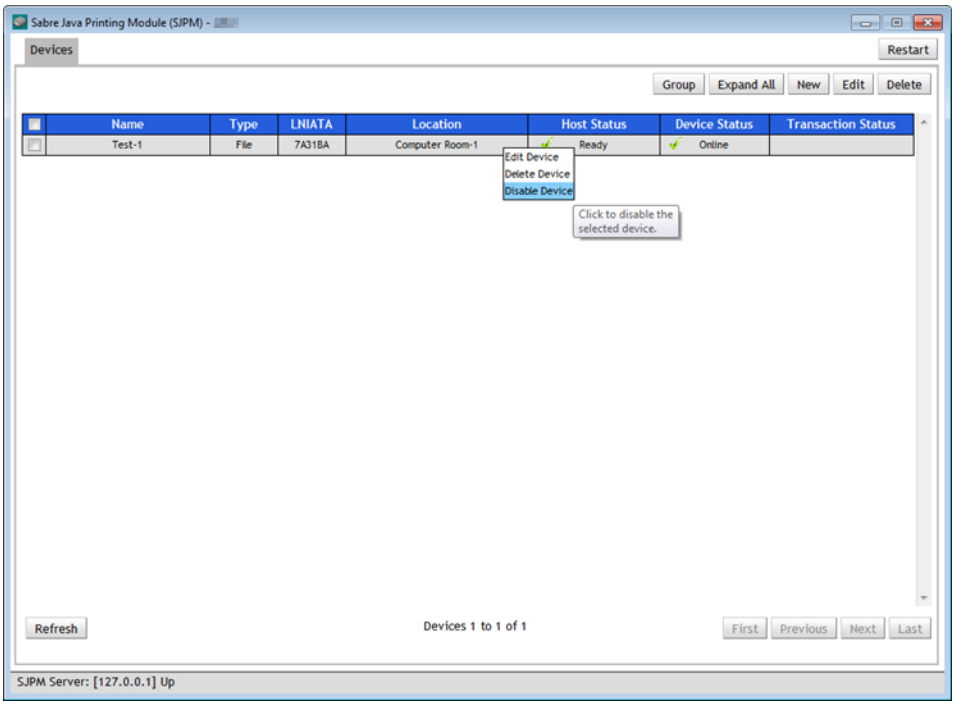


5.1.4 Disabling and Enabling a Device

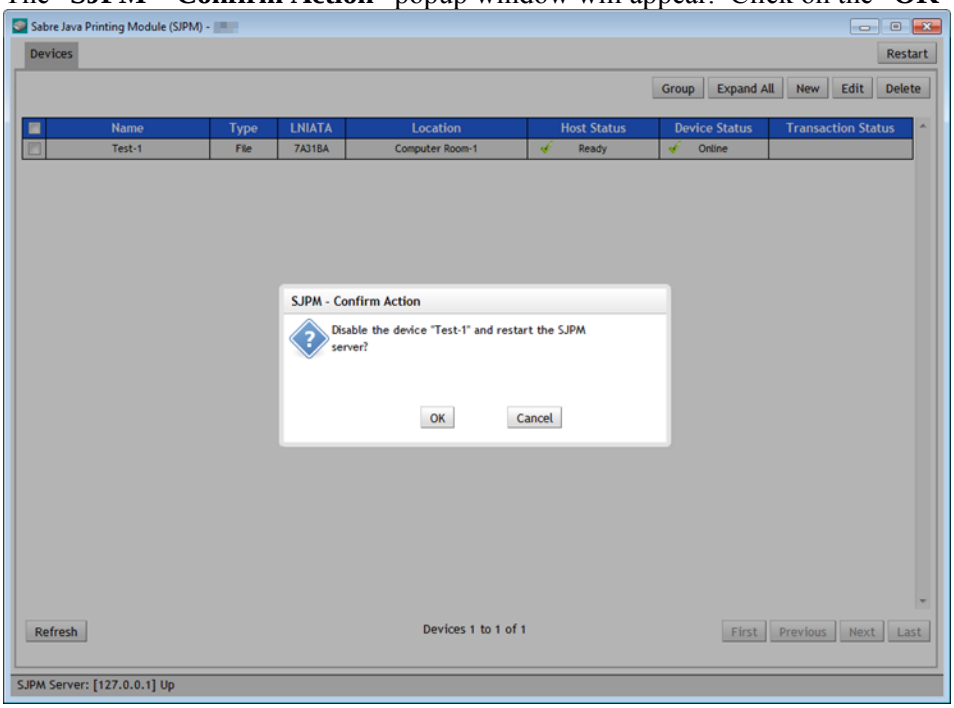
This section describes the processes for disabling and enabling a device in the SJPM Client GUI. Disabling a device is an alternative to device deletion, making the device inactive for testing or failover purposes while retaining the device line and device's configuration in the SJPM Client GUI.

5.1.4.1 Disabling a Device

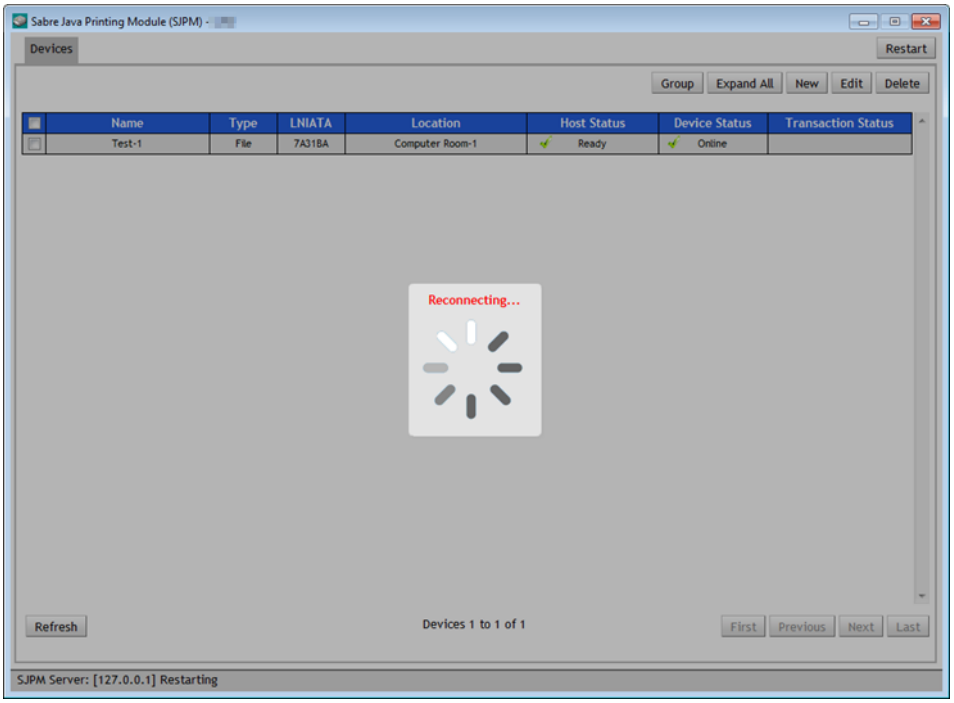
1. Right click on the device line that you want to disable and then click on the "**Disable Device**" menu item.

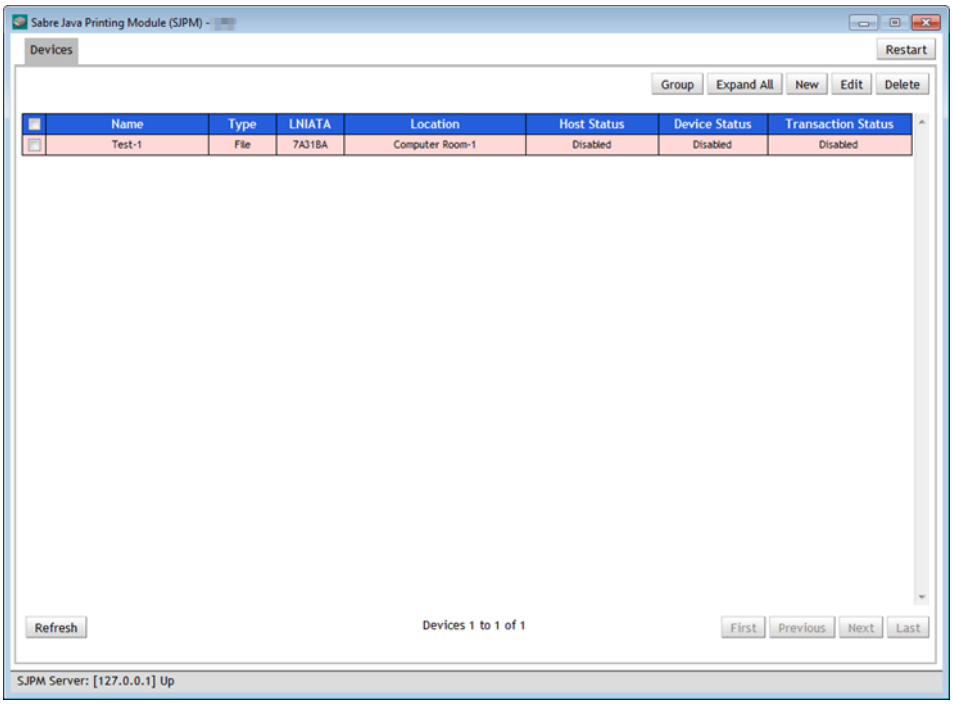


2. The "**SJPM – Confirm Action**" popup window will appear. Click on the "**OK**" button.



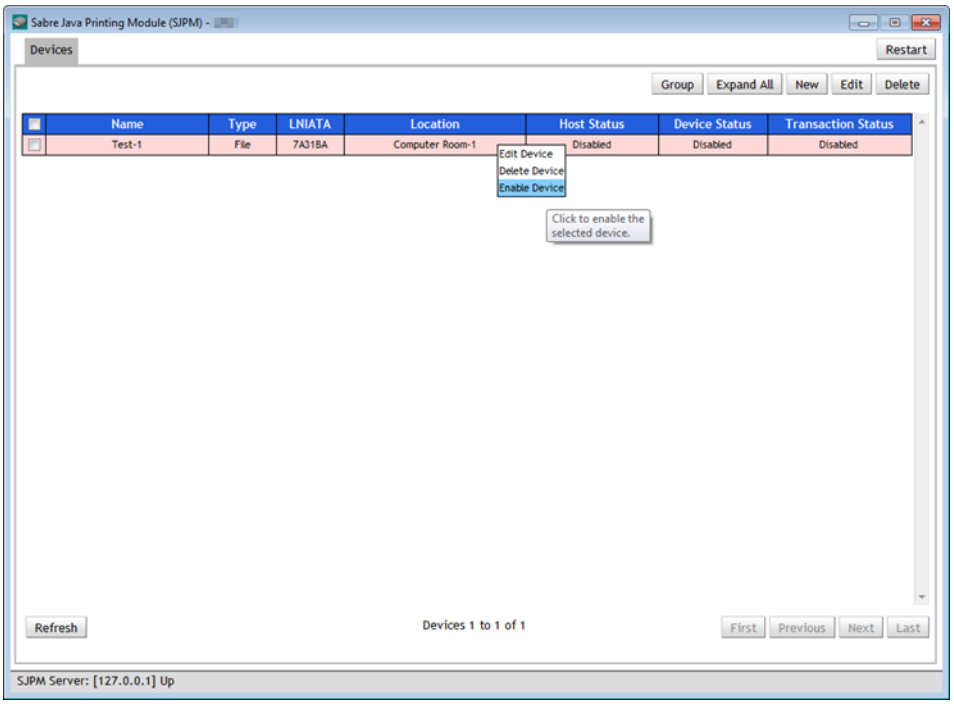
3. SJPM will restart and the device will appear in red with "**Disabled**" in the "**Host Status**", "**Device Status**" and "**Transaction Status**" columns.



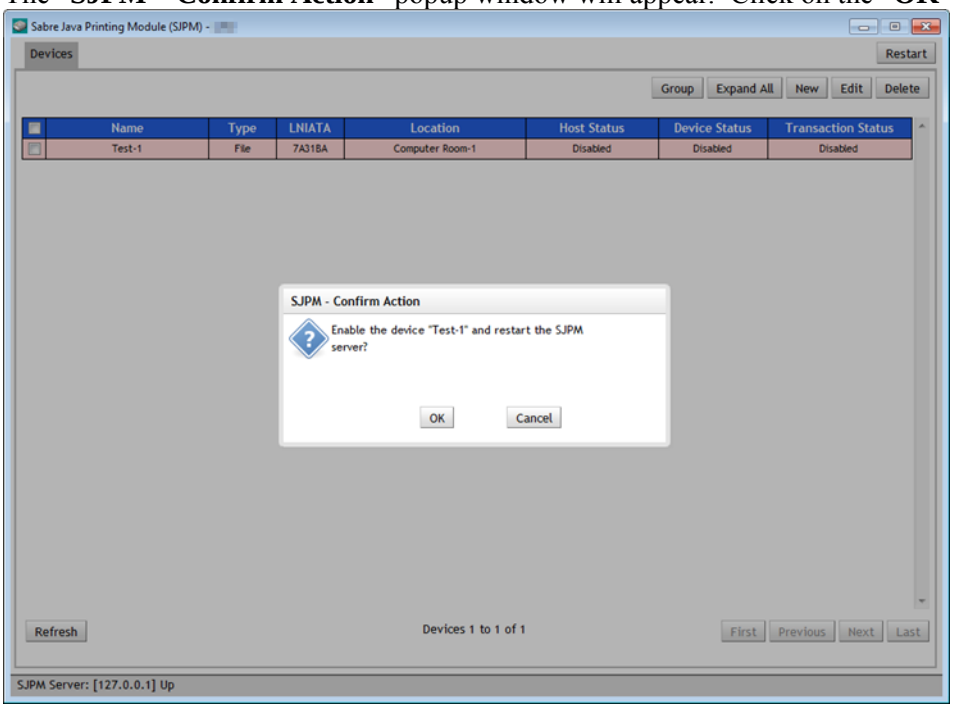


5.1.4.2 Enabling a Device

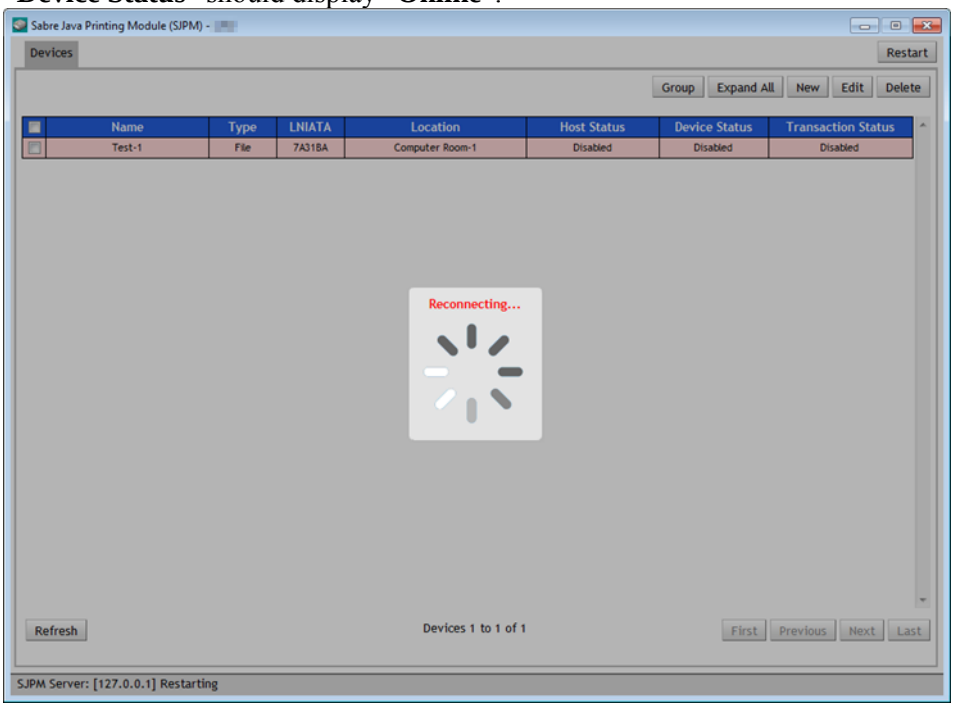
1. Right click on the device line that you want to enable and then click on the "**Enable Device**" menu item.

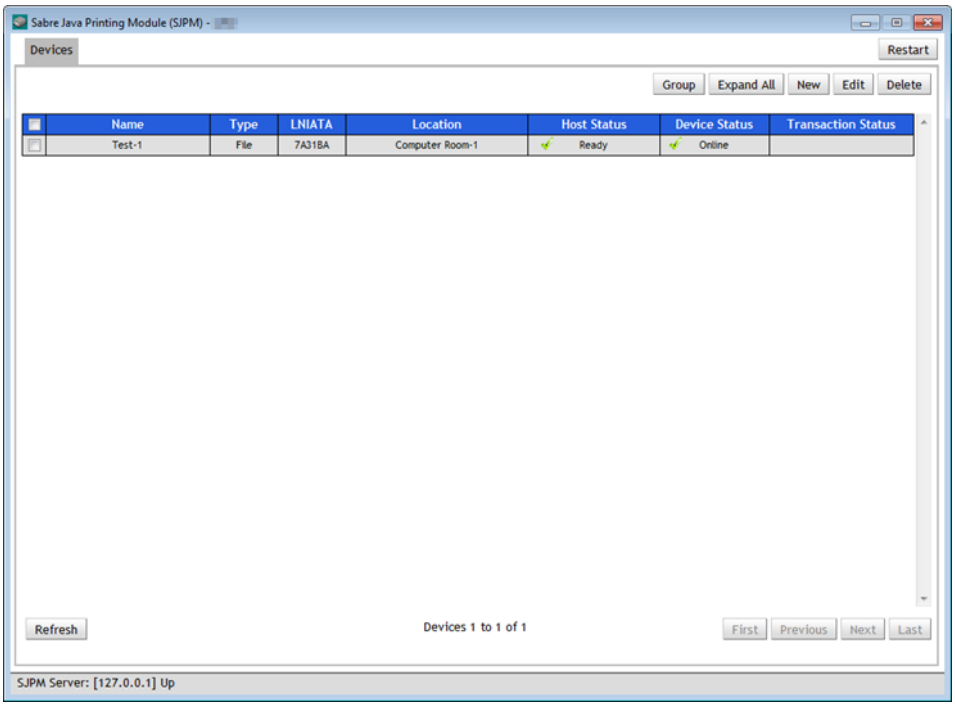


2. The "**SJPM – Confirm Action**" popup window will appear. Click on the "**OK**" button.



3. SJPM will restart and the device will be enabled. "**Host Status**" should display "**Ready**" and "**Device Status**" should display "**Online**".



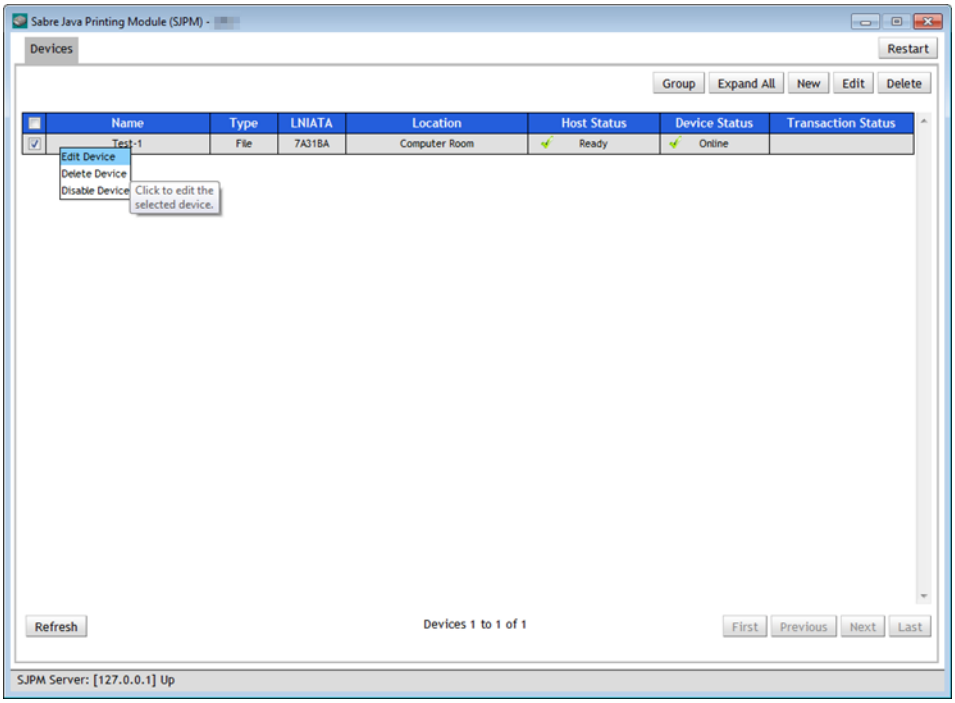


5.1.5 Editing a Device

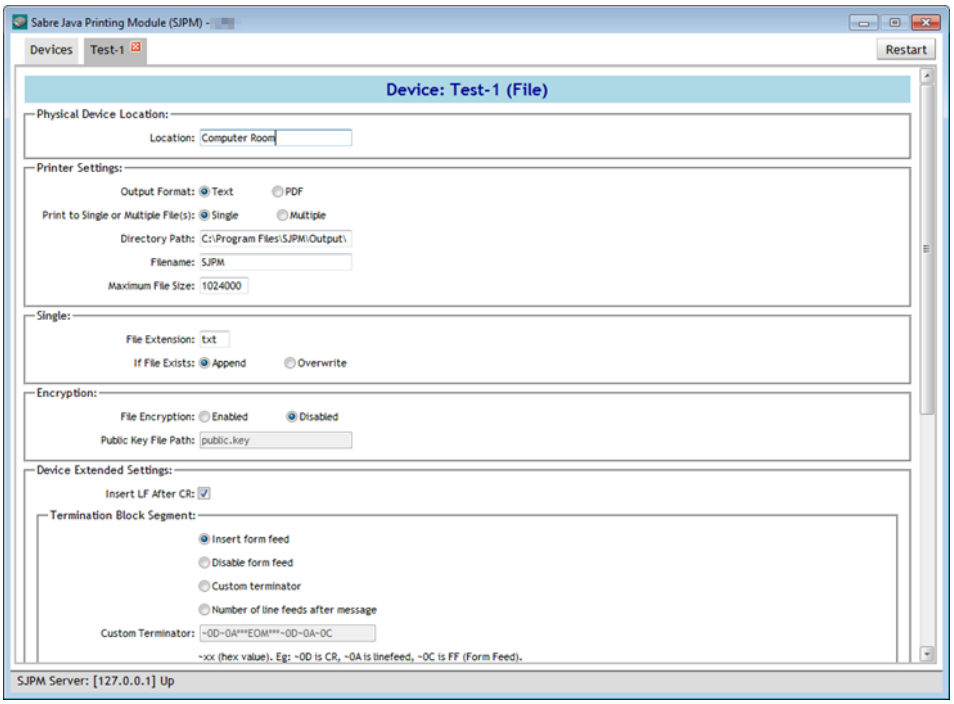
This section describes the processes for editing a device in the SJPM Client GUI.

5.1.5.1 Editing a Device

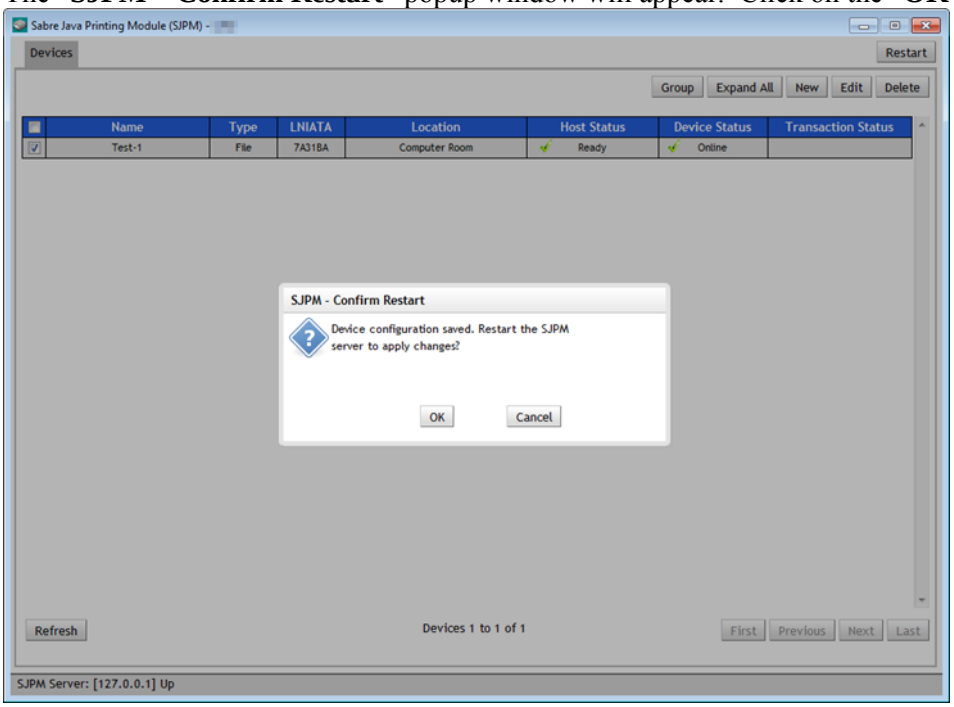
1. Click on the checkbox for the device to be edited and then click on the "**Edit**" button or right click on the device to be edited and then select the "**Edit Device**" menu item.



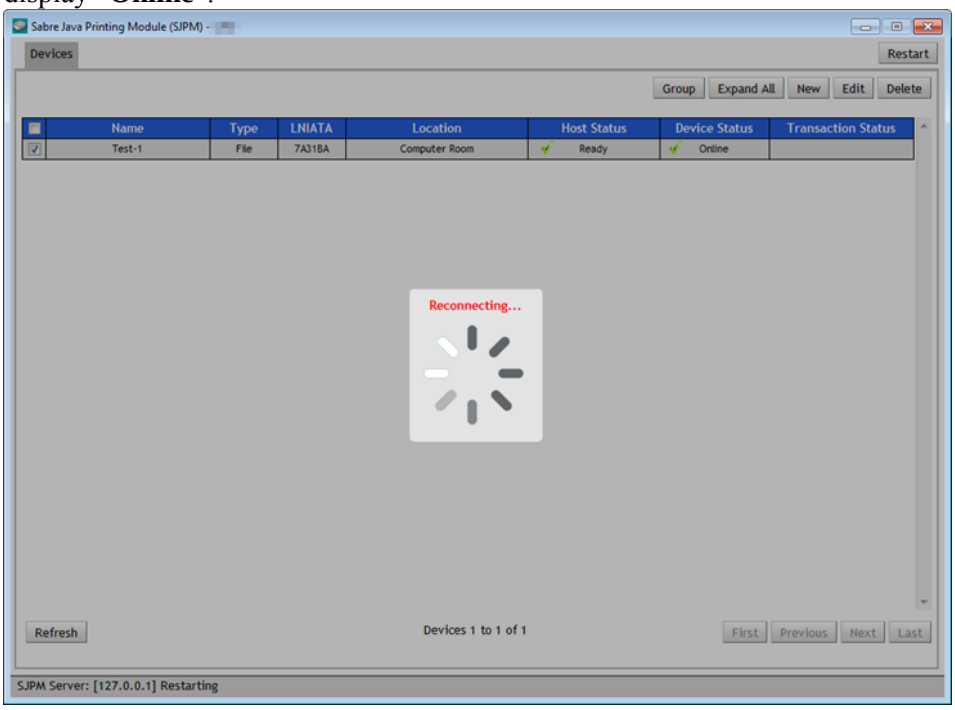
2. The device's configuration tab will appear. Edit the device (refer to section **6.2**) and then click on the "**Save**" button.

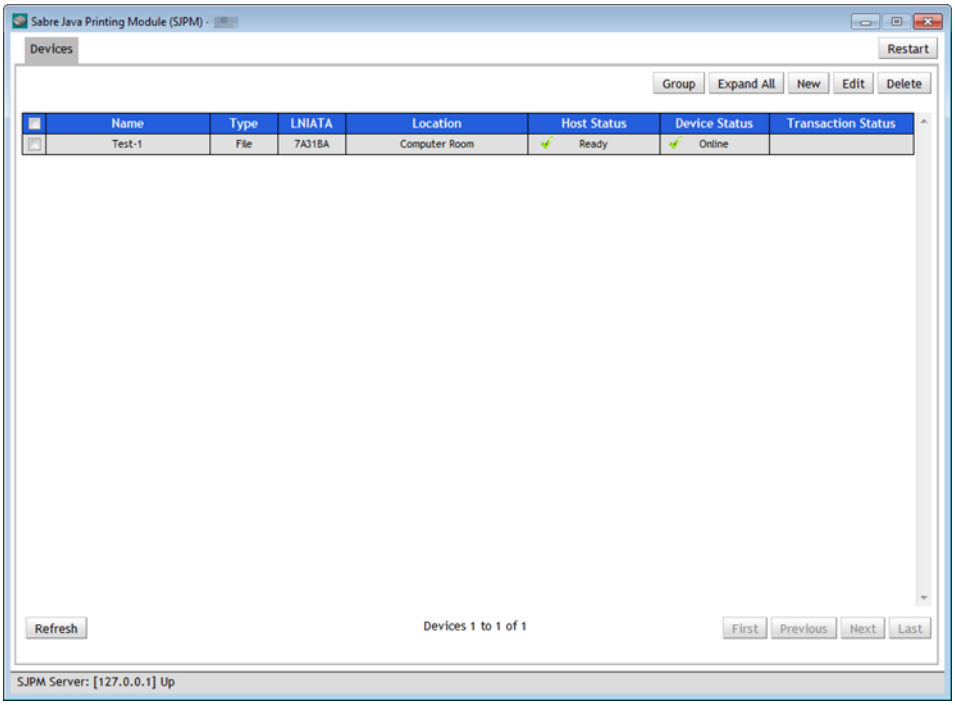


3. The "**SJPM – Confirm Restart**" popup window will appear. Click on the "**OK**" button.



4. SJPM will restart. "**Host Status**" should display "**Ready**" and "**Device Status**" should display "**Online**".





5.1.6 Grouping Devices

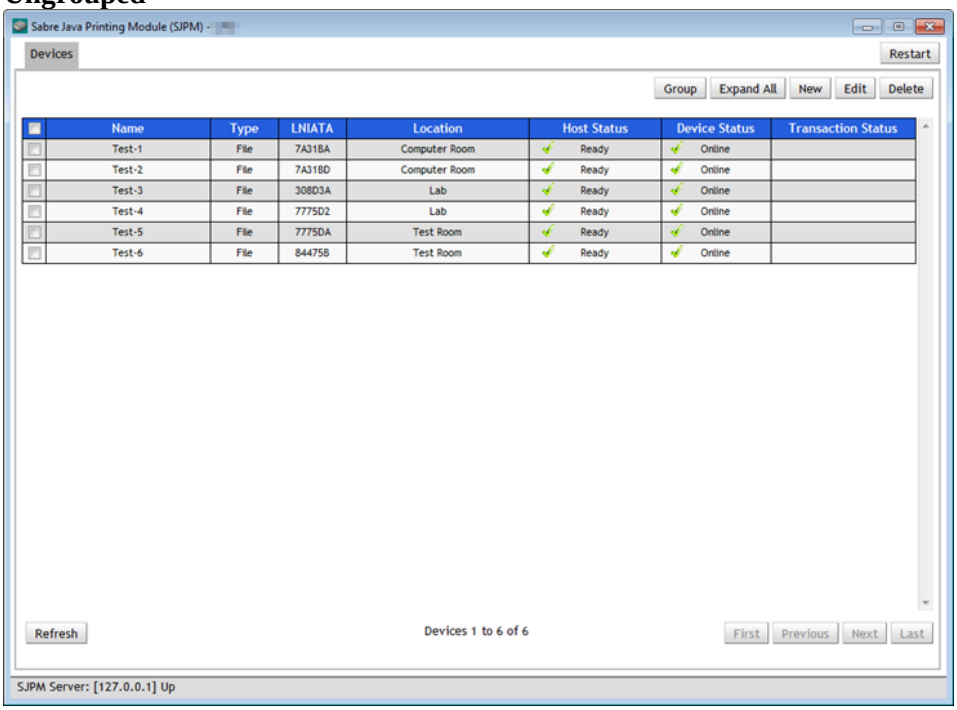
This section describes the processes for grouping devices in the SJPM Client GUI.

The "**Group**" and "**Ungroup**" buttons are located in the upper right corner of the SJPM Client GUI, inside the "**Devices**" tab, under the "**Restart**" button when a device is configured. The "**Group**" button groups together like device lines based on the "**Location**" field of the device lines. The "**Ungroup**" button ungroups grouped device lines.

5.1.6.1 Grouping Devices

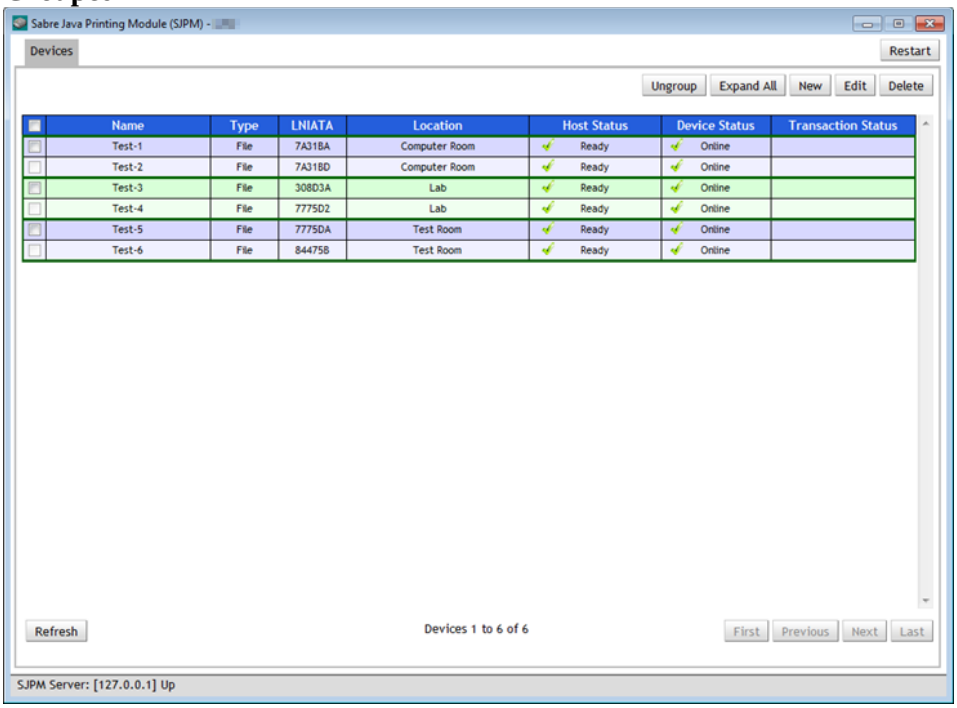
1. When you add or edit your devices make the "**Location**" the same for all of the devices you want to be grouped together. The example below shows three (3) different groupings ("**Computer Room**", "**Lab**", and "**Test Room**").

Ungrouped



2. Click on the "**Group**" button to group the device lines. Click on the "**Ungroup**" button to ungroup the device lines.

Grouped



Configurations and Drivers

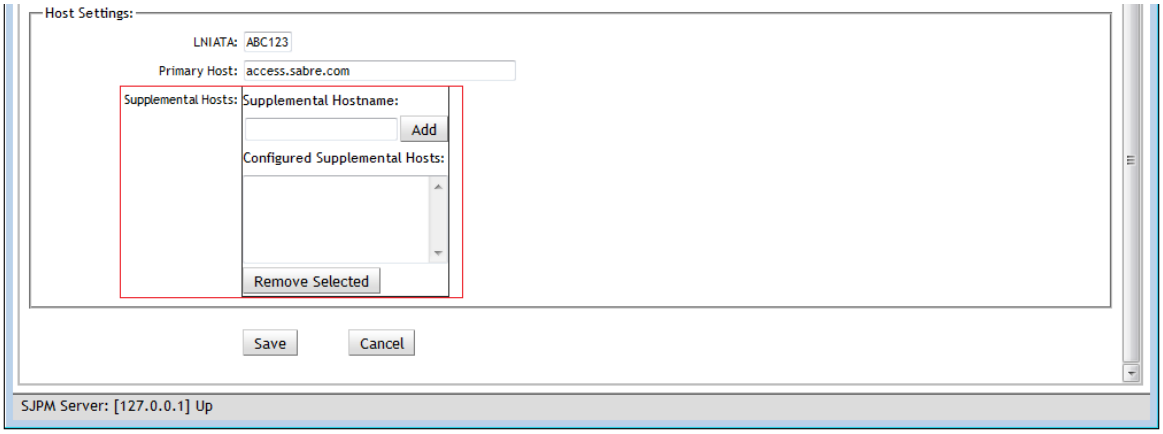
6

6.1 SJPM Configurations

This section describes configurations that are applicable to SJPM and SJPM Drivers.

6.1.1 Supplemental Hosts Configuration

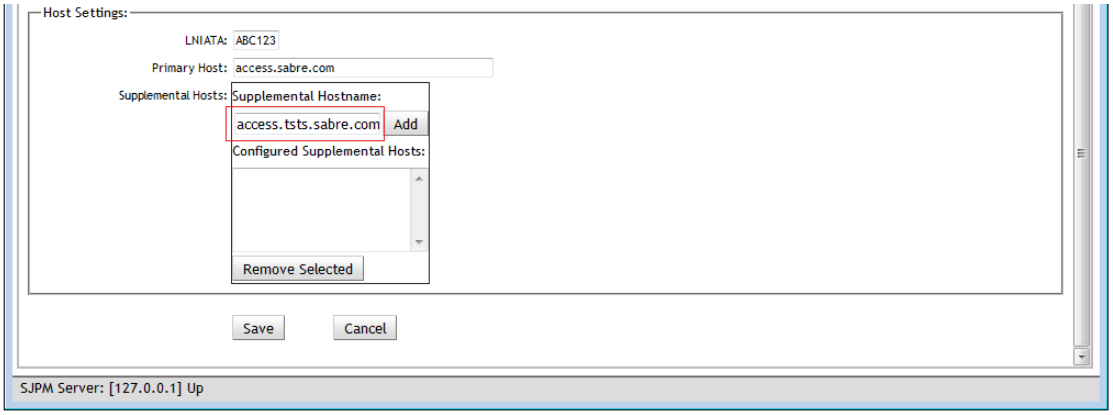
Each device configuration tab has a "**Supplemental Hosts:**" text box in the "**Host Settings:**" section. "**Supplemental Hosts:**" is used to specify host connections in addition to the host connection configured in the "**Primary Host:**" field. This provides the ability to print from multiple hosts using the device. To add or delete hosts from the list, follow the steps below.



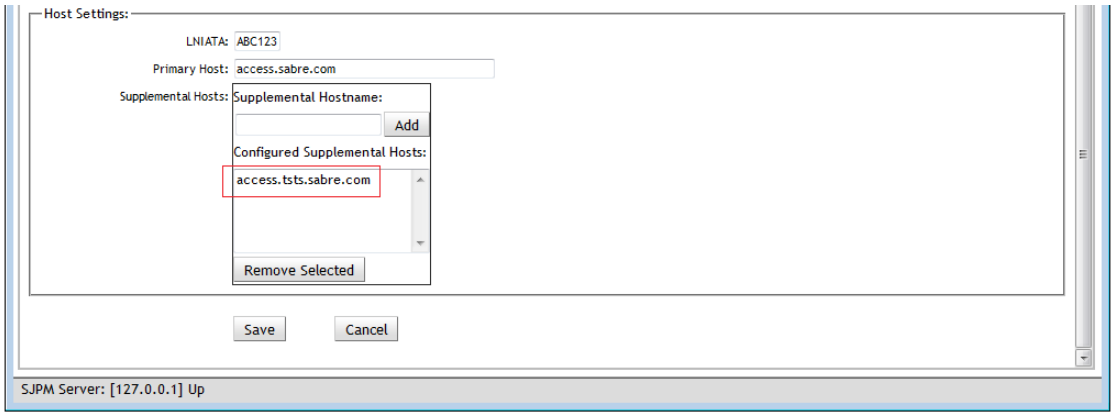
6.1.1.1 Adding Supplemental Hosts

Use the following steps to add supplemental hosts (concurrent connections) to the "**Configured Supplemental Hosts:**" list.

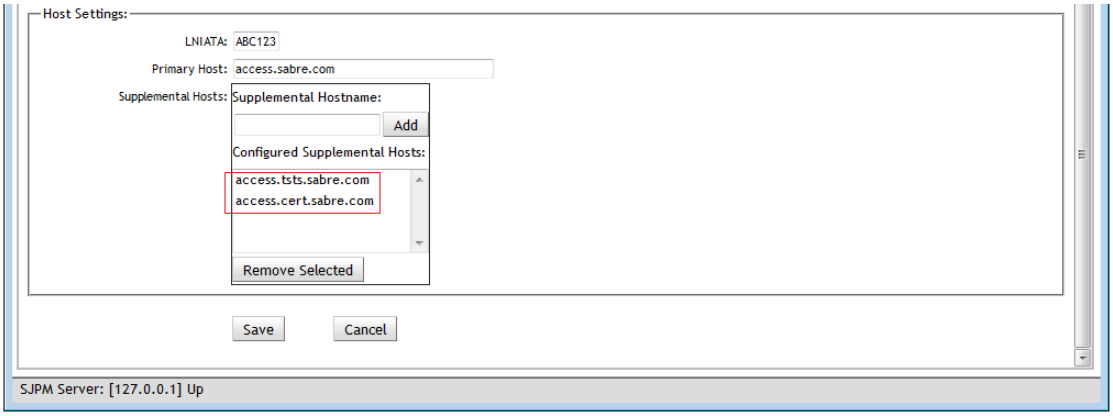
1. Type in a host address in the "**Supplemental Hostname:**" text box.



2. Click on the "**Add**" button to add the supplemental host to the "**Configured Supplemental Hosts:**" list.



3. Repeat steps 1 and 2 for each additional host connection.

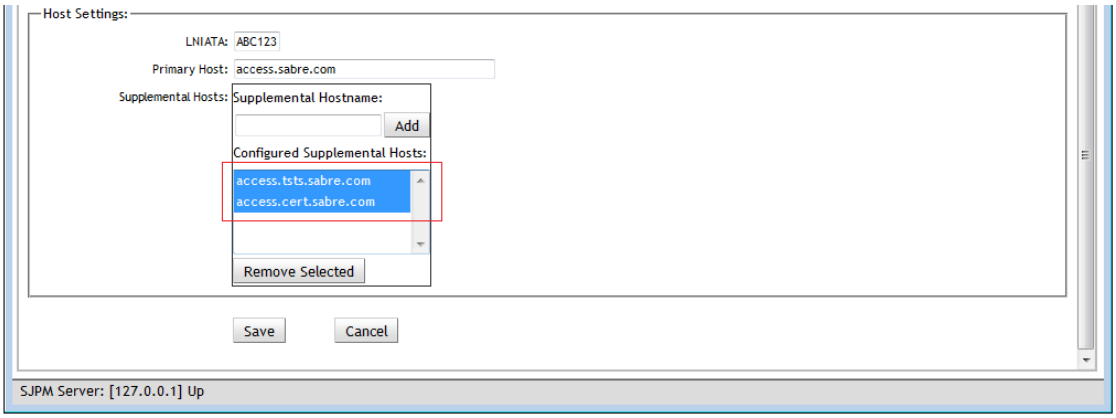


4. When all changes have been made click on the **"Save"** button. Then click on the "**OK**" button on the "**SJPM – Confirm Restart**" popup window to restart SJPM and for the changes to take effect.

6.1.1.2 Deleting Supplemental Hosts

Use the following steps to delete supplemental hosts (concurrent connections) from the "**Configured Supplemental Hosts:**" list.

1. Highlight the host(s) you wish to remove from the "**Configured Supplemental Hosts:**" list (Hold down the "**Ctrl**" key and click the Left Mouse Button to select more than one.).



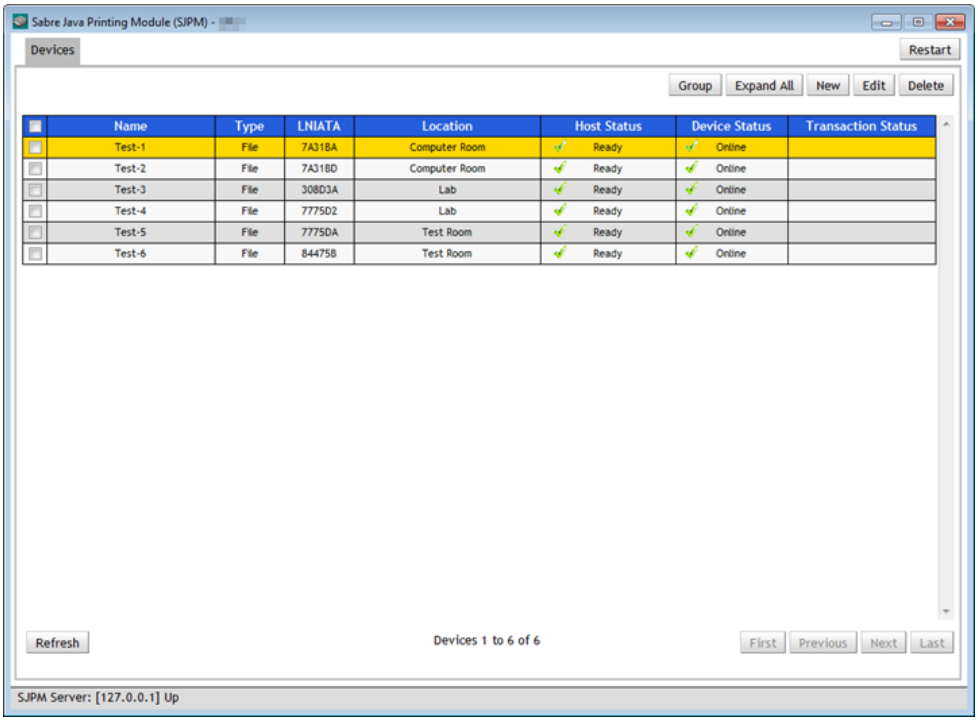
2. Click on the "**Remove Selected**" button.
3. When all changes have been made click on the **"Save"** button. Then click on the "**OK**" button on the "**SJPM – Confirm Restart**" popup window to restart SJPM and for the changes to take effect.

6.1.2 Device Backup and Restore

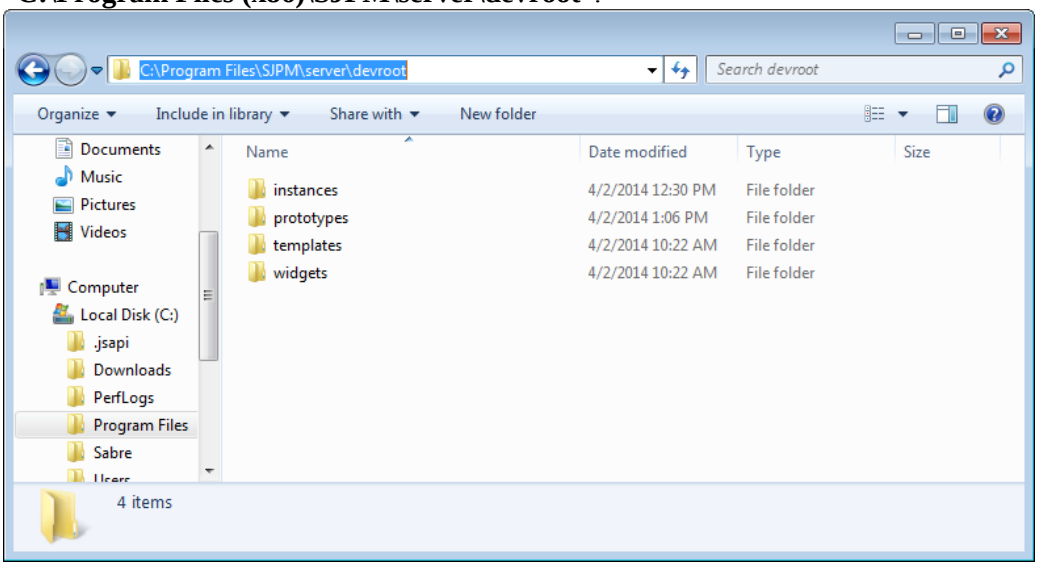
This section describes the processes for backing up and restoring devices in SJPM. The backup files should be stored in a safe location or on a thumb drive off of the machine running SJPM.

6.1.2.1 Device Backup

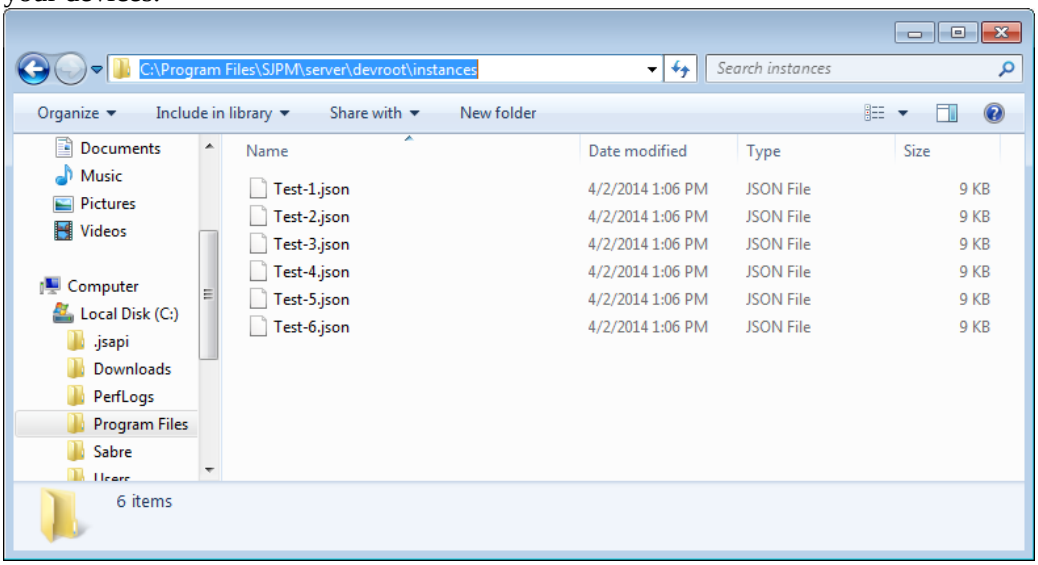
1. Once you have added and configured all of your devices follow these steps to make a backup copy that can be used to restore your SJPM devices and configurations.



2. Open Windows Explorer and then navigate to "**C:\Program Files\SJPM\server\devroot**". For Windows 7 64 Bit and Windows 8 64 Bit navigate to "**C:\Program Files (x86)\SJPM\server\devroot**".

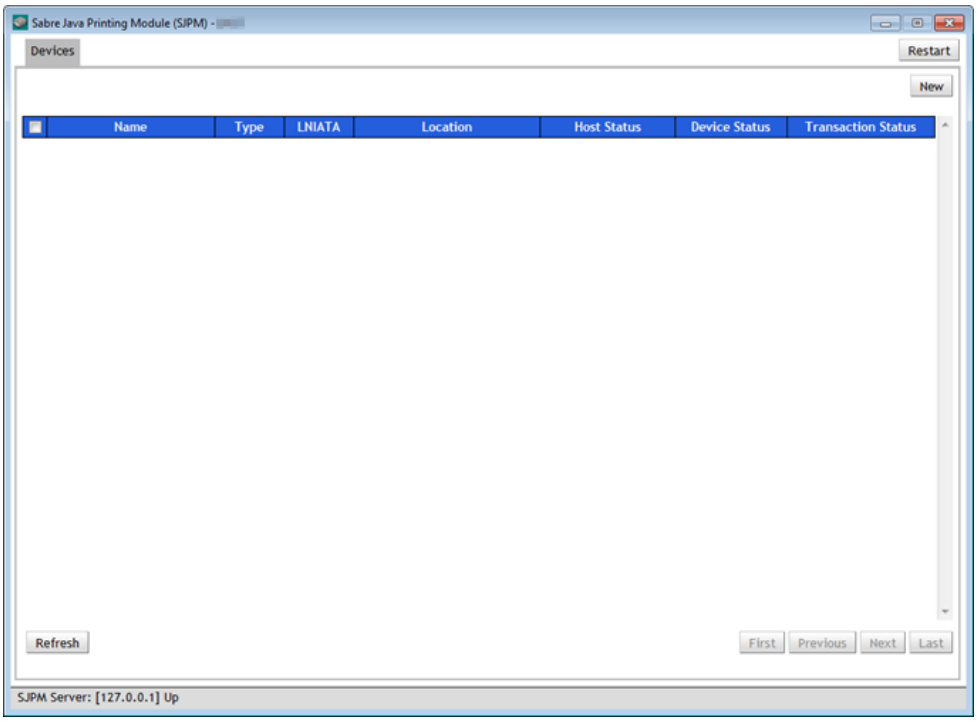


3. Copy and save the "**instances**" folder to a secure location. The "**instances**" folder contains the information for all of your configured devices and will be used for restoring your devices.

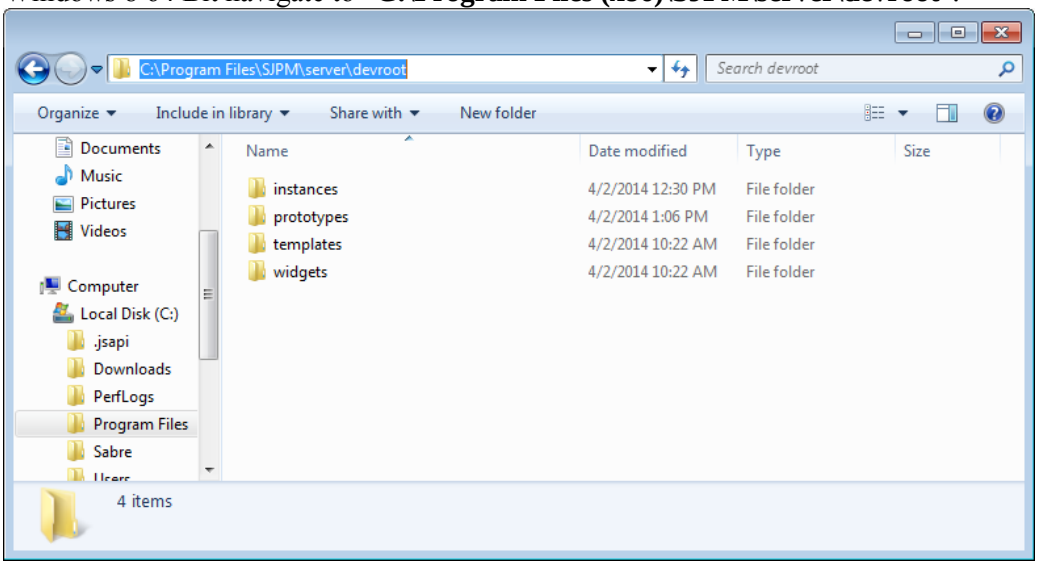


6.1.2.2 Device Restore

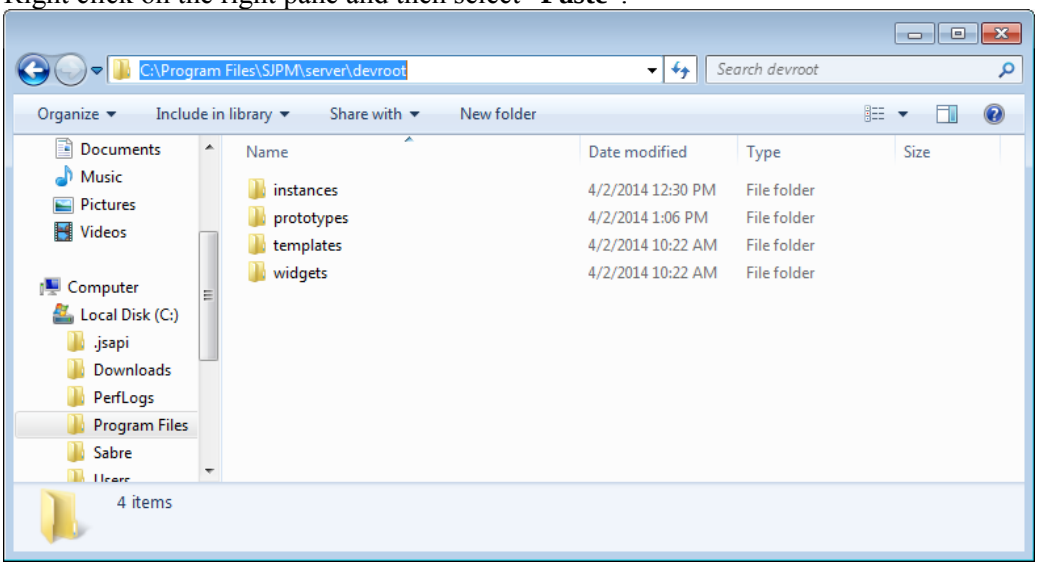
1. Once you have installed SJPM follow these steps to restore your SJPM backup of devices and configurations.



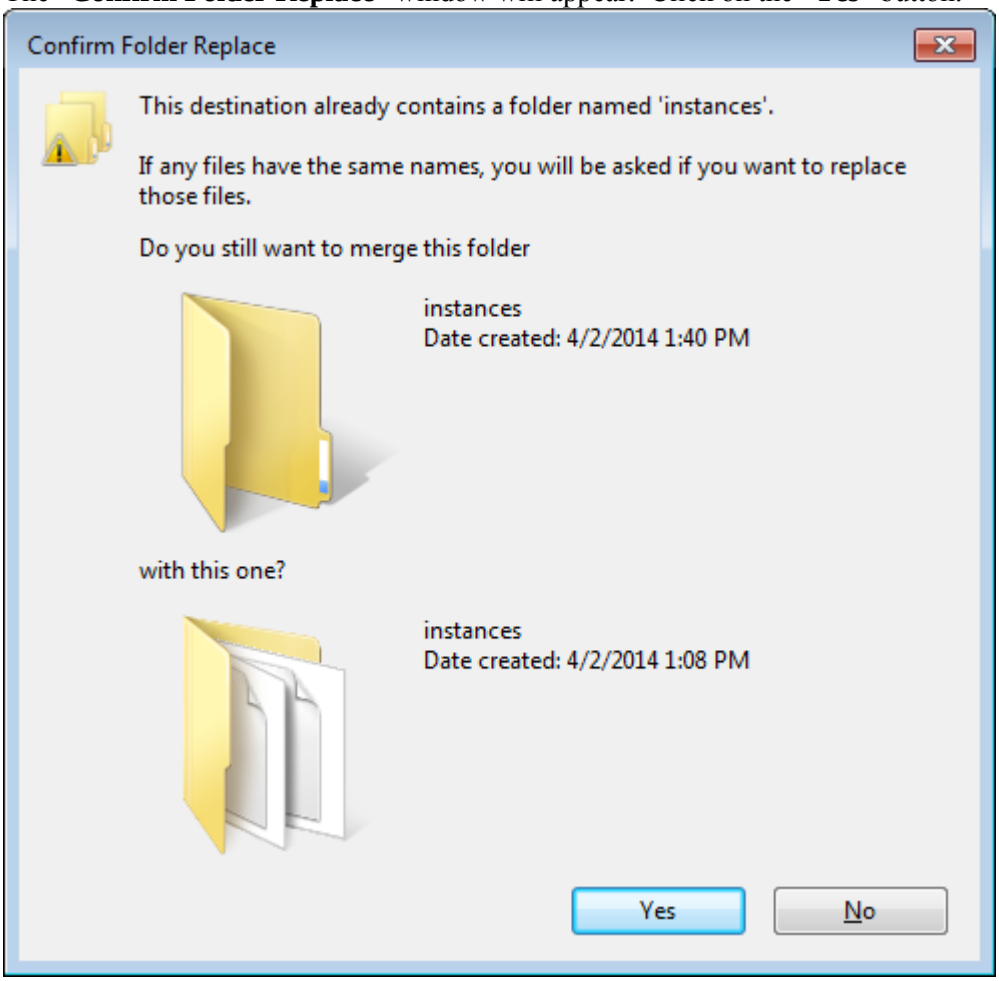
2. Open Windows Explorer and then navigate to the location you have stored your SJPM backup copy. Right click on the "**instances**" folder and then select "**Copy**". Then navigate to "**C:\Program Files\SJPM\server\devroot**". For Windows 7 64 Bit and Windows 8 64 Bit navigate to "**C:\Program Files (x86)\SJPM\server\devroot**".



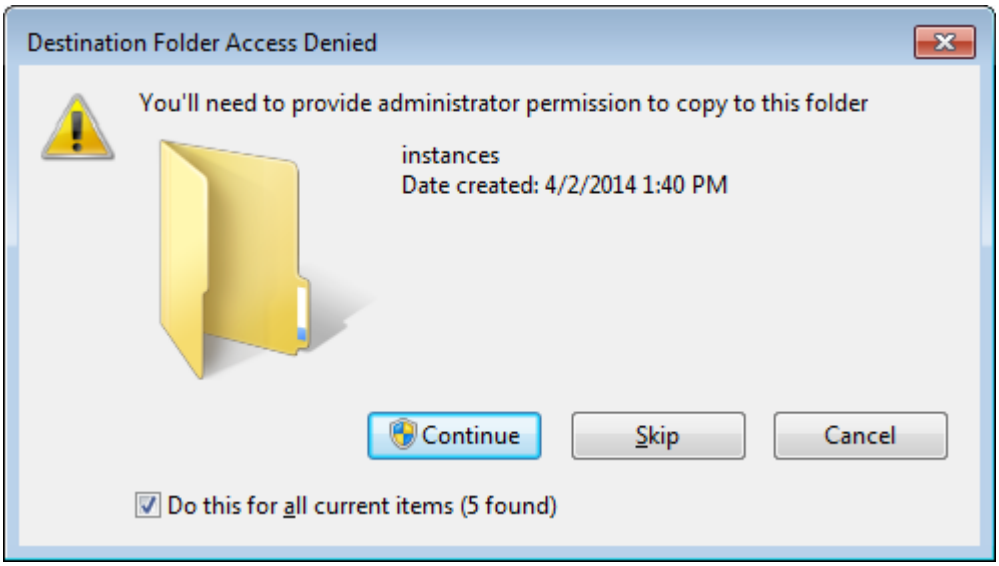
3. Right click on the right pane and then select "**Paste**".



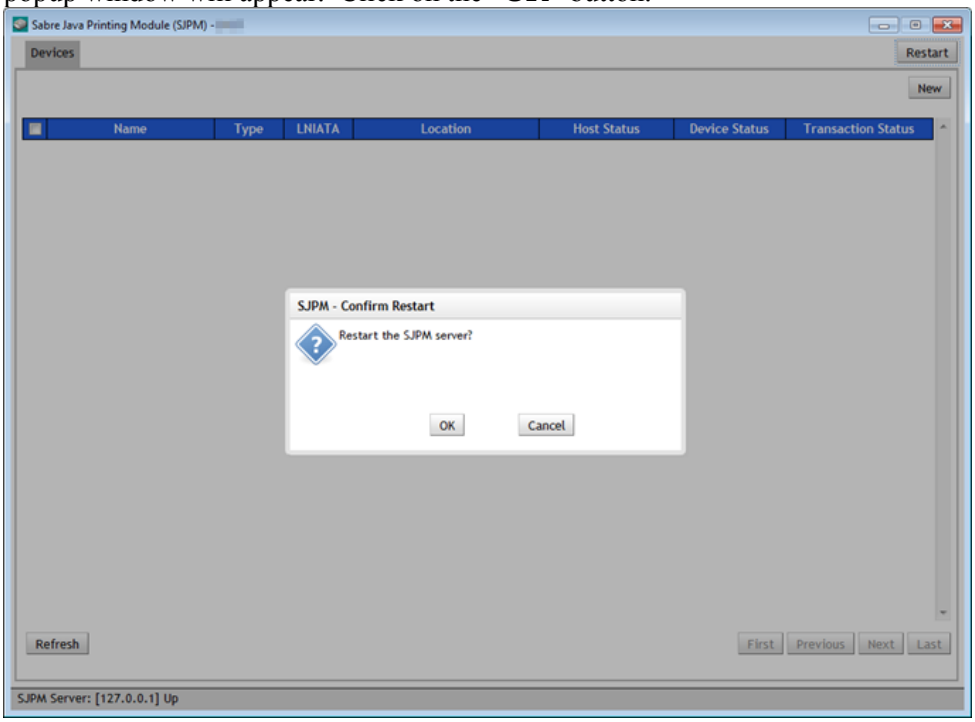
4. The "**Confirm Folder Replace**" window will appear. Click on the "**Yes**" button.



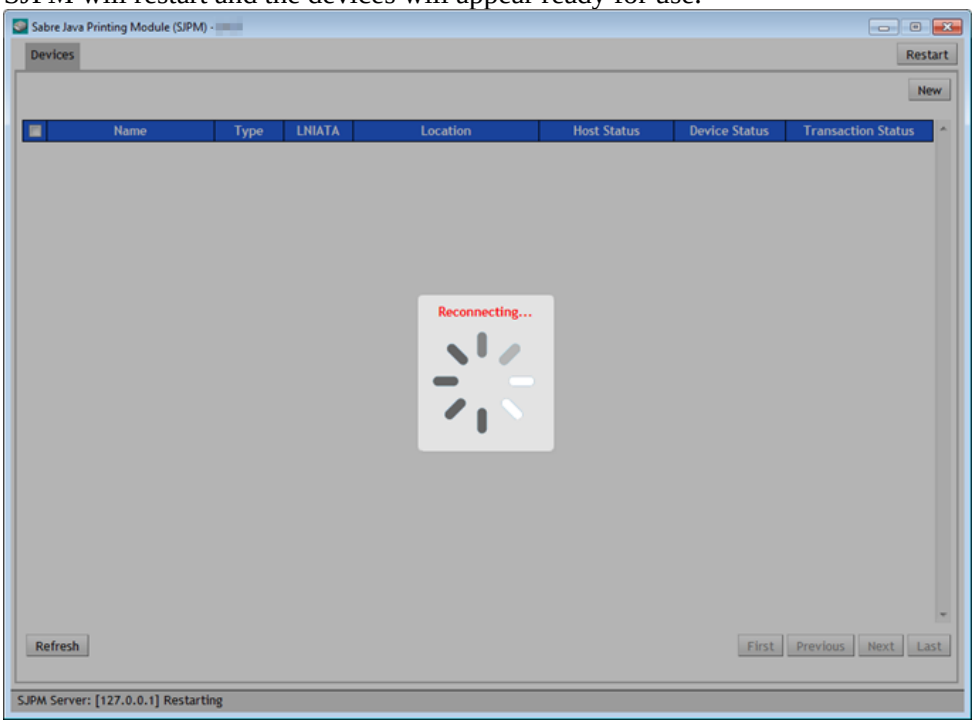
5. I f the "**Destination Folder Access Denied**" window appears. Click on the "**Continue**" button.

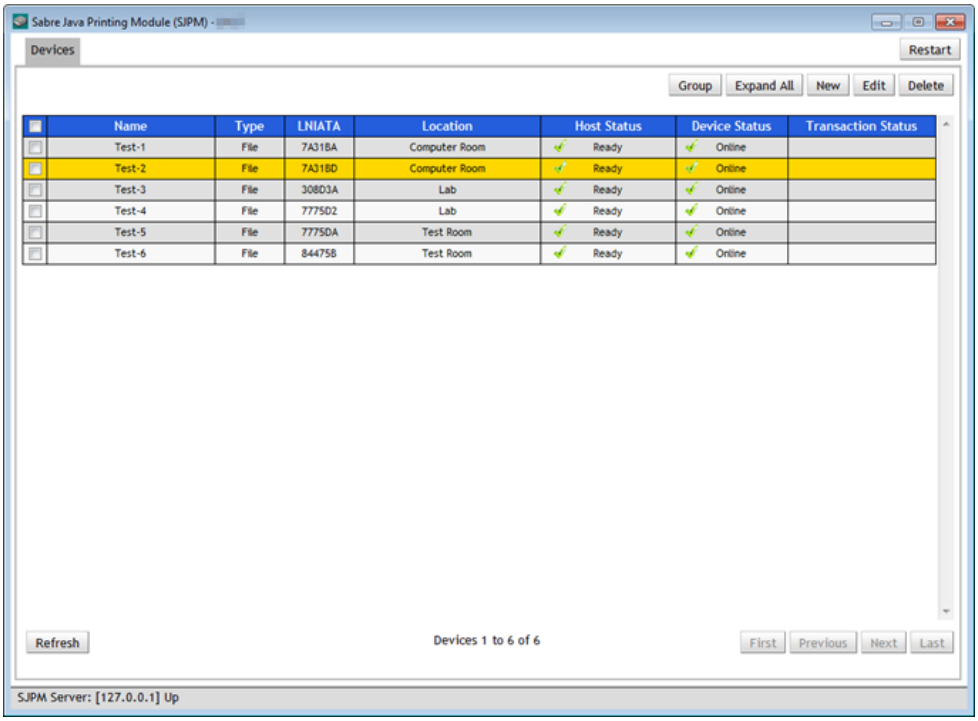


6. In the SJPM GUI click on the "**Restart**" button. The "**SJPM – Confirm Restart**" popup window will appear. Click on the "**OK**" button.



7. SJPM will restart and the devices will appear ready for use.





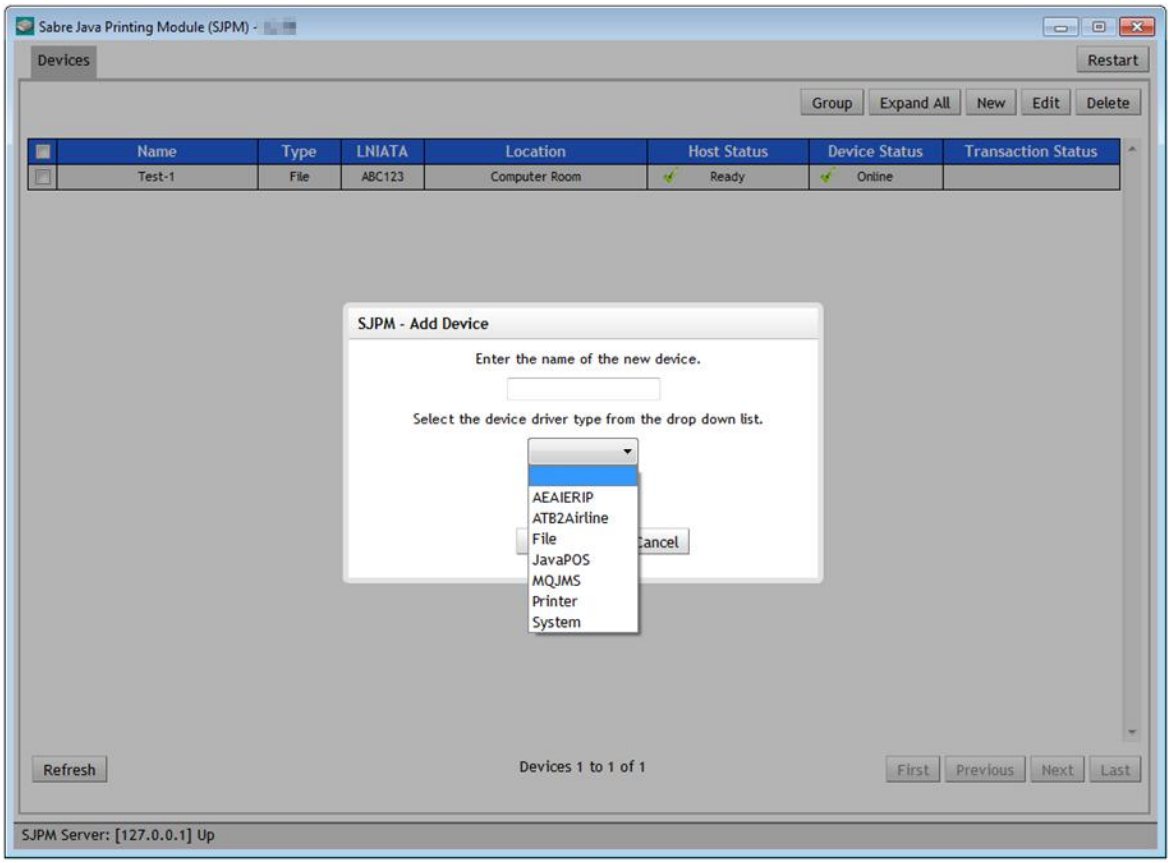
6.2 SJPM Drivers

SJPM currently has seven (**7**) drivers.

Current SJPM Drivers:

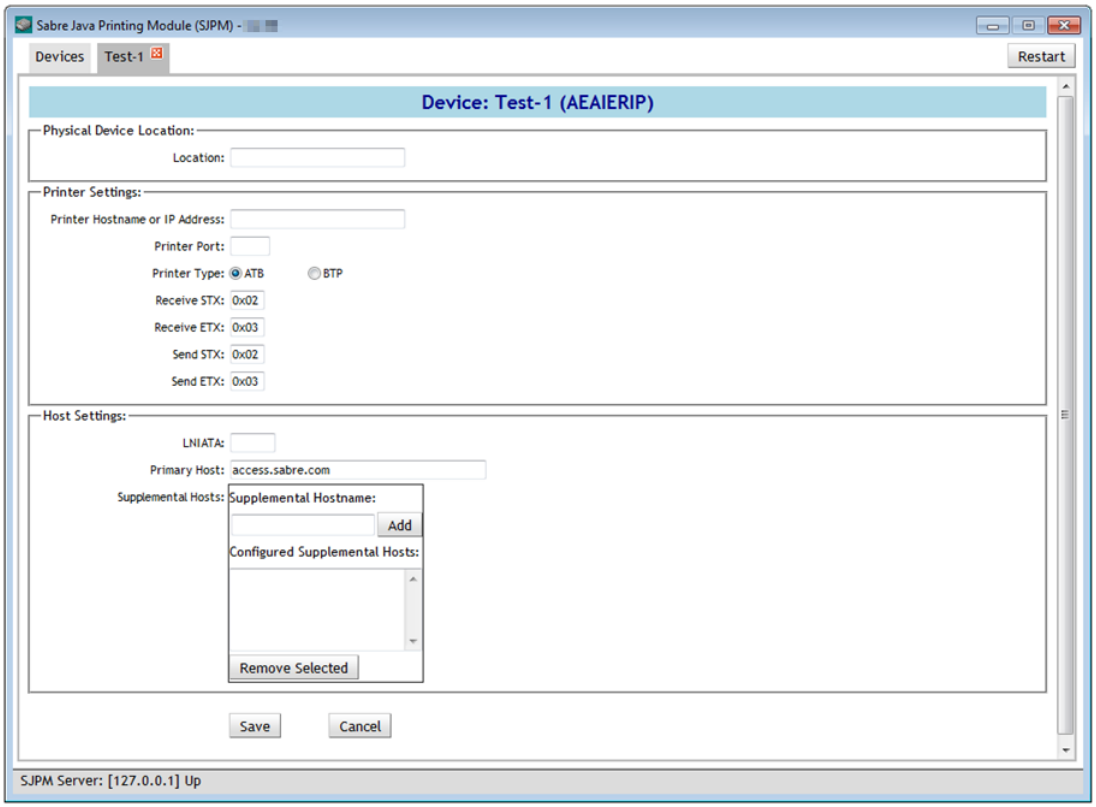
AEAIERIP, ATB2Airline, File, JavaPOS, MQJMS, Printer, and System

The SJPM Drivers are selected from the drop down list in the "**SJPM – Add Device**" popup window which is opened by clicking on the "**New**" button in the SJPM Client GUI.



6.2.1 AEAIERIP Driver

The "**AEAIERIP**" Driver is an IP protocol driver which allows the user to print data from the Sabre Host to an IER IP printer only with various configuration options. This driver is used for the printing of Airline Ticket, Boarding Pass and Bag Tag documents. The screenshot below shows the "**AEAIERIP**" Driver's configuration tab.



"AEAIERIP" Driver Configuration Options:

"Physical Device Location:"

"Location:"

The "**Location**" configuration is for a pseudo name or a physical location of the printing device. This configuration is used by the grouping function in SJPM that allows you to group devices together based on the "**Location**" field.

"Printer Settings:"

"Printer Hostname or IP Address:"

The "**Printer Hostname or IP Address**" configuration is for the IP address of the printer being used for printing with this driver.

"Printer Port:"

The "**Printer Port**" configuration is for the port number configured in the printer being used for printing with this driver.

"**Printer Type:**"

The "**Printer Type**" selection sets the printer type. The default is set to "**ATB**". Available selections are:

"**ATB**" - for ticket and boarding pass printing

"**BTP**" - for bag tag printing

"**Receive STX:**"

The "**Receive STX**" configuration is for the Receive STX. The default is set to "**0x02**".

"**Receive ETX:**"

The "**Receive ETX**" configuration is for the Receive ETX. The default is set to "**0x03**".

"**Send STX:**"

The "**Send STX**" configuration is for the Send STX. The default is set to "**0x02**".

"**Send ETX:**"

The "**Send ETX**" configuration is for the Send ETX. The default is set to "**0x03**".

"**Host Settings:**"

"**LNIATA:**"

The "**LNIATA**" configuration is for the LNIATA (Sabre Address) of the device you are configuring to print to.

"**Primary Host:**"

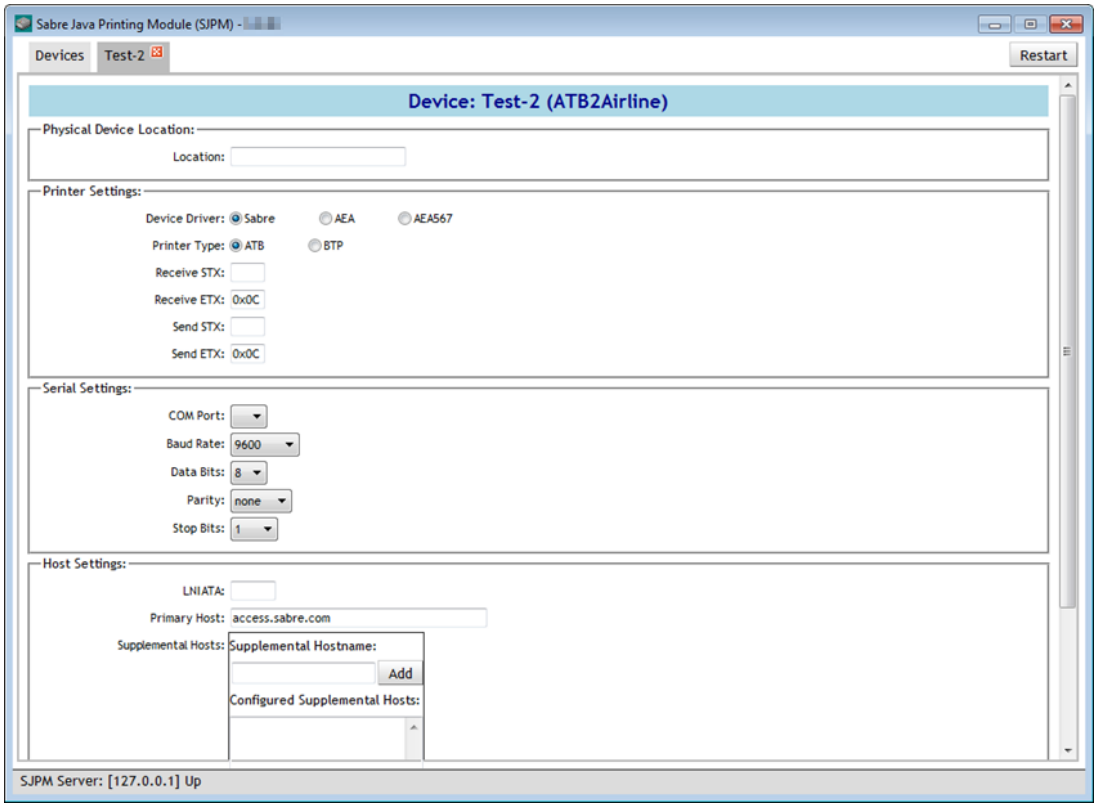
The "**Primary Host**" configuration is for the address to the Sabre Host. The default is set to "**access.sabre.com**".

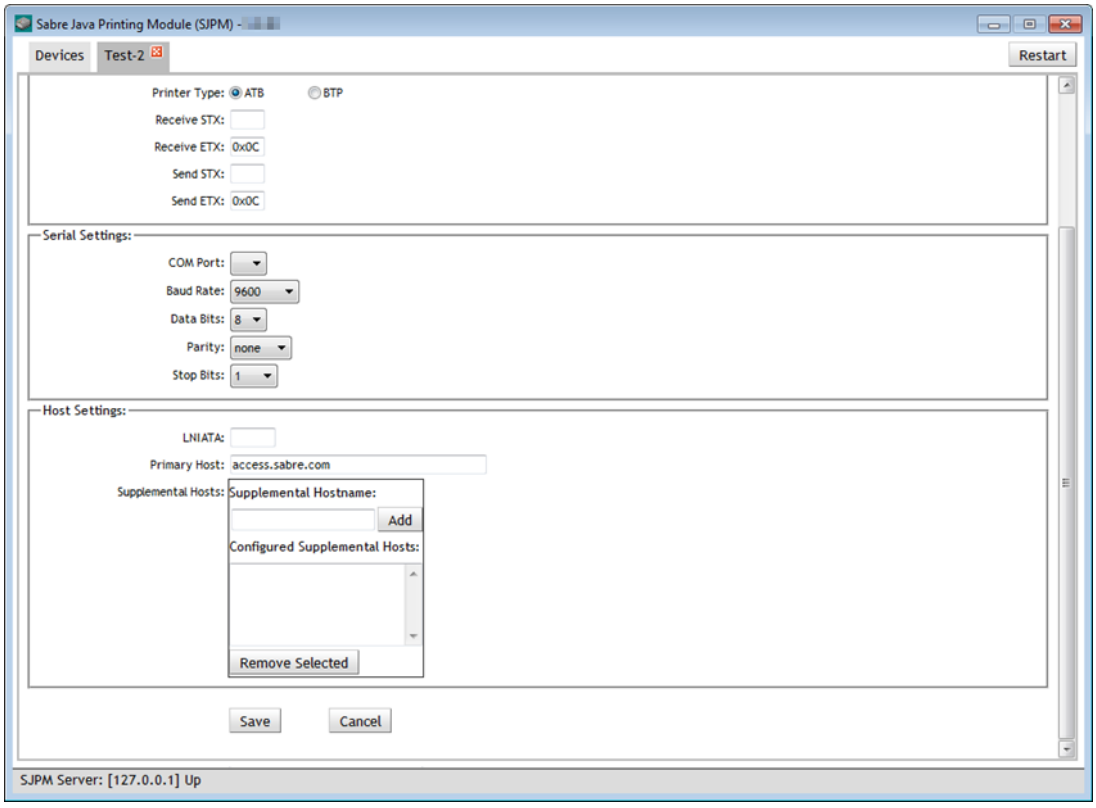
"**Supplemental Hosts:**"

The "**Supplemental Hosts**" configuration allows for supplemental host addresses to be configured for the device. This will allow printing to the device from multiple host addresses. (See section **6.1.1 Supplemental Hosts Configuration** for a detailed explanation)

6.2.2 ATB2Airline Driver

The "**ATB2Airline**" Driver is a PECTAB protocol driver which allows the user to print data from the Sabre Host to an ATB printer with various configuration options. This driver is used for the printing of Airline ATB Ticket, Boarding Pass and Bag Tag documents. The screenshots below show the "**ATB2Airline**" Driver's configuration tab.





"ATB2Airline" Driver Configuration Options:

"Physical Device Location:"

"Location:"

The "**Location**" configuration is for a pseudo name or a physical location of the printing device. This configuration is used by the grouping function in SJPM that allows you to group devices together based on the "**Location**" field.

"Printer Settings:"

"Device Driver:"

The "**Device Driver**" selection sets the device driver. The default is set to "**Sabre**".

Available selections are:

"**Sabre**" - for the Sabre protocol

"**AEA**" - for the AEA standard protocol

"**AEA567**" - for the IER 567 protocol

"Printer Type:"

The "**Printer Type**" selection sets the printer type. The default is set to "**ATB**". Available selections are:

"**ATB**" for ticket and boarding pass printing and "**BTP**" for bag tag printing.

"Receive STX:"

The "**Receive STX**" configuration is for the Receive STX. The default is set to blank.

"**Receive ETX:**"

The "**Receive ETX**" configuration is for the Receive ETX. The default is set to "**0x0C**".

"**Send STX:**"

The "**Send STX**" configuration is for the Send STX. The default is set to blank.

"**Send ETX:**"

The "**Send STX**" configuration is for the Send ETX. The default is set to "**0x0C**".

"**Serial Settings:**"

"**COM Port:**"

The "**COM Port**" configuration sets the COM port. Select the COM port that the printer is connected to on the PC. The default is set to "**Please select an option...**".

"**Baud Rate:**"

The "**Baud Rate**" configuration sets the baud rate for communications with the printer. The default is set to "**9600**". This setting must match the baud rate setting configured in the connected printer.

"**Data Bits:**"

The "**Data Bits**" configuration sets the data bits for communications with the printer. The default is set to "**8**". This setting must match the data bits setting configured in the connected printer.

"**Parity:**"

The "**Parity**" configuration sets the parity for communications with the printer. The default is set to "**none**". This setting must match the parity setting configured in the connected printer.

"**Stop Bits:**"

The "**Stop Bits**" configuration sets the stop bits for communications with the printer. The default is set to "**1**". This setting must match the stop bits setting configured in the connected printer.

"**Host Settings:**"

"**LNIATA:**"

The "**LNIATA**" configuration is for the LNIATA (Sabre Address) of the device you are configuring to print to.

"**Primary Host:**"

The "**Primary Host**" configuration is for the address to the Sabre Host. The default is set to "**access.sabre.com**".

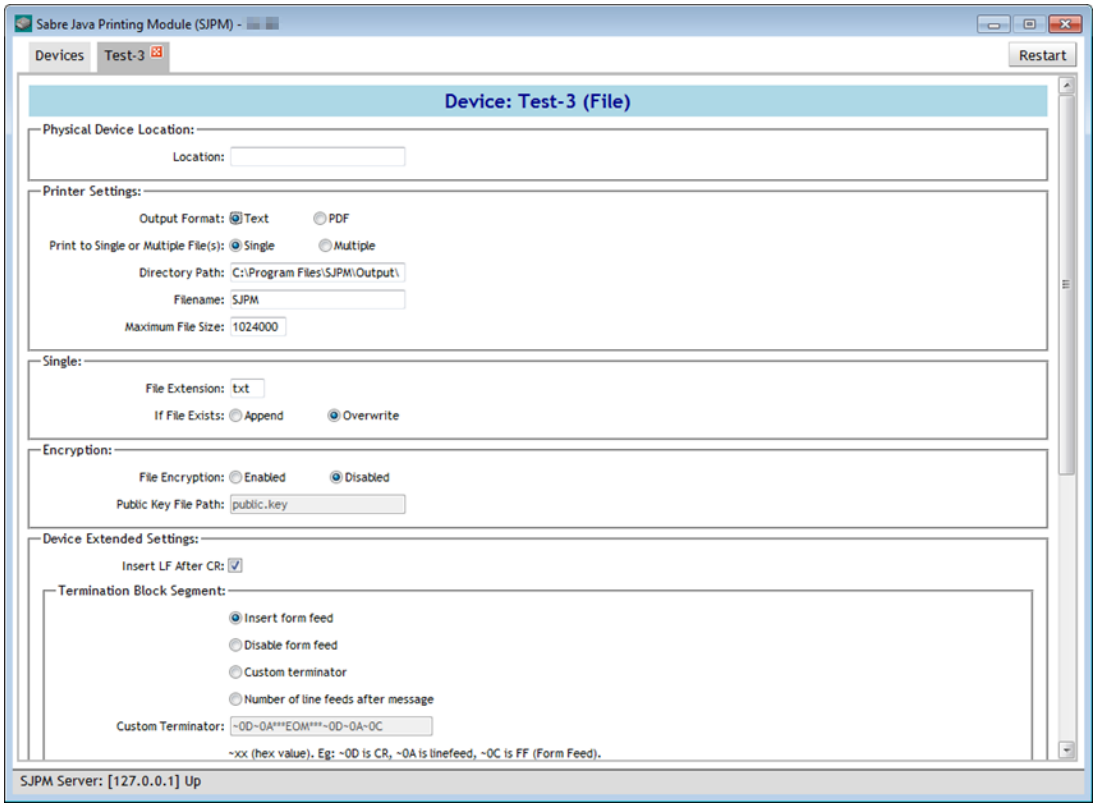
"**Supplemental Hosts:**"

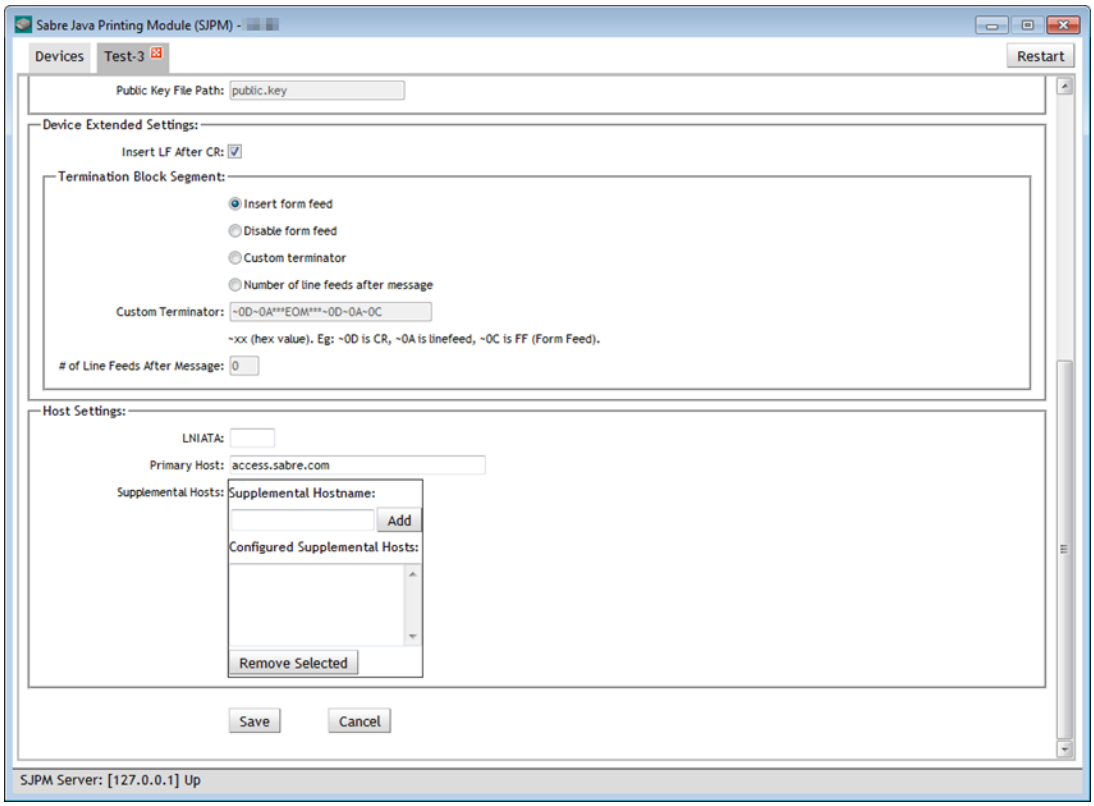
The "**Supplemental Hosts**" configuration allows for supplemental host addresses to be configured for the device. This will allow printing to the device from multiple host addresses. (See section **6.1.1 Supplemental Hosts Configuration** for a detailed explanation)

6.2.3 File Driver

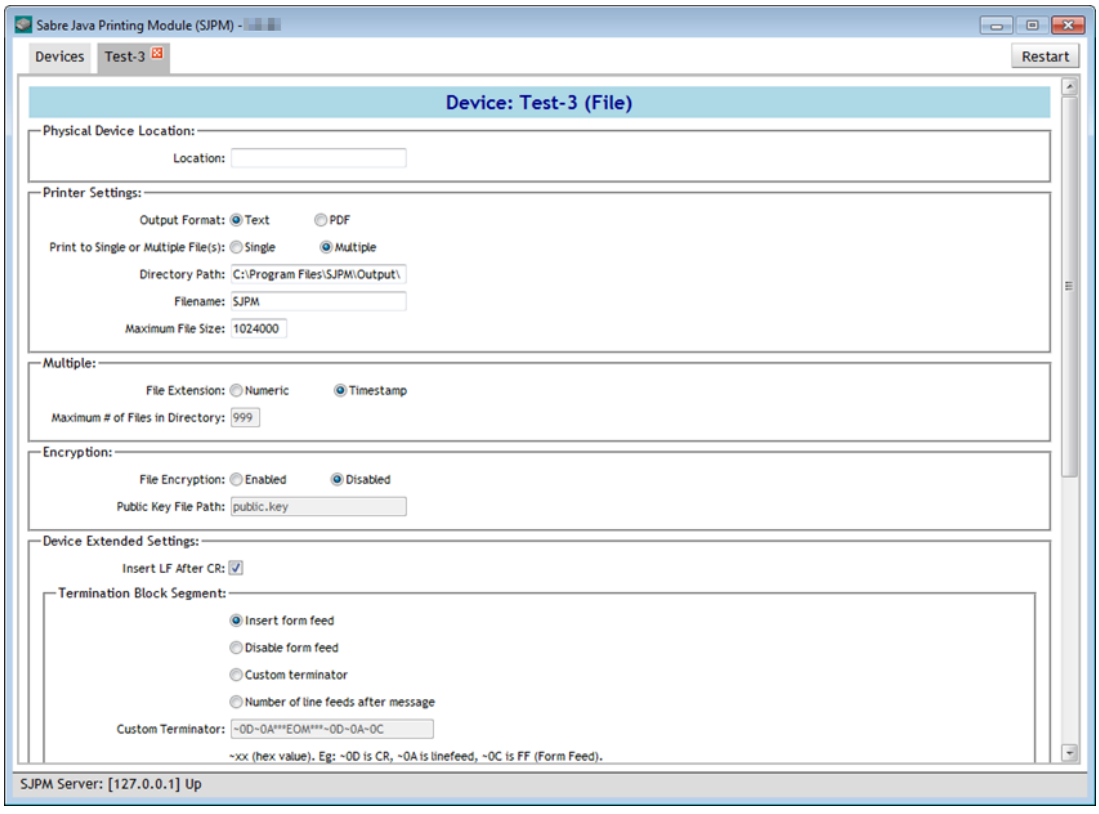
The "**File**" Driver is an ASCII protocol, hardcopy driver which allows the user to print data from the Sabre Host to a file with various configuration options. The screenshots below show the "**File**" Driver's configuration tab with the following selections:

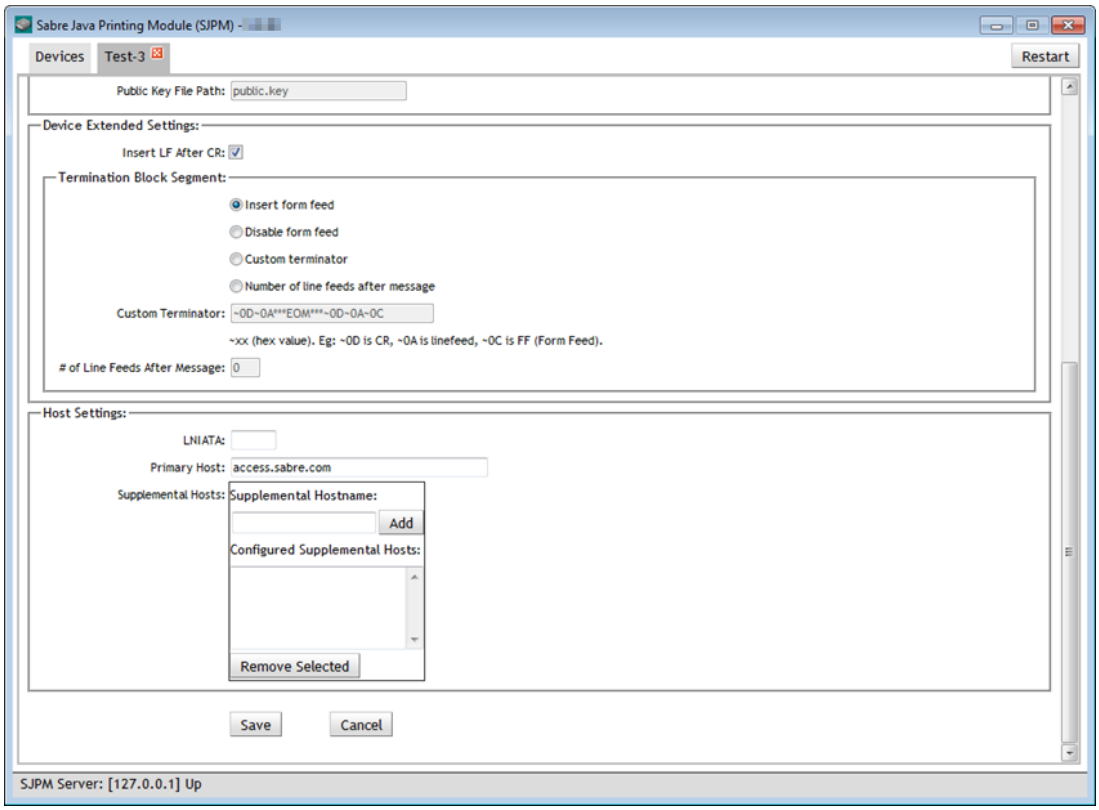
Text and Single selected



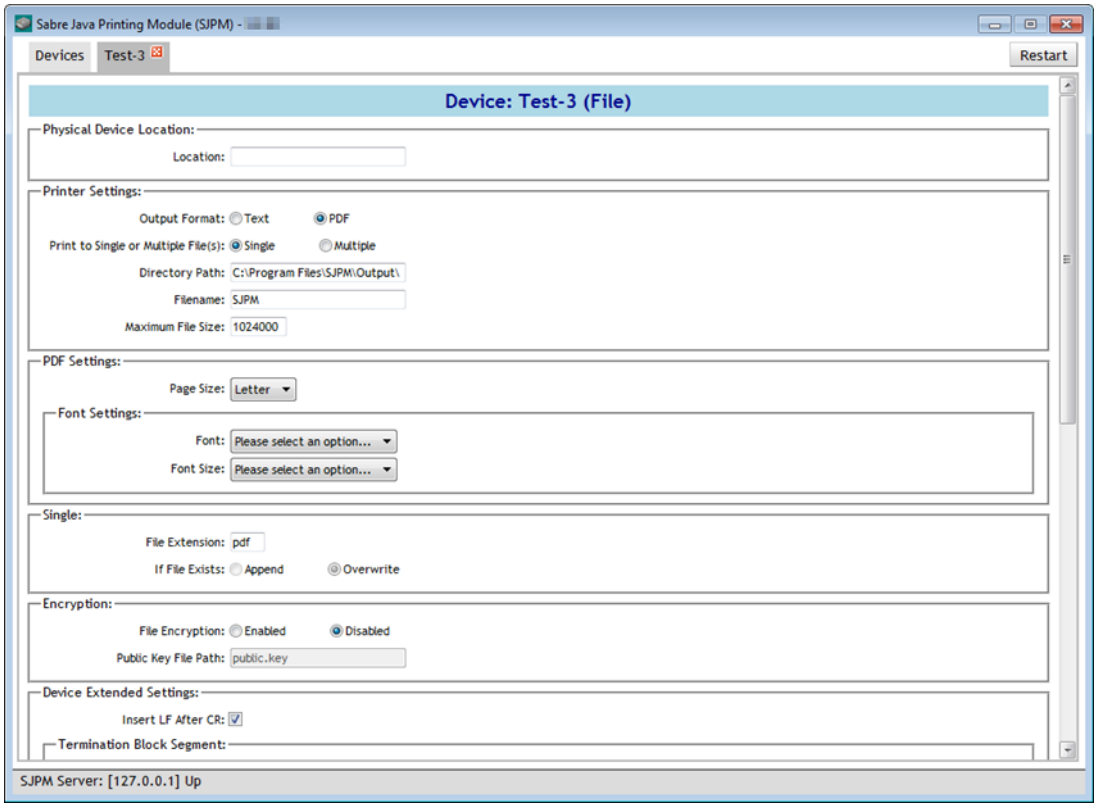


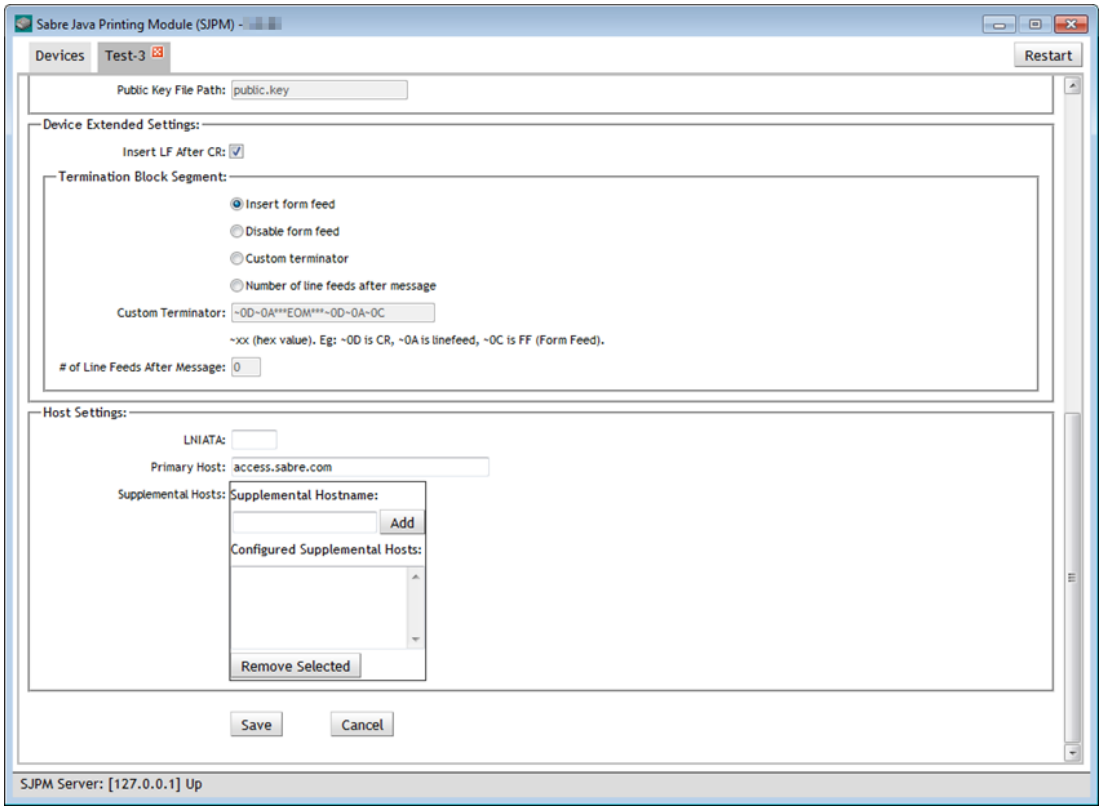
Text and Multiple selected



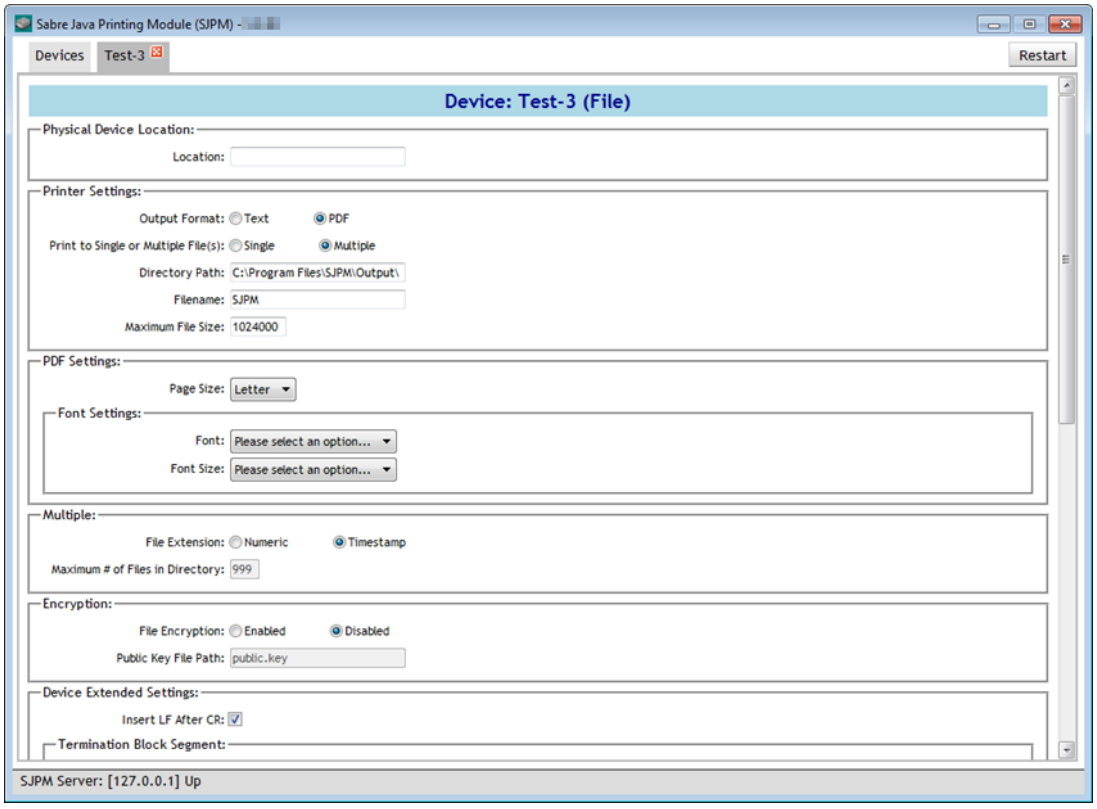


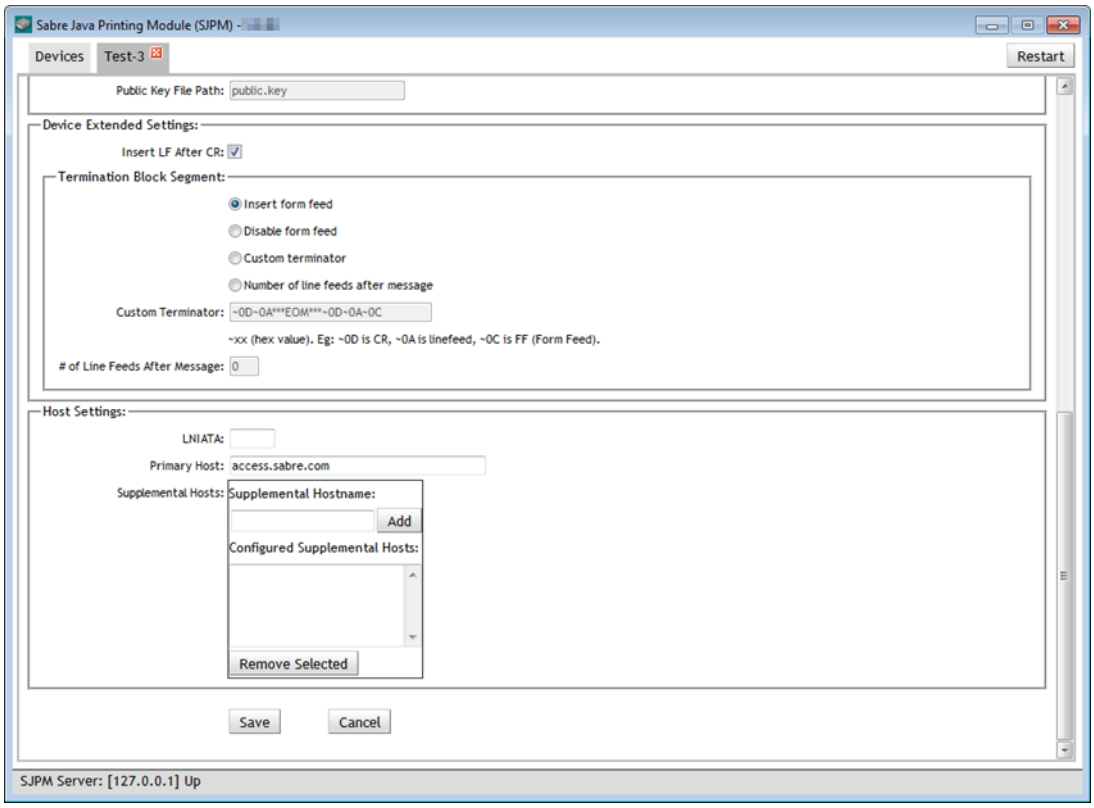
PDF and Single selected





PDF and Multiple selected.





"File" Driver Configuration Options:

"Physical Device Location:"

"Location:"

The "**Location**" configuration is for a pseudo name or a physical location of the printing device. This configuration is used by the grouping function in SJPM that allows you to group devices together based on the "**Location**" field.

"Printer Settings:"

"Output Format:"

The "**Output Format**" selection sets the output format. The default is set to "**Text**".

Available selections are:

"**Text**" - for text file format

"**PDF**" - for PDF file format

"Print to Single or Multiple Files:"

The "**Print to Single or Multiple File(s)**" selection sets printing to a "**Single**" file or "**Multiple**" files. The default is set to "**Single**".

Available selections are:

"**Single**" - for single file creation

"**Multiple**" - for multiple files creation - With this option selected SJPM will generate a unique file for each Sabre Host message printed.

"**Directory Path:**"

The "**Directory Path**" configuration is for the location where the file(s) will be created for the device. (**Example:** "**C:\Test**") The default is set to "**C:\Program Files\SJPM\Output**", "**C:\Program Files (x86)\SJPM\Output**" for windows 7 64bit and Windows 8 64 bit.

"**Filename:**"

The "**Filename**" configuration is for the name that will be used to name the file(s) when they are created. This field should not include a file extension.

"**Maximum File Size:**"

The "**Maximum File Size**" configuration is for the maximum file size limit that will be allowed when writing to the file(s). The default is set to "**1024000**".

"**PDF Settings:**" (This box will be displayed when "**PDF**" is selected from the "**Printer Settings**" box.)

"**Page Size:**"

The "**Page Size**" configuration is for the page size to be used for the PDF output file. The default is set to "**Letter**".

"**Font Settings:**"

The "**Font Settings**" configuration is for the Font and Font Size to be used for the PDF output file.

"**Font:**" - for the PDF file output

"**Font Size:**" - for the PDF file output

"**Single:**" (This box will be displayed when "**Single**" is selected from the "**Printer Settings**" box.)

"**File Extension:**"

The "**File Extension**" configuration is for the output file extension. The default for "**Text**" output format is "**txt**". The default for "**PDF**" output format is "**pdf**".

"**If File Exists:**"

The "**If File Exists**" selection is for the output file creation method.

"**Append**"

- When "**Text**" output format is selected, this configuration option appends data to a single file. This selection is set as default.
- When "**PDF**" output format is selected, this option is disabled.

"**Overwrite**"

- When "**Text**" output format is selected, this configuration option overwrites the data in a single file each time a new message is received.
- When "**PDF**" output format is selected, this option is set as default and cannot be changed.

"**Multiple:**" (This box will be displayed when "**Multiple**" is selected from the "**Printer Settings**" box.)

"**File Extension:**"

The "**File Extension**" configuration is for the file extension for the file(s). The default is set to "**Timestamp**".

Available options are

"**Numeric**" – for setting the file extension for both Text and PDF output file format to start at "**.000**". (**Example:** "**Test.000**")

"**Timestamp**" - for setting the file name to be the current *yeardatetime*. This selection is set as default.

For example, for "Text" output format, the file name will be "**SJPM20130329165816397.txt**"

For example, for "PDF" output format, the file name will be "**SJPM20130329165816397.pdf**"

"**Maximum # of Files in Directory:**"

The "**Maximum # of Files in Directory**" configuration is for the maximum number of files allowed to be created in the Directory Path. This is defaulted to "**999**", the maximum setting allowed. This configuration is only available when the "**Numeric**" file extension radio button is selected.

Note: If the number of files in the directory equals the set limit (**999**) SJPM will stop sending data and the Sabre Queue will go on hold after the Host retries are completed.

"**Encryption:**"

"**File Encryption:**"

The "**File Encryption**" selection sets file encryption. The default is set to "**Disabled**".

Available selections are:

"**Enabled**" - for file encryption

"**Disabled**" - for no file encryption

"**Public Key File Path**"

The "**Public Key File Path**" configuration is for the location where the "**Public Key File**" will be located. This configuration is only available when the "**Enabled**" radio button is selected.

"**Device Extended Settings:**"

"**Insert LF After CR:**"

The "**Insert LF After CR**" selection inserts a Line Feed after a Carriage Return if checked. This option is checked by default.

"**Termination Block Segment:**"

"**Insert form feed**"

The "**Insert form feed**" selection inserts a Form Feed at the end of the message data if selected. This selection is set as default.

"**Disable form feed**"

The "**Disable form feed**" selection disables Form Feed if selected.

"**Custom terminator**"

The "**Custom terminator**" selection inserts a custom terminator, if selected that can be user edited. The default custom terminator is set to "**~0D~0A***EOM***~0D~0A~0C**".

"**Number of line feeds after message**"

The "**Number of line feeds after message**" selection inserts the number of Line Feeds entered at the end of the message data if selected. The default is set to "**0**".

"**Host Settings:**"

"**LNIATA:**"

The "**LNIATA**" configuration is for the LNIATA (Sabre Address) of the device you are configuring to print to.

"**Primary Host:**"

The "**Primary Host**" configuration is for the address to the Sabre Host. The default is set to "**access.sabre.com**".

"**Supplemental Hosts:**"

The "**Supplemental Hosts**" configuration allows for supplemental host addresses to be configured for the device. This will allow printing to the device from multiple host addresses. (See section **6.1.1 Supplemental Hosts Configuration** for a detailed explanation)

6.2.3.1 File Driver Encryption – Source Code

The following source code can be used to generate a public and private key for use with the "**File**" Driver encryption functionality.

EncryptDecryptHelper.java

~~~

```
import java.io.ByteArrayOutputStream;
import java.util.Random;
import javax.crypto.Cipher;
import javax.crypto.SecretKey;
import javax.crypto.SecretKeyFactory;
import javax.crypto.spec.PBEKeySpec;
import javax.crypto.spec.PBEParameterSpec;

public class EncryptDecryptHelper {
   private static final int ITERATIONS = 1000;

   public static byte[] passwordEncrypt( char[] password, byte[] plaintext ) {
      ByteArrayOutputStream baos = new ByteArrayOutputStream();;

      try {
         byte[] salt = new byte[8];
         Random random = new Random();
         random.nextBytes( salt );

         PBEKeySpec keySpec = new PBEKeySpec( password );
         SecretKeyFactory keyFactory = SecretKeyFactory.getInstance( "PBEWithMD5AndDES");
         SecretKey key = keyFactory.generateSecret( keySpec );
         PBEParameterSpec paramSpec = new PBEParameterSpec( salt, ITERATIONS );

         Cipher cipher = Cipher.getInstance( "PBEWithMD5AndDES" );
         cipher.init( Cipher.ENCRYPT_MODE, key, paramSpec );

         byte[] ciphertext = cipher.doFinal( plaintext );

         baos.write( salt );
         baos.write( ciphertext );
      } catch( Exception e ) {
         System.out.println( "Threw exception: " );
         e.printStackTrace();
      }

      return baos.toByteArray();
   }

   public static byte[] passwordDecrypt( char[] password, byte[] saltAndCiphertext ) {
      byte[] plaintext = new byte[1];

      try {
         byte[] salt = new byte[8];
         byte[] ciphertext = new byte[ saltAndCiphertext.length - 8 ];
         int keySize = saltAndCiphertext.length - 8;

         System.arraycopy( saltAndCiphertext, 0, salt, 0, 8 );
         System.arraycopy( saltAndCiphertext, 8, ciphertext, 0, keySize );

         PBEKeySpec keySpec = new PBEKeySpec( password );
         SecretKeyFactory keyFactory = SecretKeyFactory.getInstance( "PBEWithMD5AndDES");
         SecretKey key = keyFactory.generateSecret( keySpec );
         PBEParameterSpec paramSpec = new PBEParameterSpec( salt, ITERATIONS );

         Cipher cipher = Cipher.getInstance( "PBEWithMD5AndDES" );
         cipher.init( Cipher.DECRYPT_MODE, key, paramSpec );

         plaintext = cipher.doFinal( ciphertext );

      } catch( Exception e ) {
         System.out.println( "Threw exception: " );
         e.printStackTrace();
      }
```
~~~

```
      return plaintext;
   }
}
~~~
```

CreateKeysApp.java:

```
~~~
import java.io.BufferedReader;
import java.io.ByteArrayOutputStream;
import java.io.FileOutputStream;
import java.io.InputStreamReader;
import java.security.Key;
import java.security.KeyPair;
import java.security.KeyPairGenerator;
import java.util.Arrays;
import java.util.Random;
import javax.crypto.Cipher;
import javax.crypto.SecretKey;
import javax.crypto.SecretKeyFactory;
import javax.crypto.spec.PBEKeySpec;
import javax.crypto.spec.PBEParameterSpec;
import javax.crypto.spec.SecretKeySpec;

public class CreateKeysApp {
   private static final int ITERATIONS = 1000;

   public static void main( String[] args ) {
      try {
         BufferedReader in = new BufferedReader( new InputStreamReader( System.in ) );
         System.out.print( "Password to encrypt the private RSA key: " );
         //String password = in.readLine();
         char[] password = System.console().readPassword();

         System.out.println( "Generating public and private RSA keys..." );

         KeyPairGenerator keyPairGenerator = KeyPairGenerator.getInstance( "RSA" );
         keyPairGenerator.initialize( 4096 );
         KeyPair keyPair = keyPairGenerator.genKeyPair();

         System.out.println( "Generated RSA key." );

         System.out.print( "Public key filename: " );
         String publicKeyFilename = in.readLine();

         byte[] publicKeyBytes = keyPair.getPublic().getEncoded();

         FileOutputStream fos = new FileOutputStream( publicKeyFilename );
         fos.write( publicKeyBytes );
         fos.close();

         System.out.print( "Private key filename: " );
         String privateKeyFilename = in.readLine();

         byte[] privateKeyBytes = keyPair.getPrivate().getEncoded();

         byte[] encryptedPrivateKeyBytes =
            EncryptDecryptHelper.passwordEncrypt( password, privateKeyBytes );

         byte[] decryptedPrivateKeyBytes =
            EncryptDecryptHelper.passwordDecrypt( password, encryptedPrivateKeyBytes );

         if( Arrays.equals( privateKeyBytes, decryptedPrivateKeyBytes ) ) {
            System.out.println( "Password Based Encryption/Decryption success" );
         }
         else {
            System.out.println( "Password Based Encryption/Decryption failure" );
         }

         fos = new FileOutputStream( privateKeyFilename );
         fos.write( encryptedPrivateKeyBytes );
         fos.close();
      } catch( Exception e ) {
```

```
            System.out.println( "Threw exception: " );
            e.printStackTrace();
         }
      }
   }
~~~
```

6.2.3.2 File Driver Decryption – Source Code

The following source code can be used to decrypt the encrypted files from the "**File**" Driver encryption functionality.

DecryptFileApp.java:

```
~~~
import java.io.BufferedReader;
import java.io.ByteArrayOutputStream;
import java.io.DataInputStream;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.InputStreamReader;
import java.security.Key;
import java.security.KeyFactory;
import java.security.PrivateKey;
import java.security.spec.PKCS8EncodedKeySpec;
import java.util.Arrays;
import java.util.Random;
import javax.crypto.Cipher;
import javax.crypto.CipherInputStream;
import javax.crypto.SecretKey;
import javax.crypto.SecretKeyFactory;
import javax.crypto.spec.IvParameterSpec;
import javax.crypto.spec.PBEKeySpec;
import javax.crypto.spec.PBEParameterSpec;
import javax.crypto.spec.SecretKeySpec;

public class DecryptFileApp {
   private static final int ITERATIONS = 1000;

   public static void main( String[] args ) {
      try {
         BufferedReader in = new BufferedReader( new InputStreamReader( System.in ) );
         System.out.print( "Password to dencrypt the private RSA key: " );
         char[] password = System.console().readPassword();

         System.out.print( "Private RSA key filename: " );
         String privateKeyFilename = in.readLine();

         System.out.print( "Encrypted input filename: " );
         String encryptedInputFilename = in.readLine();

         System.out.print( "Decrypted output filename: " );
         String decryptedOutputFilename = in.readLine();

         FileInputStream fis = new FileInputStream( privateKeyFilename );
         ByteArrayOutputStream baos = new ByteArrayOutputStream();
         int aByte = 0;

         while( ( aByte = fis.read() ) != -1 ) {
            baos.write( aByte );
         }

         fis.close();
         byte[] encryptedPrivateKeyBytes = baos.toByteArray();
         baos.close();

         byte[] decryptedPrivateKeyBytes =
            EncryptDecryptHelper.passwordDecrypt( password, encryptedPrivateKeyBytes );

         PKCS8EncodedKeySpec keySpec = new PKCS8EncodedKeySpec( decryptedPrivateKeyBytes );
         KeyFactory keyFactory = KeyFactory.getInstance( "RSA" );
         PrivateKey privateKey = keyFactory.generatePrivate( keySpec );
```

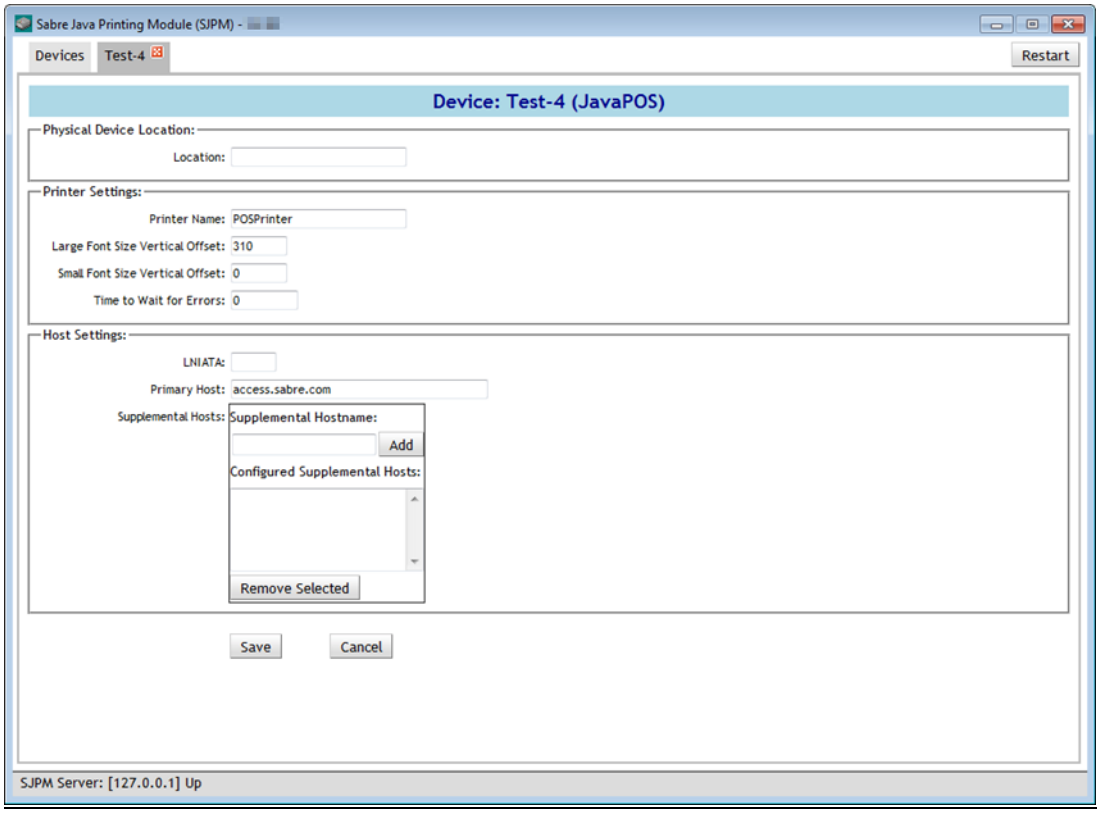
```
         Cipher rsaCipher = Cipher.getInstance( "RSA/ECB/PKCS1Padding" );

         DataInputStream dis =
            new DataInputStream( new FileInputStream( encryptedInputFilename ) );
         byte[] encryptedAESKeyBytes = new byte[ dis.readInt() ];
         dis.readFully( encryptedAESKeyBytes );

         rsaCipher.init( Cipher.DECRYPT_MODE, privateKey );
         byte[] aesKeyBytes = rsaCipher.doFinal( encryptedAESKeyBytes );

         SecretKey aesKey = new SecretKeySpec( aesKeyBytes, "AES" );

         byte[] iv = new byte[16];
         dis.read( iv );
         IvParameterSpec ivSpec = new IvParameterSpec( iv );

         Cipher cipher = Cipher.getInstance( "AES/CBC/PKCS5Padding" );
         cipher.init( Cipher.DECRYPT_MODE, aesKey, ivSpec );
         CipherInputStream cis = new CipherInputStream( dis, cipher );

         FileOutputStream fos = new FileOutputStream( decryptedOutputFilename );

         aByte = 0;

         while( ( aByte = cis.read() ) != -1 ) {
            fos.write( aByte );
         }

         cis.close();
         fos.close();
      } catch( Exception e ) {
         System.out.println( "Threw exception: " );
         e.printStackTrace();
      }
   }
}
~~~
```

6.2.4 JavaPOS Driver

The "**JavaPOS**" Driver is a JavaPOS protocol on the printer end and Sabre Protected Message Protocol on the Host end Boarding Pass Printer driver which will allow the user to print data from the Sabre Host to a JavaPOS printer with various configuration options. The screenshot below shows the "**JavaPOS**" Driver's configuration tab.

IMPORTANT NOTE – MUST READ:

The "JavaPOS" Driver does not utilize the SJPM's Java. The machine running SJPM must have a minimum of Java 1.6 installed on it prior to SJPM installation and configuration. For the SJPM "JavaPOS" Driver to function correctly it also requires the "Java Advanced Imaging 1.1.3 (JAI)" and "EPSON JavaPOS ADK 1.11.13" software to be installed prior to SJPM installation and configuration.



"JavaPOS" Driver Configuration Options:

"Physical Device Location:"

"Location:"

The "**Location**" configuration is for a pseudo name or a physical location of the printing device. This configuration is used by the grouping function in SJPM that allows you to group devices together based on the "**Location**" field.

"Printer Settings:"

"Printer Name:"

The "**Printer Name**" configuration is for the printer name for the device. The default is set to "**POSPrinter**".

"Large Font Size Vertical Offset:"

The "**Large Font Size Vertical Offset**" configuration is to adjust the vertical position for the large font on each print line. The default is set to "**310**".

"Small Font Size Vertical Offset:"

The "**Small Font Size Vertical Offset**" configuration is to adjust the vertical position for the small font on each print line. The default is set to "**0**".

"Time to Wait for Errors:"

The "**Time to Wait for Errors**" configuration is to adjust the time to wait for errors. The default is set to "**0**".

"Host Settings:"

"LNIATA:"

The "**LNIATA**" configuration is for the LNIATA (Sabre Address) of the device you are configuring to print to.

"Primary Host:"

The "**Primary Host**" configuration is for the address to the Sabre Host. The default is set to "**access.sabre.com**".

"Supplemental Hosts:"

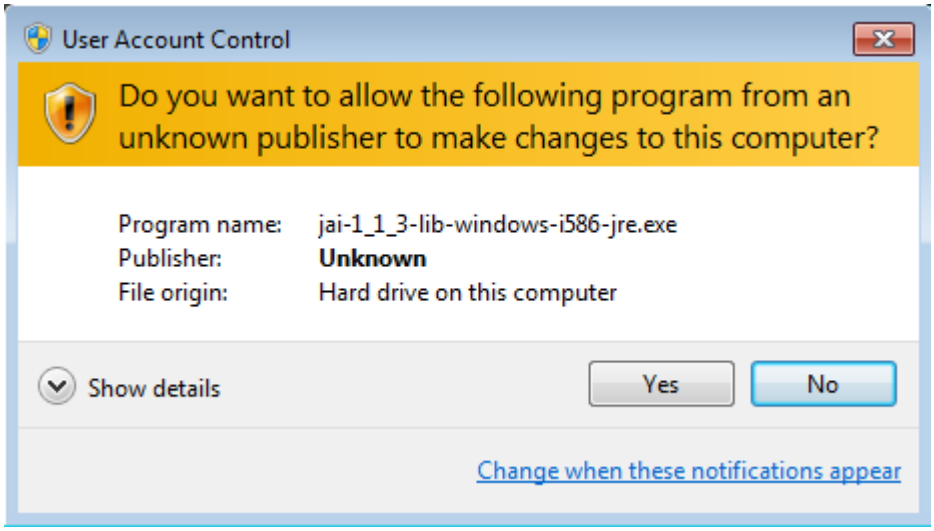
The "**Supplemental Hosts**" configuration allows for supplemental host addresses to be configured for the device. This will allow printing to the device from multiple host addresses. (See section **6.1.1 Supplemental Hosts Configuration** for a detailed explanation)

6.2.4.1 Java Advanced Imaging (JAI) Version 1.1.3 Installation

This section describes the process for installing "**Java Advanced Imaging**" (JAI) version **1.1.3** software which is required for functionality of the Epson JavaPOS printer.

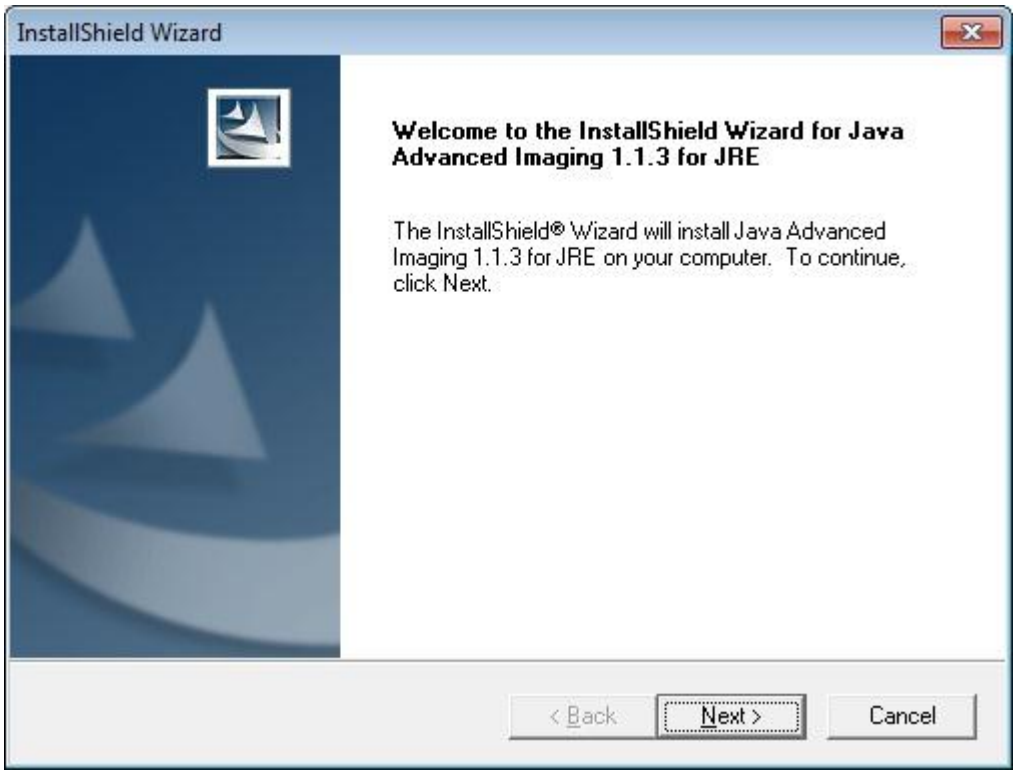
1. Double click on the "**jai-1_1_3-lib-windows-i586-jre.exe**" to start the JAI installation.

   Windows 7 and 8 Operating Systems:
   If you see the following window click on the "**Yes**" button:

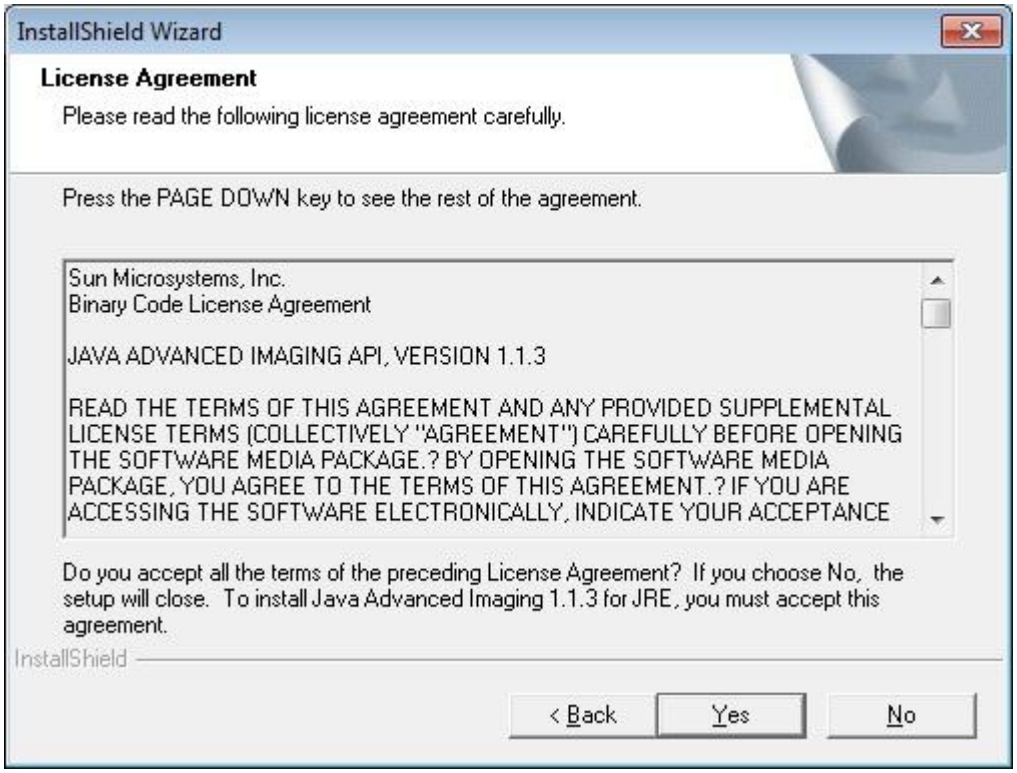


   The following window will appear.

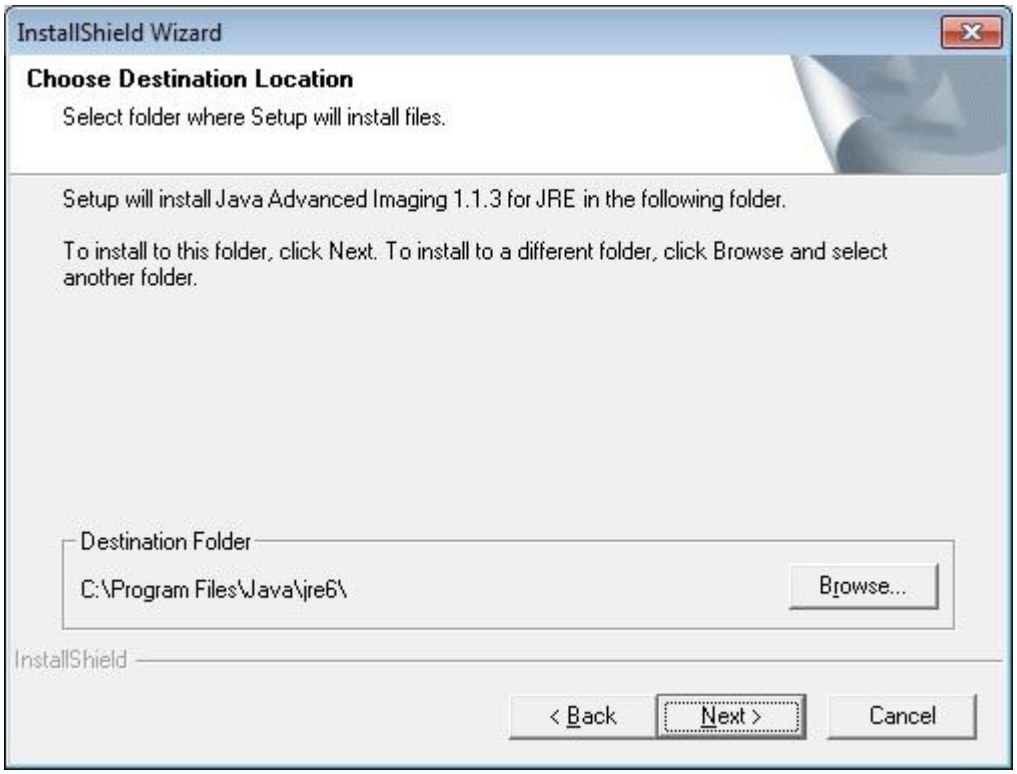
After file extraction and installation preparation the following window will appear. Click on the "**Next** >" button.



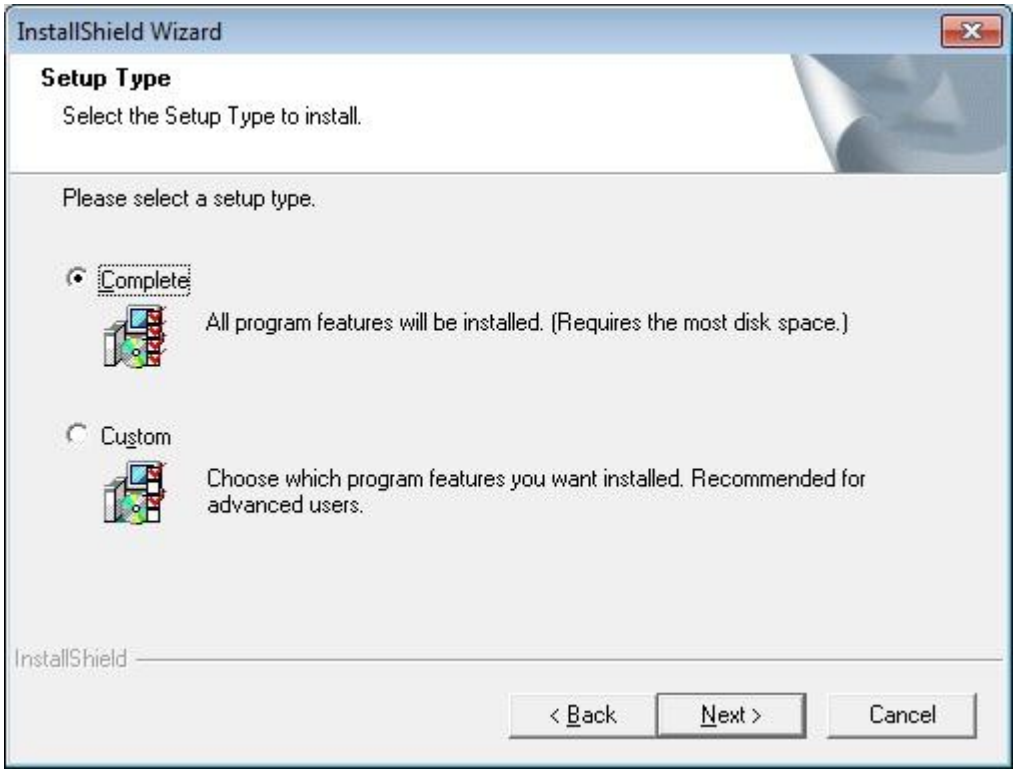
2. The "**License Agreement**" window will appear. Click on the "**Yes**" button.



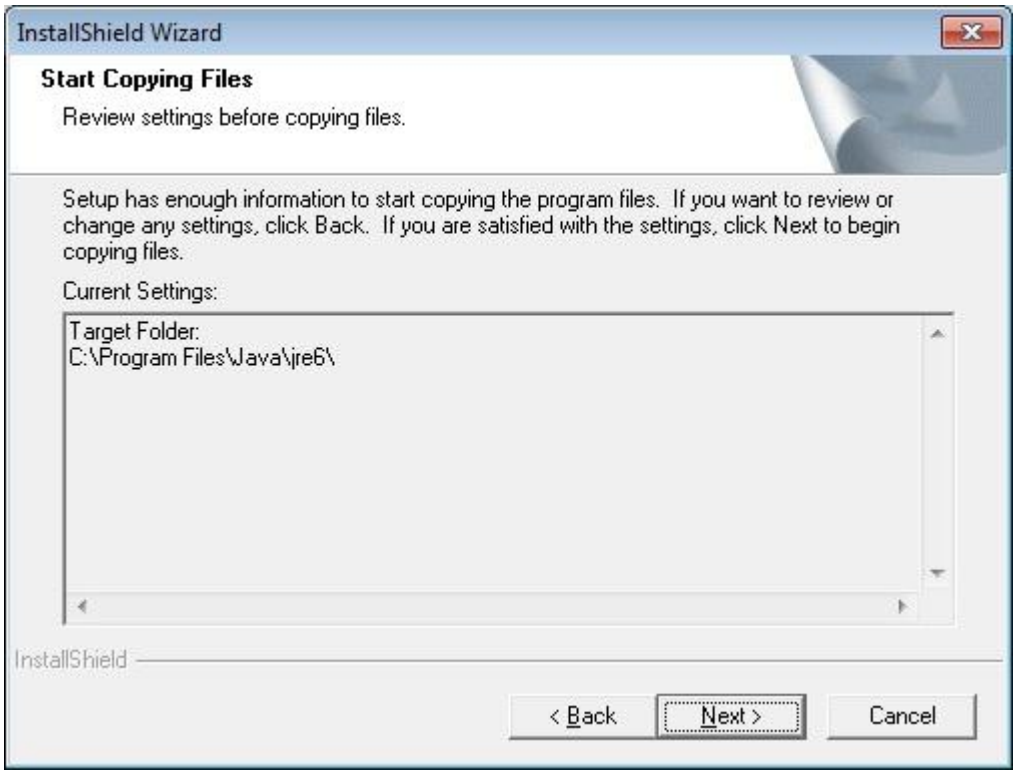
3. The "**Choose Destination Location**" window will appear. Click on the "**Next>**" button.



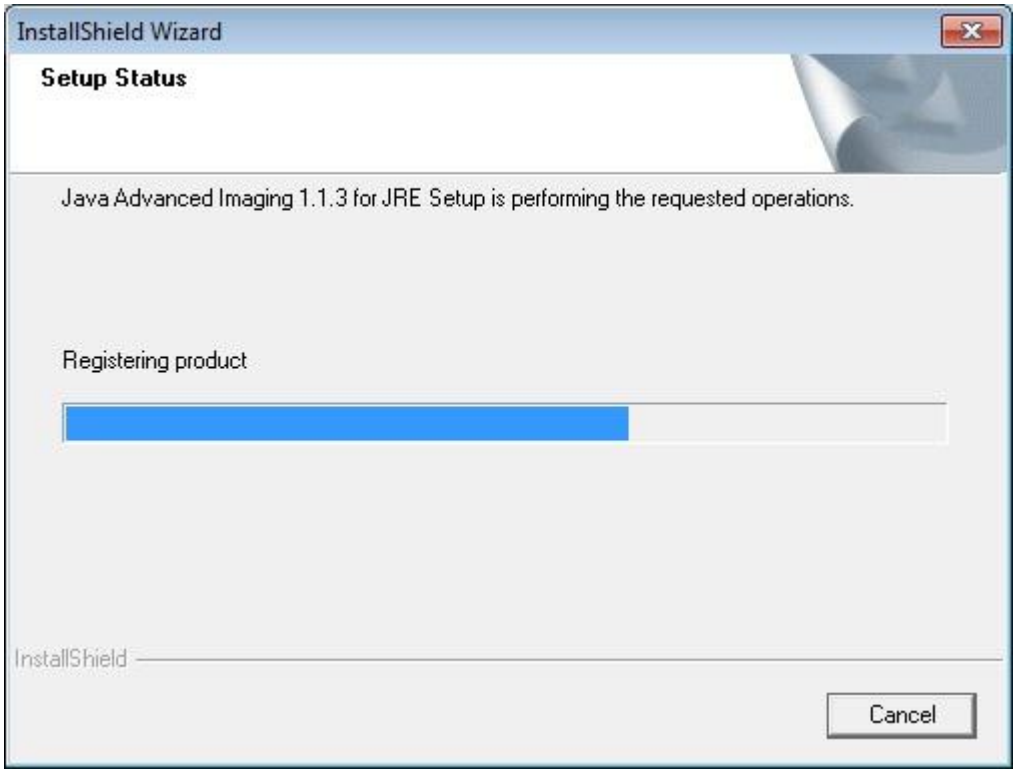
4. The "**Setup Type**" window will appear. Click on and select the "**Complete**" radio button and then click on the "**Next>**" button.



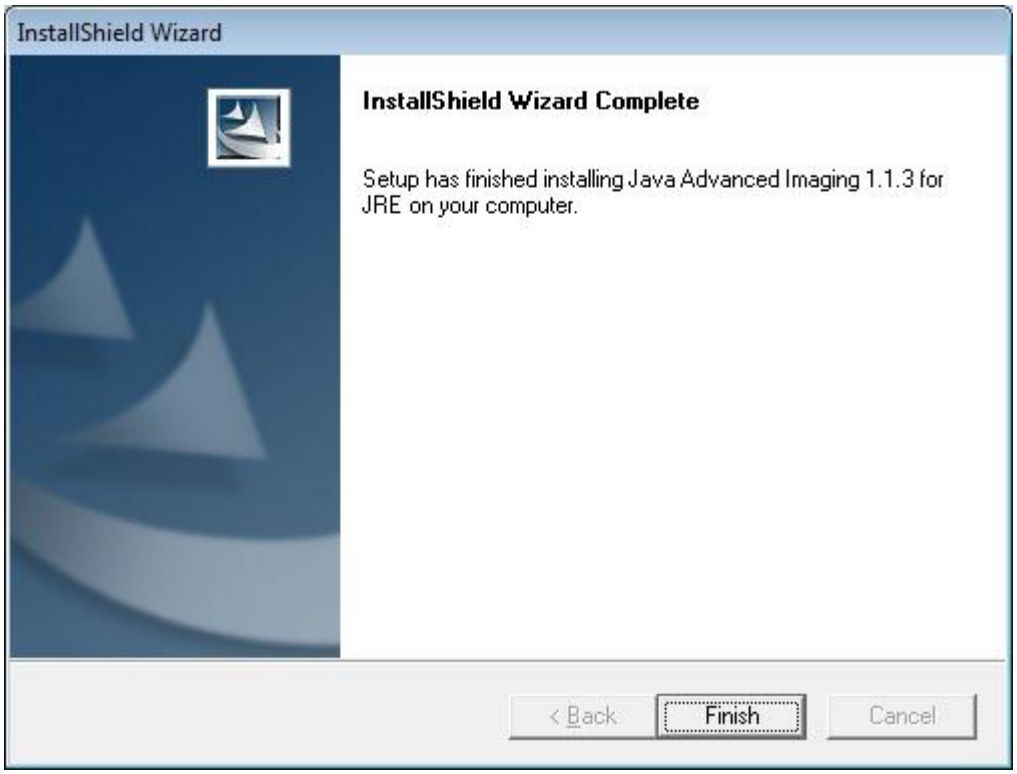
5. The "**Start Copying Files**" window will appear. Click on the "**Next>**" button.



6. The "**Setup Status**" window will appear. Click on the "**Cancel**" button only if you want to cancel the installation.



7. The "**InstallShield Wizard Complete**" window will appear. Click on the "**Finish**" button to complete the installation.



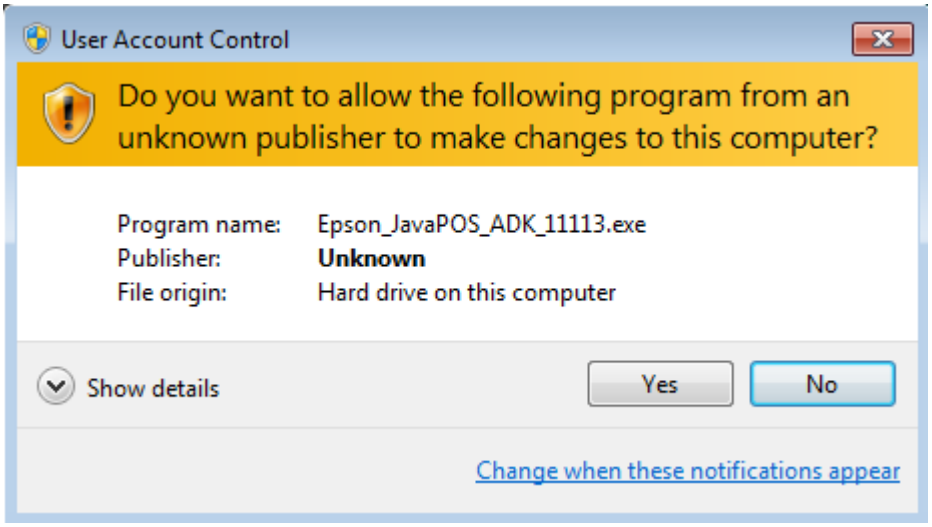
6.2.4.2 EPSON JavaPOS ADK Version 1.11.13 Installation

Once the "**Java Advanced Imaging**" (JAI) version 1.1.3 software has been installed, install the "**EPSON JavaPOS ADK version 1.11.13**" software which is required for functionality of the Epson JavaPOS printer.

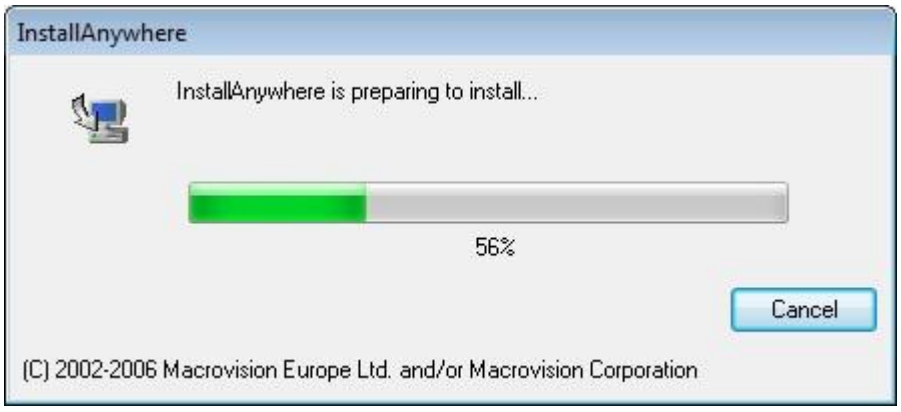
1. Double click on the "**Epson_JavaPOS_ADK_11113.exe**".

   Windows 7 and 8 Operating Systems:

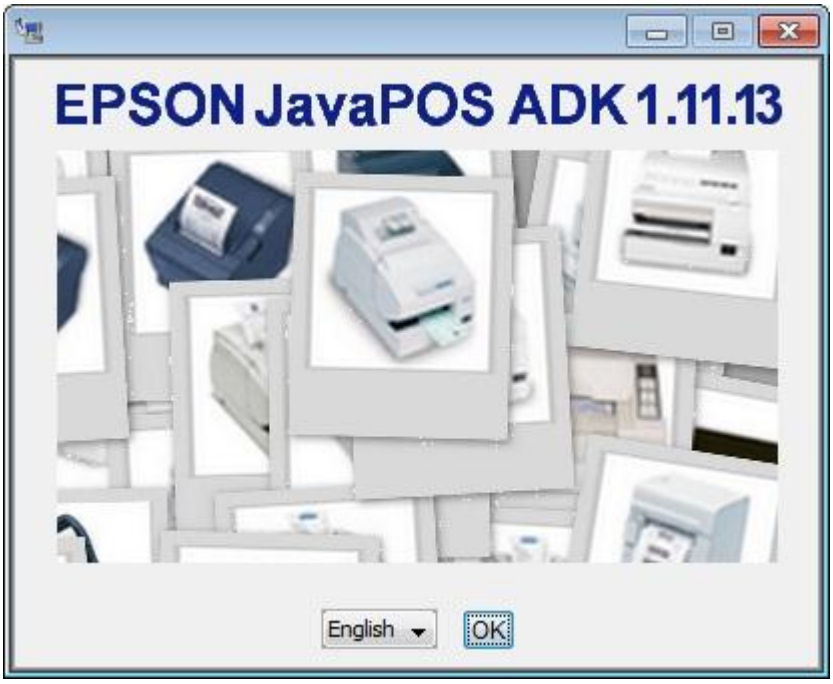
   If you see the following window click on the "**Yes**" button:



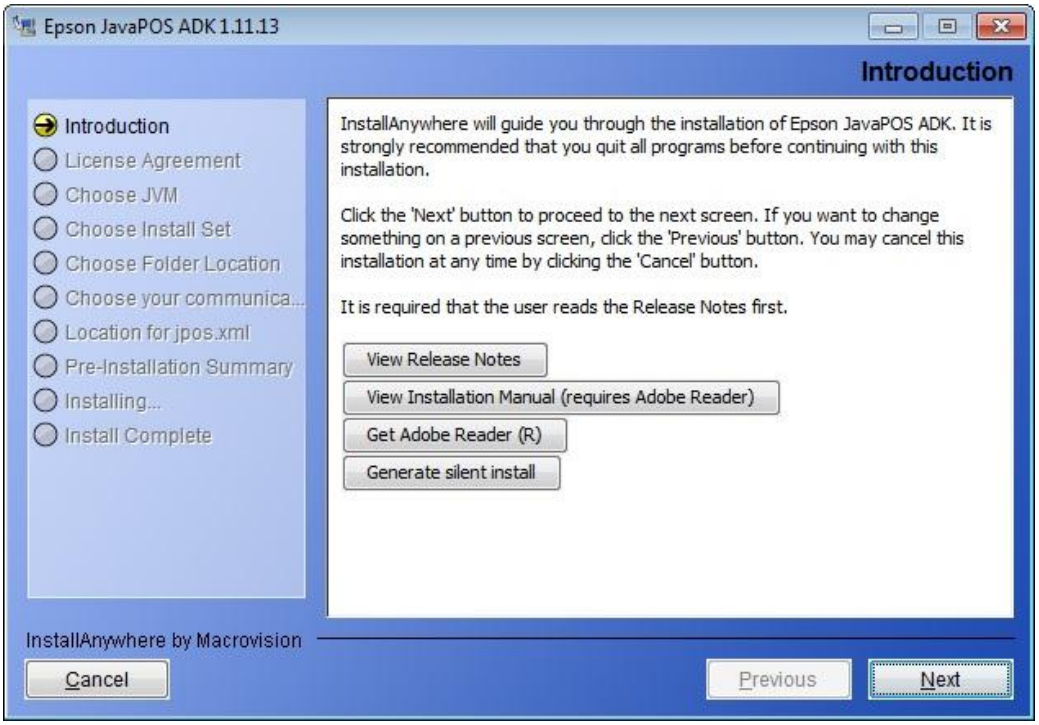
   The following windows will appear:



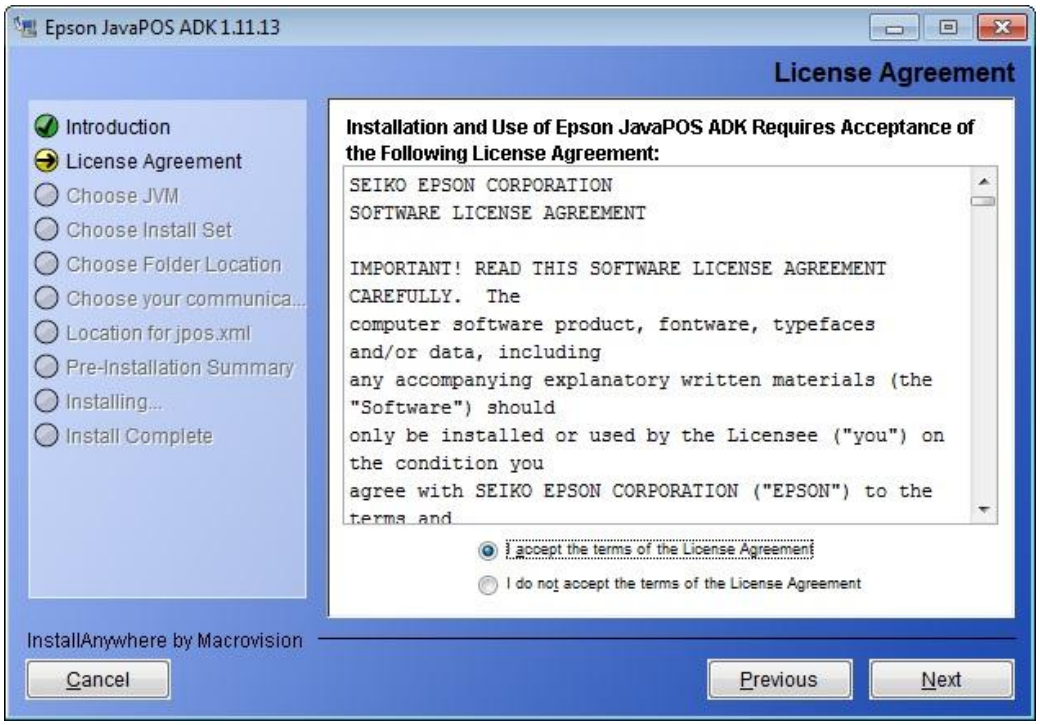
Select the Language and then click on the "**OK**" button.



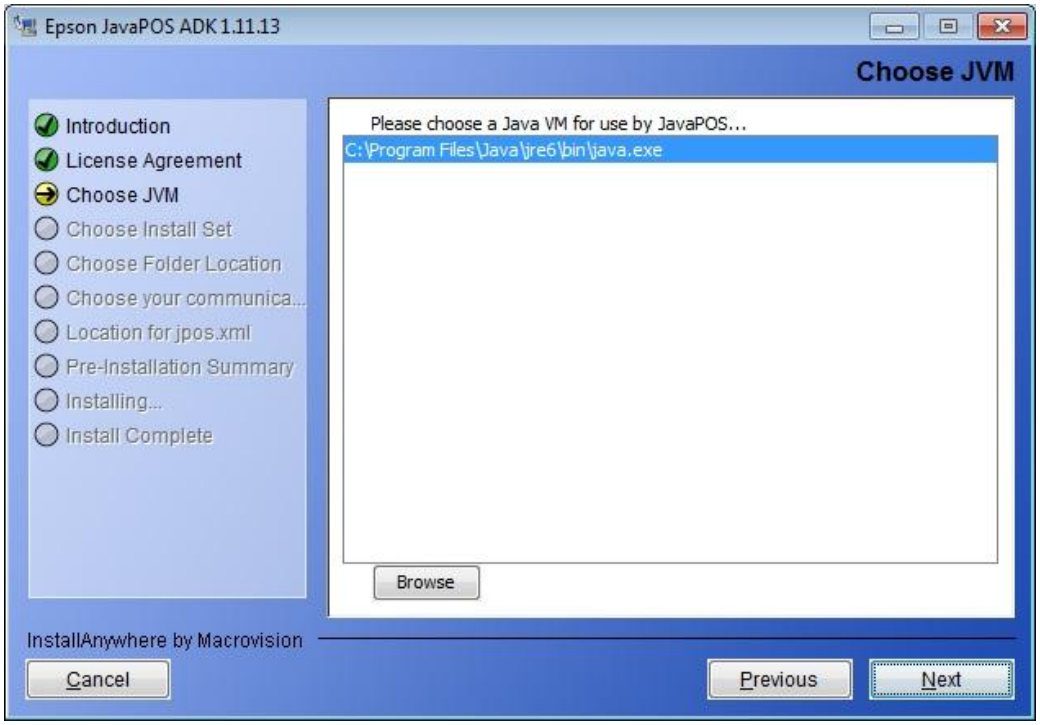
2. The "**Introduction**" window will appear. Click on the "**Next**" button.



3. The "**License Agreement**" window will appear. Click on "**I accept the terms of the License Agreement**" and then click on the "**Next**" button.

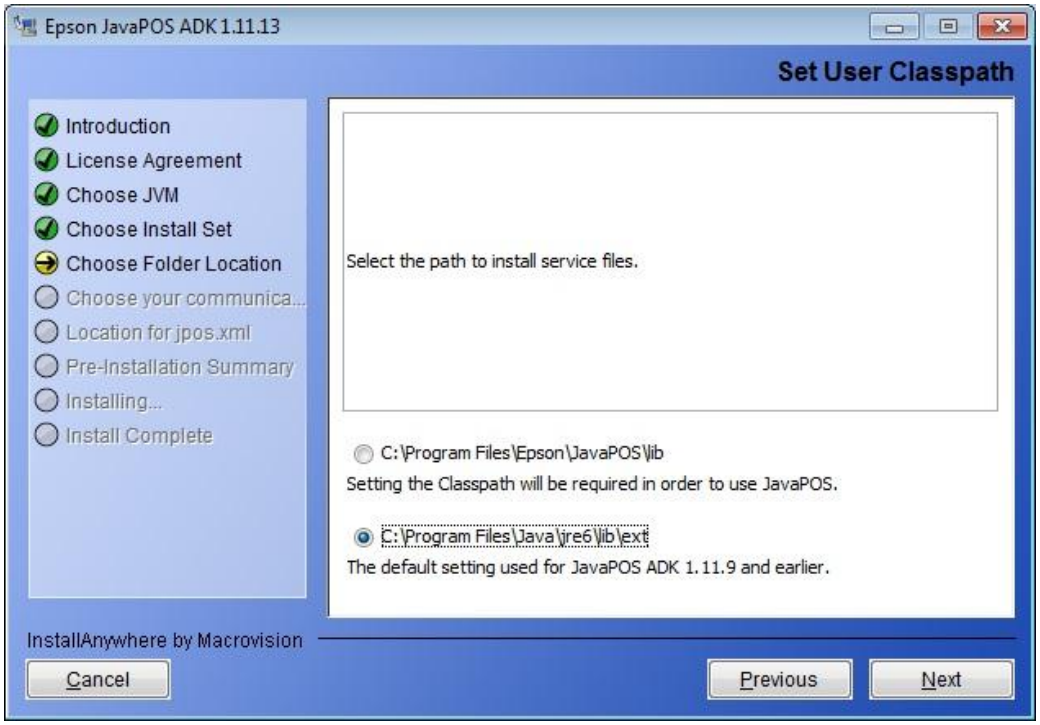


4. The "**Choose JVM**" window will appear. Click on and select the Java VM to be used by JavaPOS and then click on the "**Next**" button.

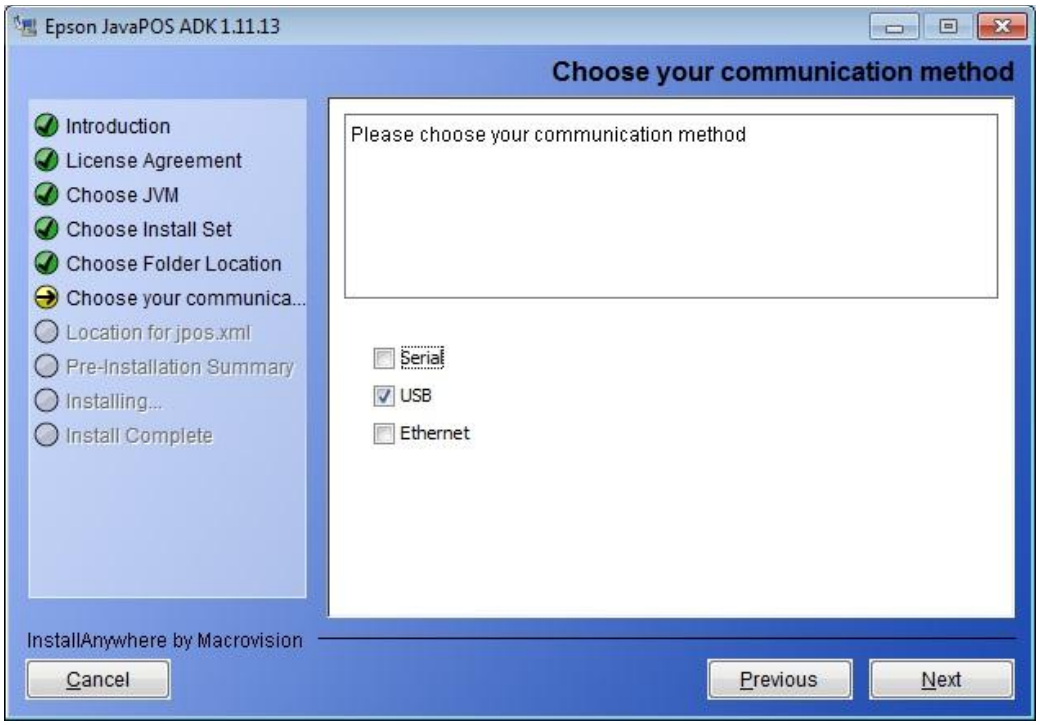


5. The "**Choose install Set**" window will appear. Click on and select "**User**" and then click on the "**Next**" button.

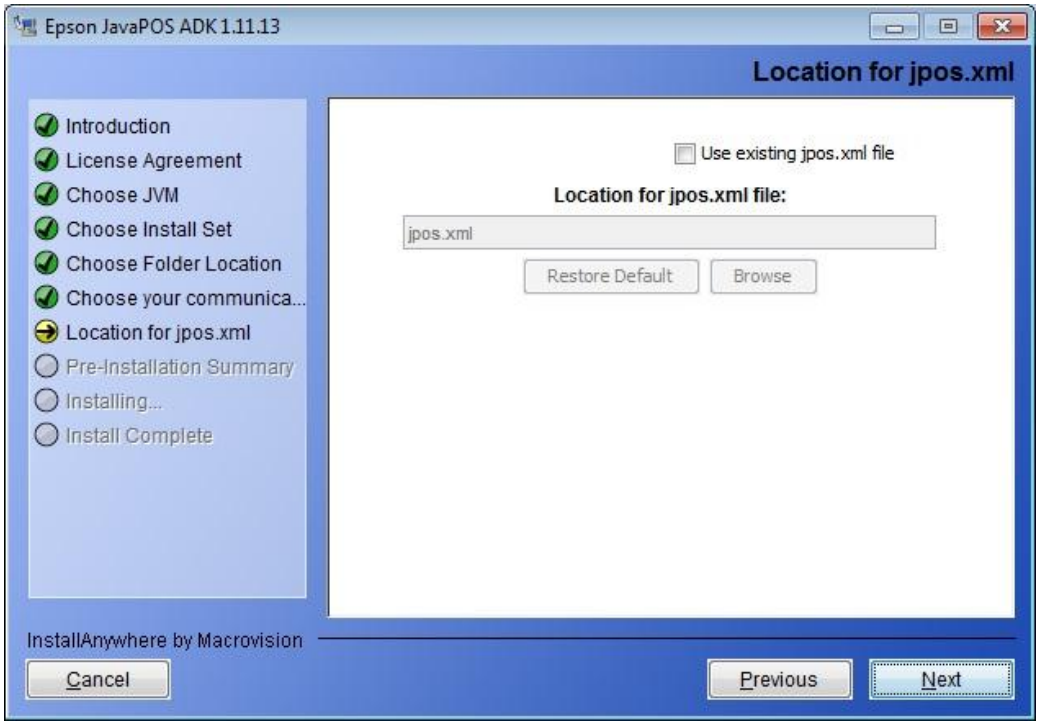
6. The "**Set User Classpath**" window will appear. Click on and select the default Classpath and then click on the "**Next**" button.



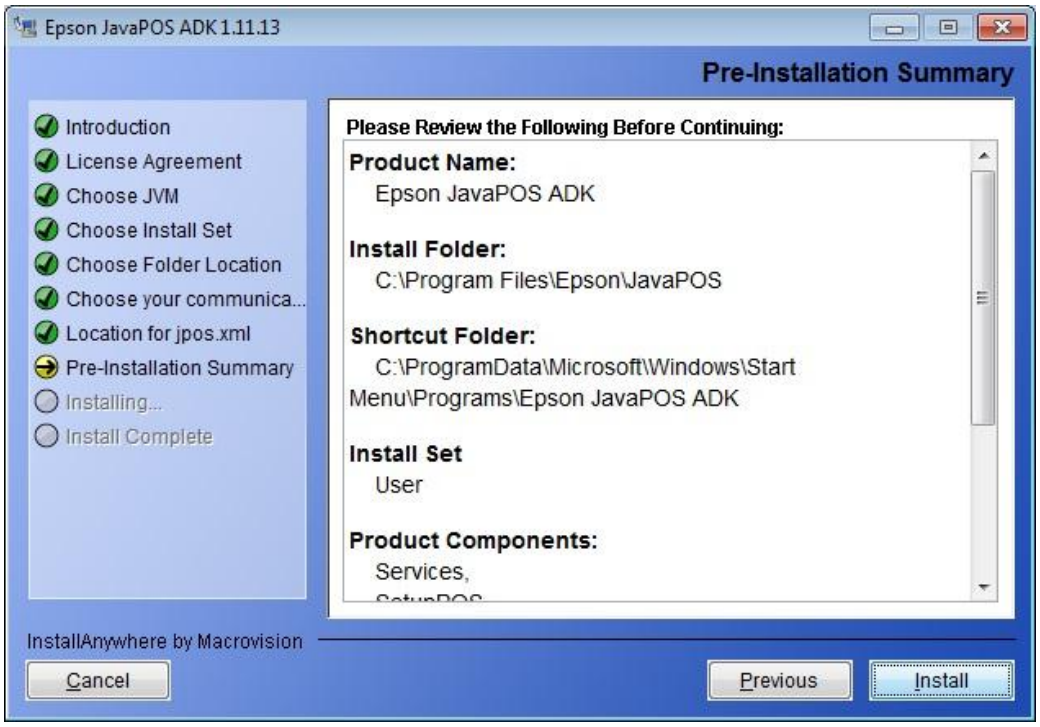
7. The "**Choose your communication method**" window will appear. Click on and unselect the "**Serial**" communication method and then click on and select the "**USB**" communication method and then click on the "**Next**" button.



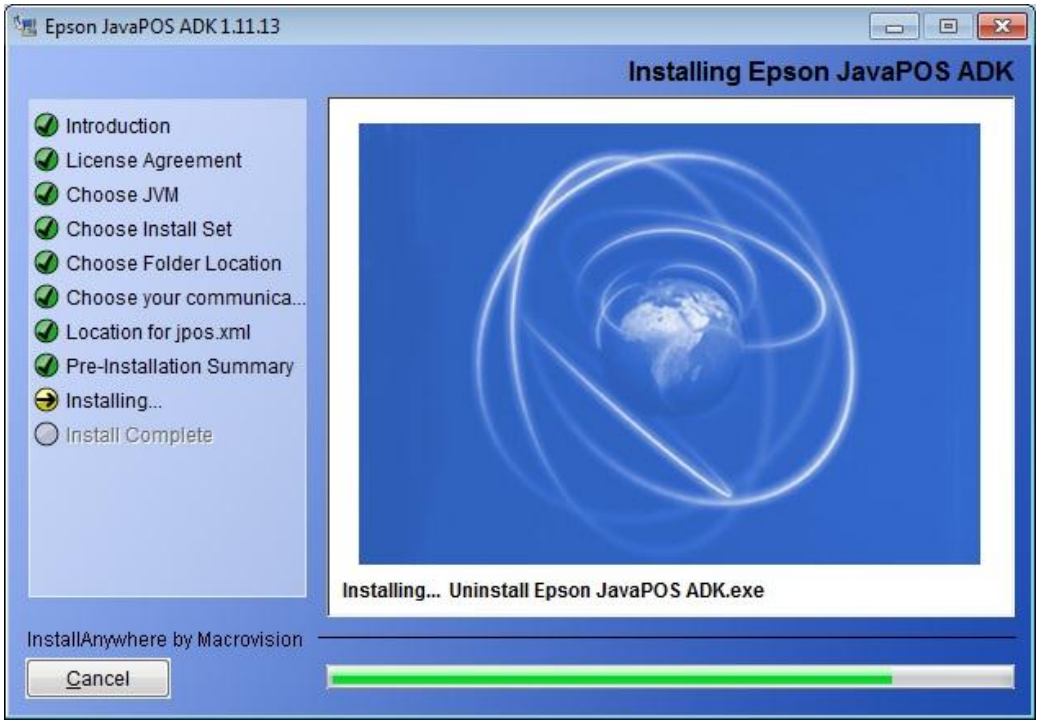
8. The "**Location for jpos.xml**" window will appear. Click on the "**Next**" button.



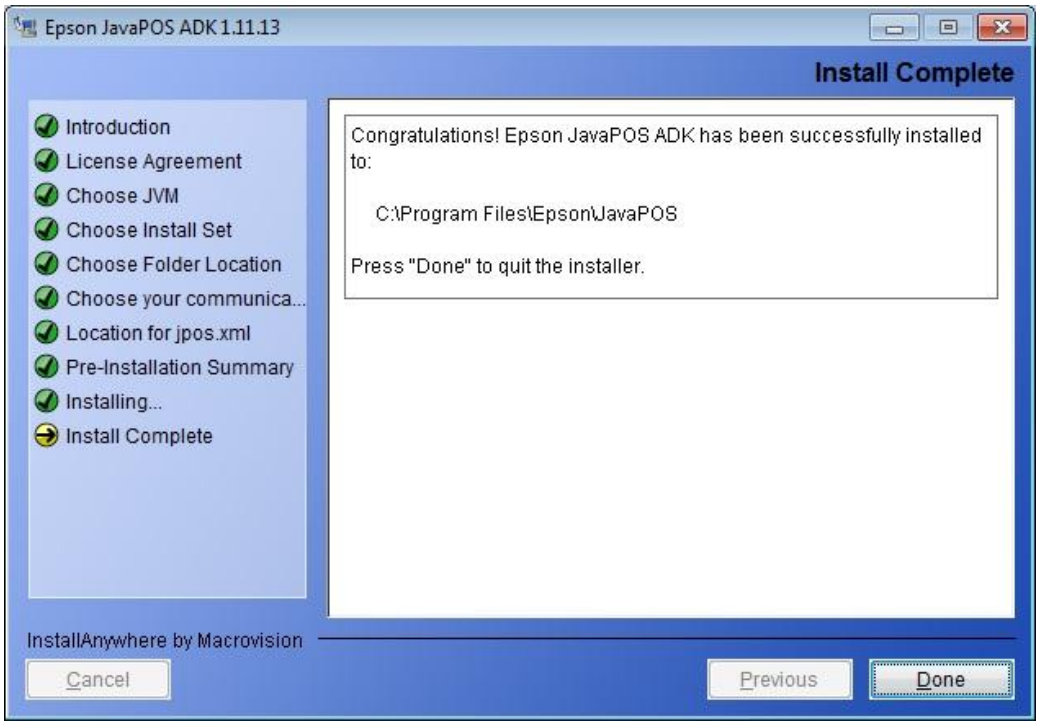
9. The "**Pre-Installation Summary**" window will appear. Click on the "**Install**" button.



10. The "**Installing Epson JavaPOS ADK**" window will appear.



11. Once the install has completed the "**Install Complete**" window will appear. Click on the "**Done**" button to complete the installation process.



6.2.4.3 EPSON JavaPOS ADK Version 1.11.13 Configuration

Once the "**Epson_JavaPOS_ADK_11113.exe**" has been installed, configuration will be required before use. This section describes the process for configuration.

EPSON TM-T88IV USB Printer Configuration:

Configure the following settings in the EPSON SetupPOS program.

Device Name: TM-T88IV

Port Type: USB

Port Name Type: Serial Number

Port Name: Actual Serial Number of the printer

Use the USB cable that comes with the printer for workstation connection.

EPSON TM-T88IV Serial Printer Configuration:

Configure the following settings in the EPSON SetupPOS program.

Device Name: TM-T88IV

Port Type: Serial

Serial Port: COM1 (Select according to the COM port you are connected.)

Buffer size: 4096 (Default)

Bits per second: 38400 bps

Data Bits: 8 Bits

Parity: No Parity Bits

Stop Bits: 1 Stop Bit

Flow Control: DTR/DSR

Use the serial cable that comes with the printer for workstation connection.

EPSON TM-T88V USB Printer Configuration:

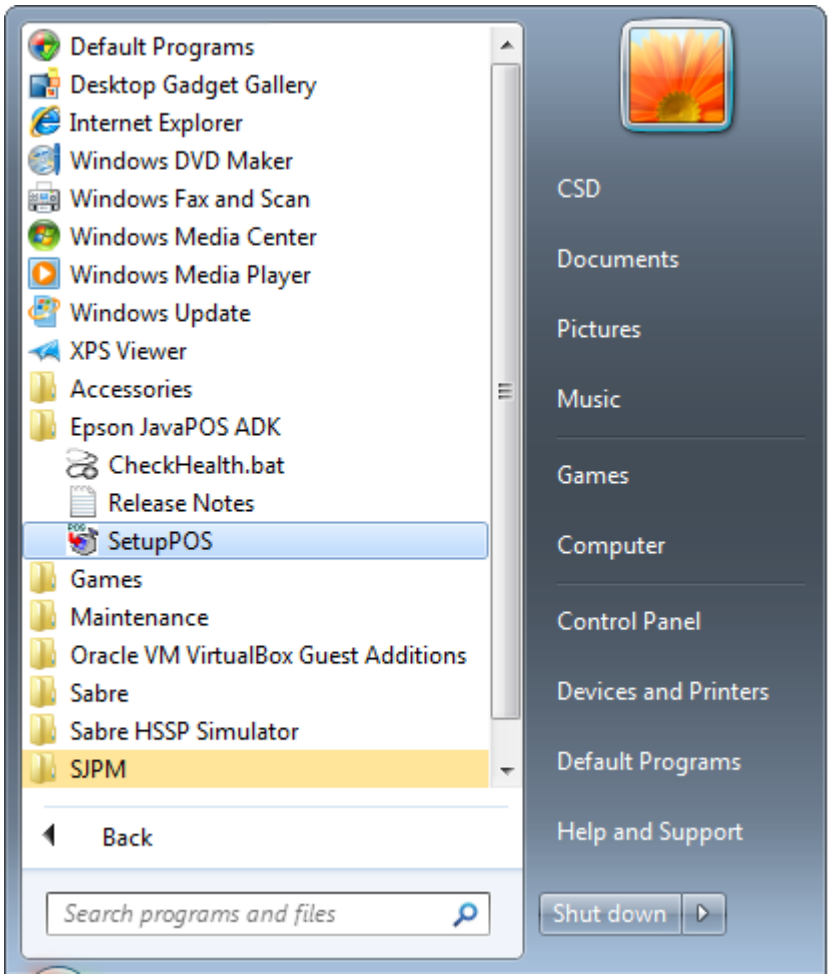
Configure the following settings in the EPSON SetupPOS program.

Device Name: TM-T88V

Port Type: USB

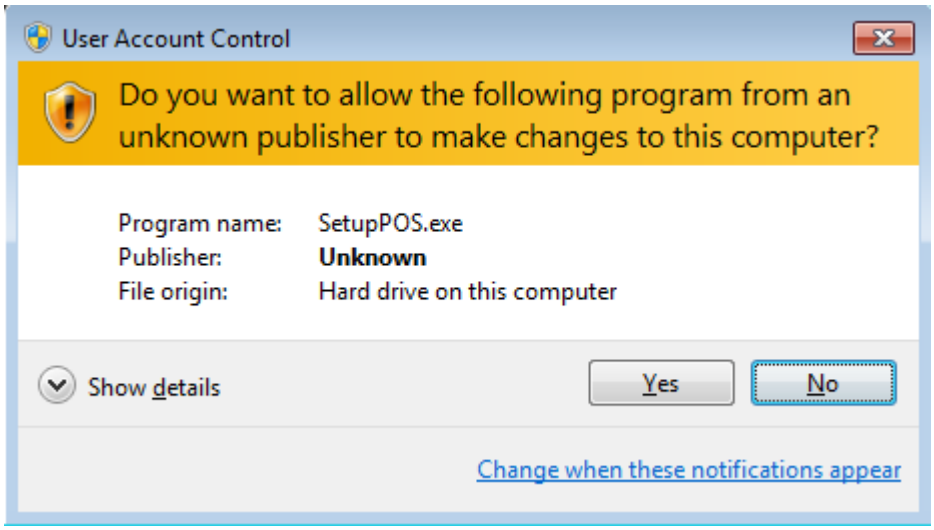
Use the USB cable that comes with the printer for workstation connection.

1. Click on the Windows "**Start**" button, then navigate to "**Programs**" or "**All Programs**", and then click on "**Epson JavaPOS ADK**". For Windows 7 and Windows 8 Operating Systems right click on "**SetupPOS**" and then select ""**Run as administrator**" if required, otherwise click on "**SetupPOS**".

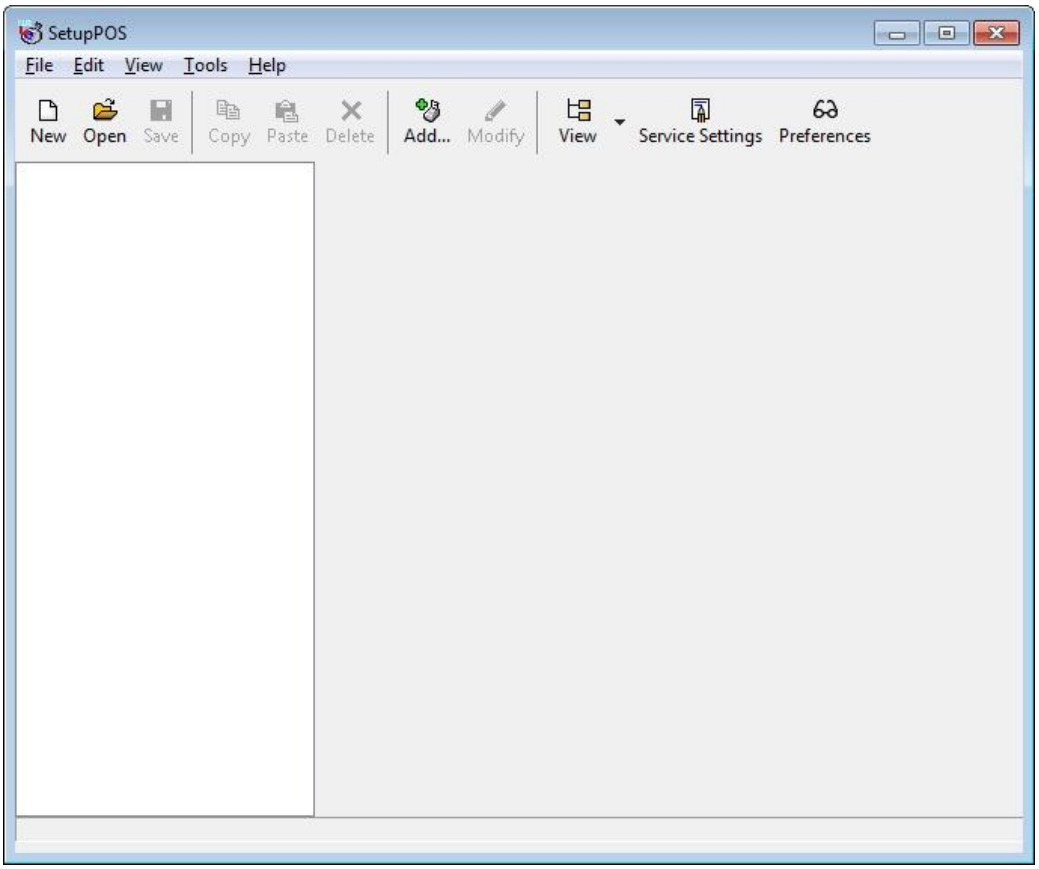


Windows 7 and Windows 8 Operating Systems:

If you see the following window click on the "**Yes**" button:



2. The "**SetupPOS"** window will appear. Click on the "**Add…**" button.



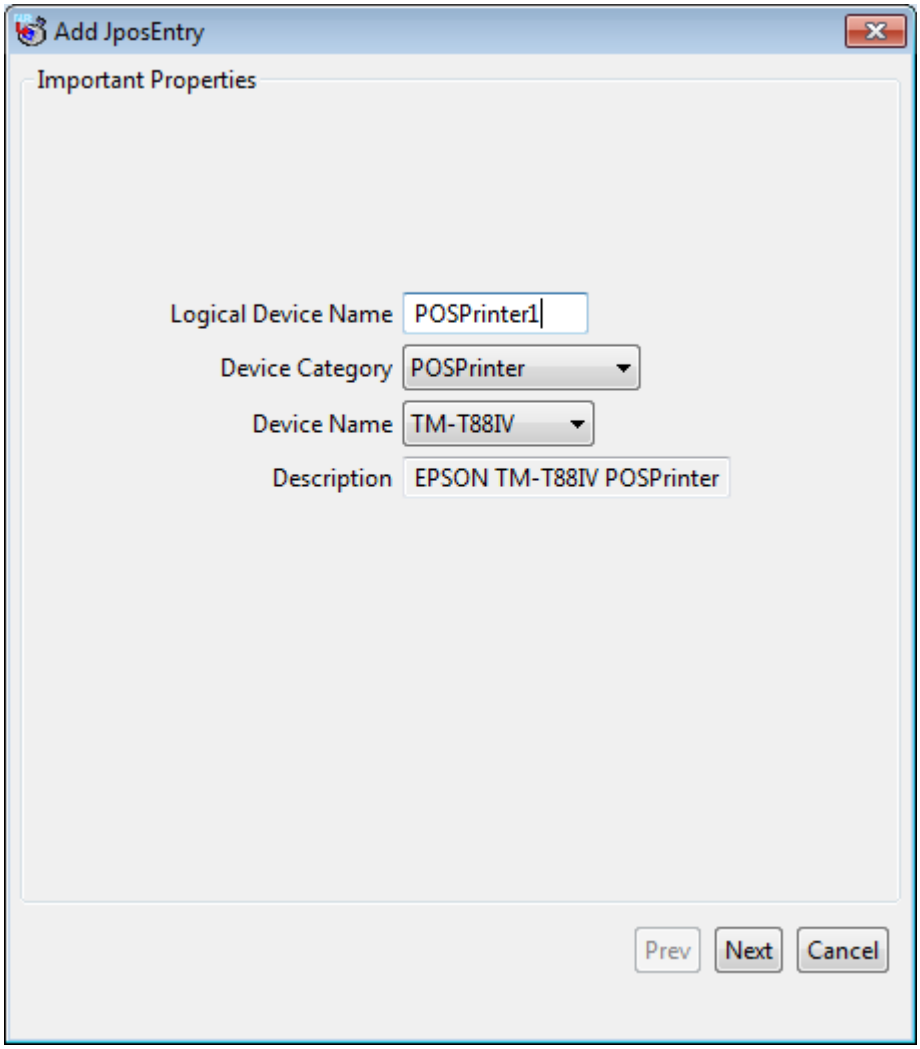
3. The "**Add JposEntry**" "**Important Properties**" window will appear. In the "**Logical Device Name**" field type in the printer name (THIS NAME MUST MATCH WITH THE DEVICE NAME CONFIGURED IN SJPM).

Configuration for the TM-T88IV USB Printer

In the "**Device Category**" drop down list select "**POSPrinter**".

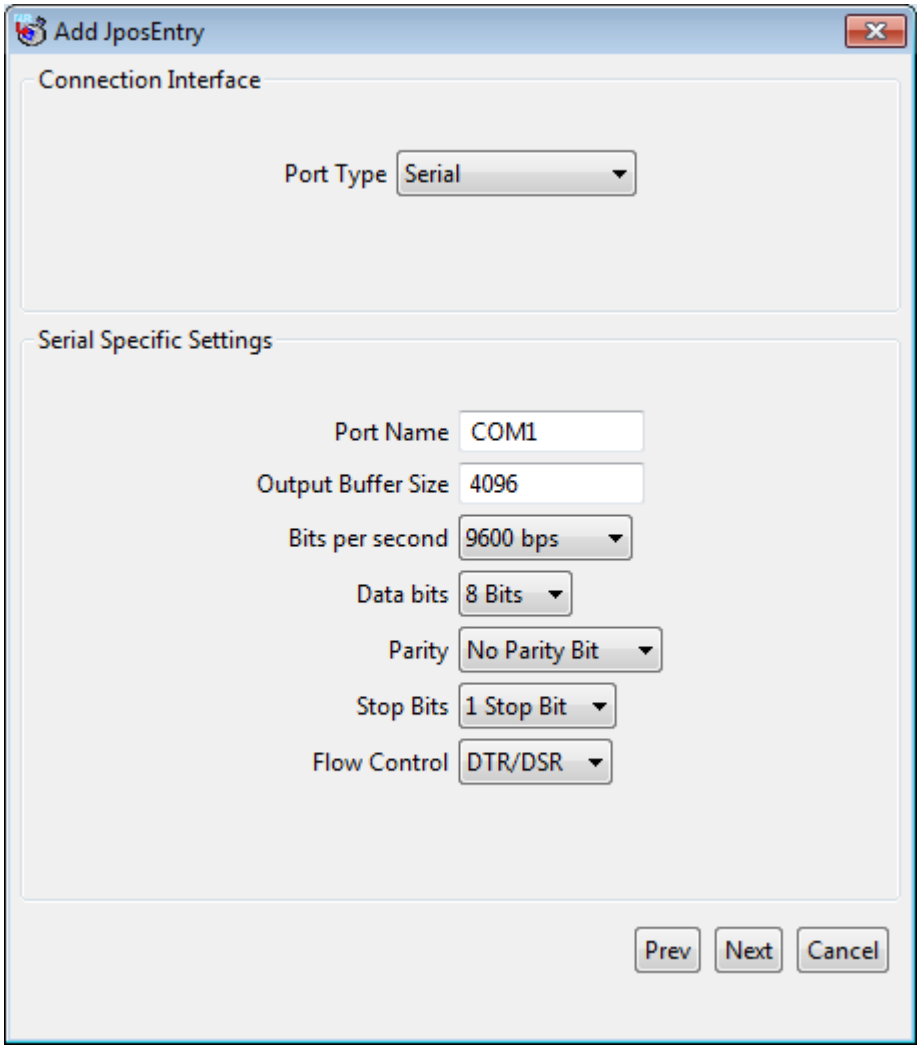
In the "**Device Name**" drop down list select "**TM-T88IV**".

Click on the "**Next**" button.



The “**Add JposEntry**” “**Connection Interface**” window will appear.

In the “**Port Type**” drop down list select “**USB**”.

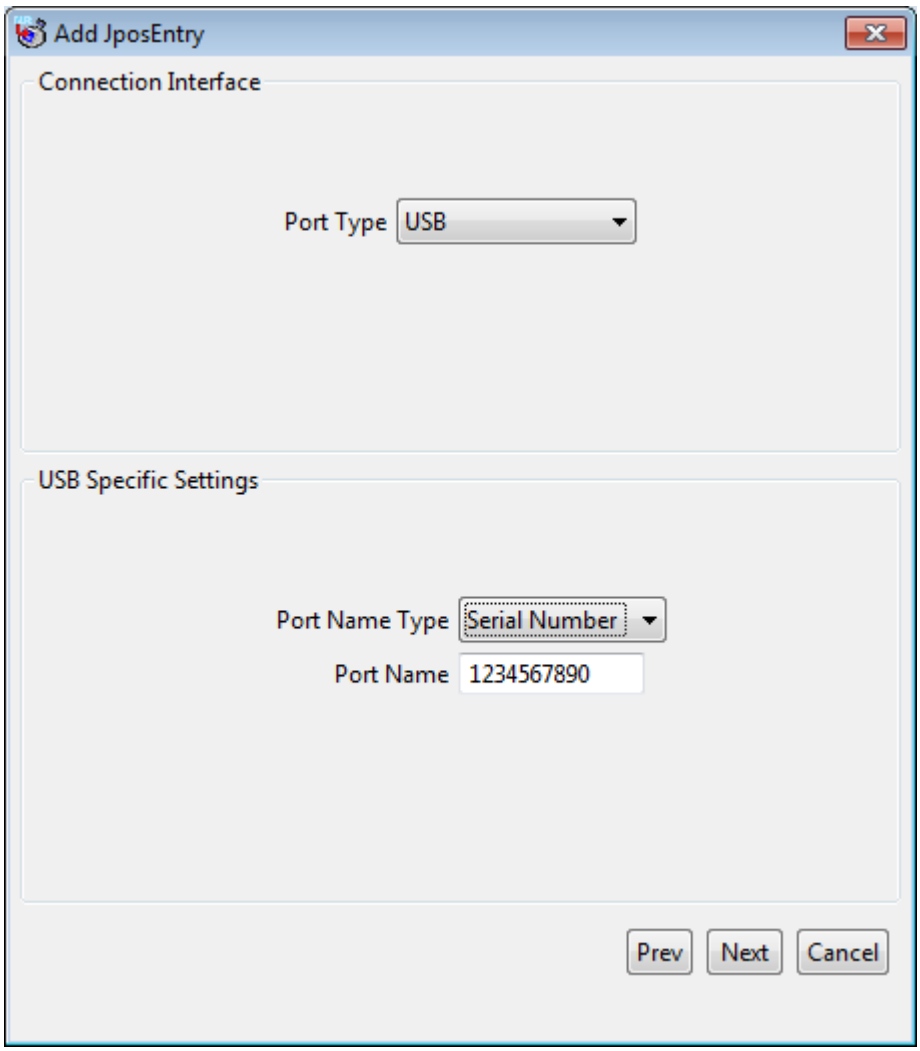


The following window will appear.

In the "**Port Name Type**" drop down list select "**Serial Number**".

In the "**Port Name**" field type in the serial number for your printer.

Click on the "**Next**" button.

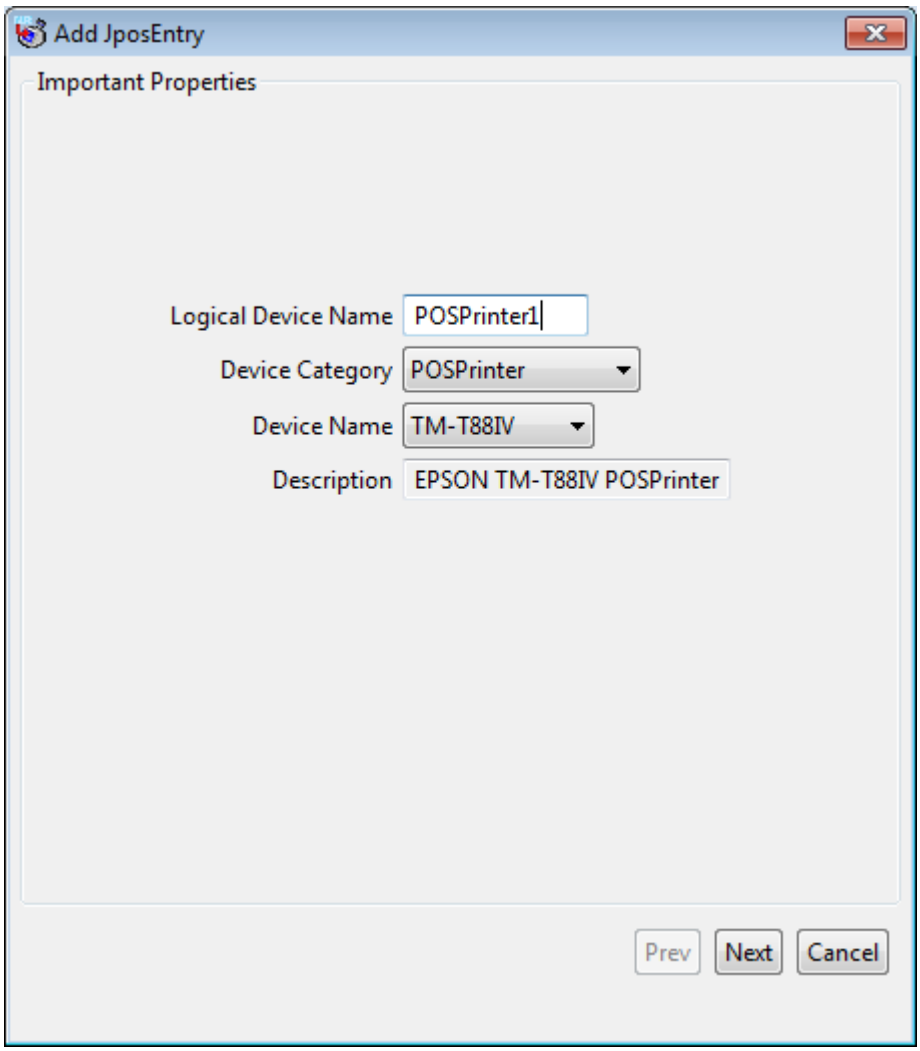


Configuration for the TM-T88IV Serial Printer

In the "**Device Category**" drop down list select "**POSPrinter**".

In the "**Device Name**" drop down list select "**TM-T88IV**".

Click on the "**Next**" button.



The “**Add JposEntry**” “**Connection Interface**” window will appear.

In the “**Port Type**” drop down list select “**Serial**”.

In the “**Port Name**” drop down list select “**COM1**” (Select according to the COM port your printer is connected).

In the “**Output Buffer Size**’ field type in “**4096**”.

In the “**Bits per second**” drop down list select “**38400 bps**”.

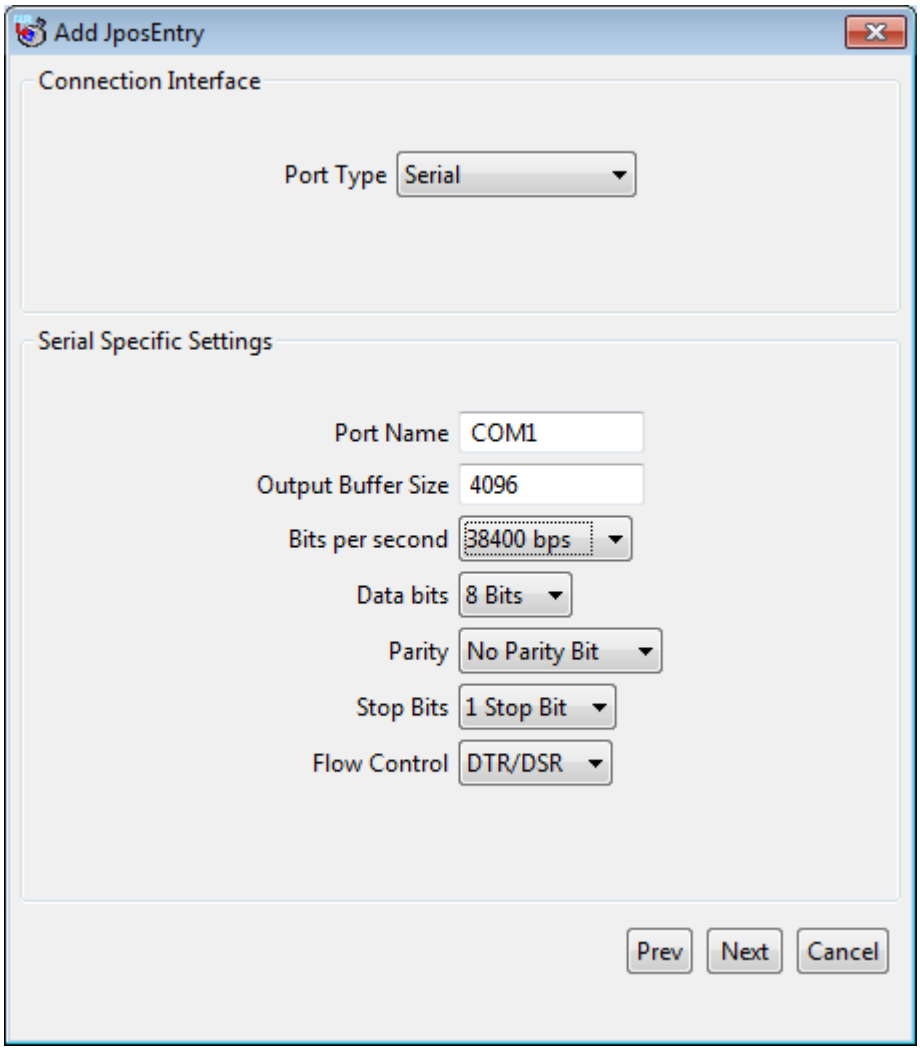
In the “**Data bits**” drop down list select “**8 Bits**”.

In the “**Parity**” drop down list select “**No Parity Bit**”.

In the “**Stop Bits**” drop down list select “**1 Stop Bit**”.

In the “**Flow Control**” drop down list select “**DTR/DSR**”.

Click on the “**Next**” button.

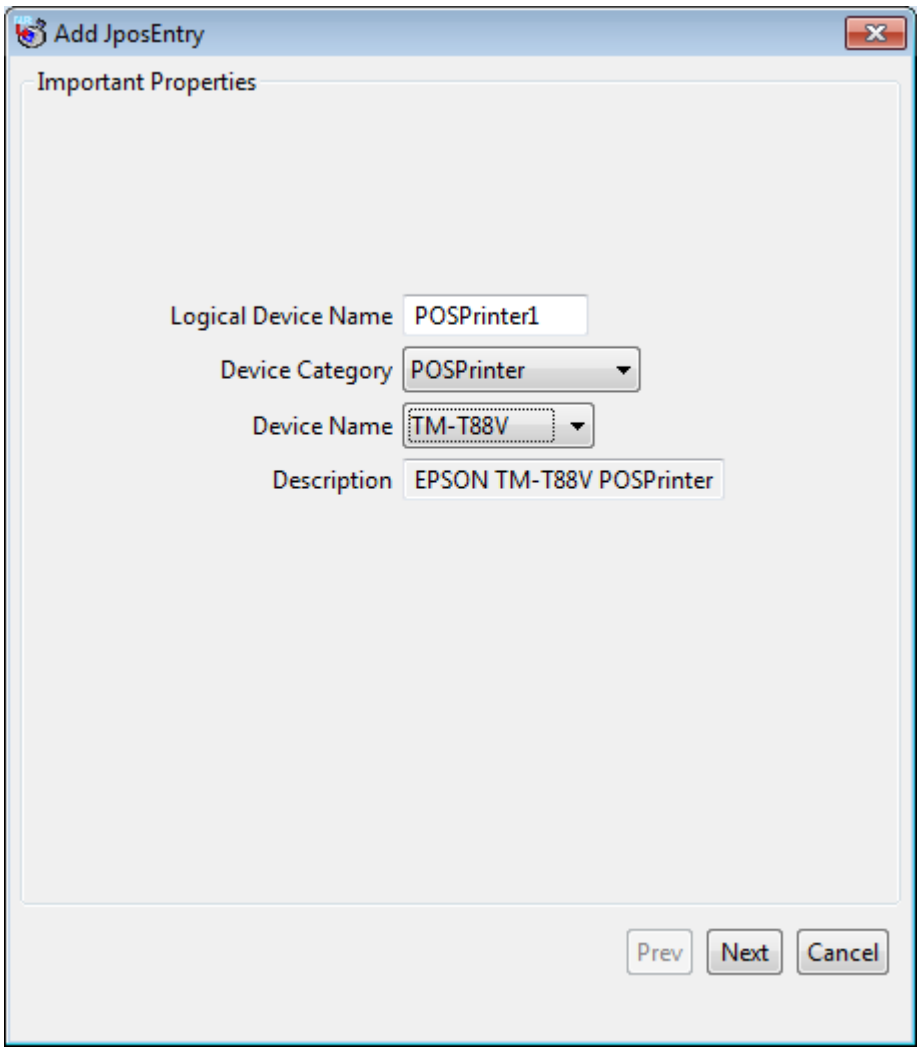


Configuration for the TM-T88V USB Printer

In the "**Device Category**" drop down list select "**POSPrinter**".

In the "**Device Name**" drop down list select "**TM-T88V**".

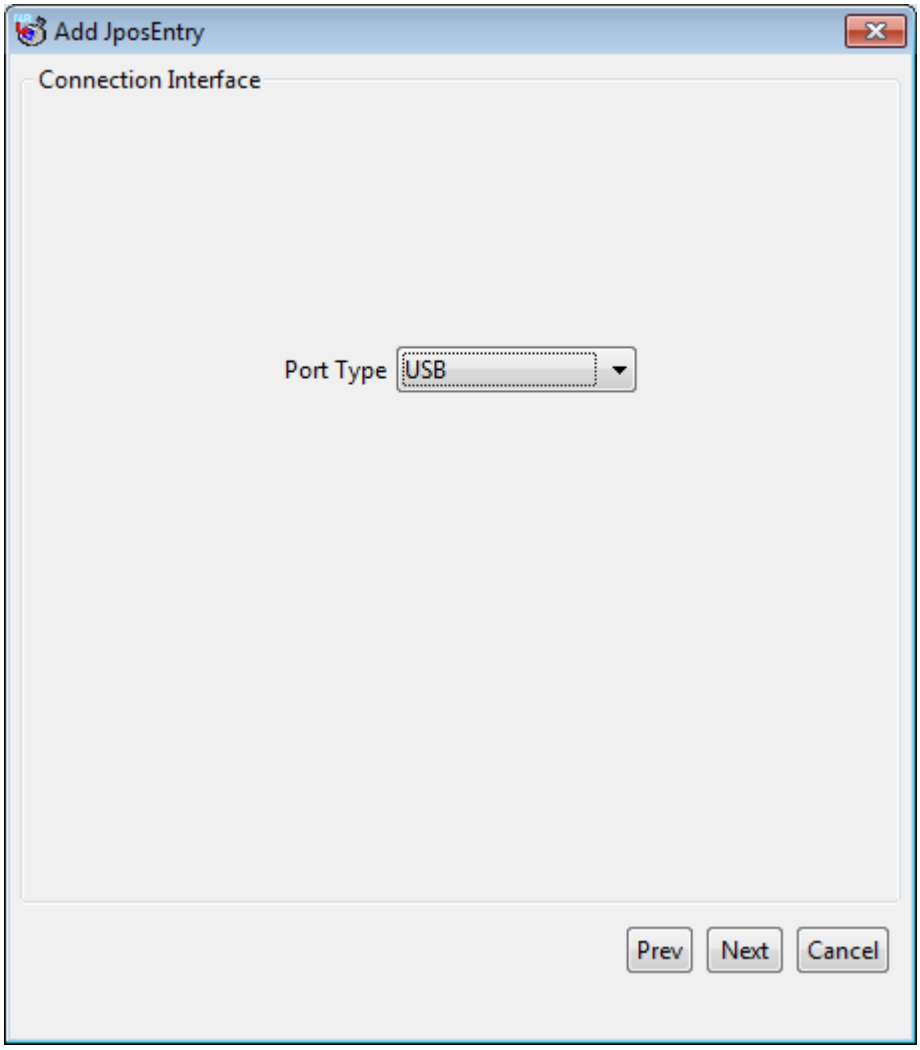
Click on the "**Next**" button.



The “**Add JposEntry**” “**Connection Interface**” window will appear.

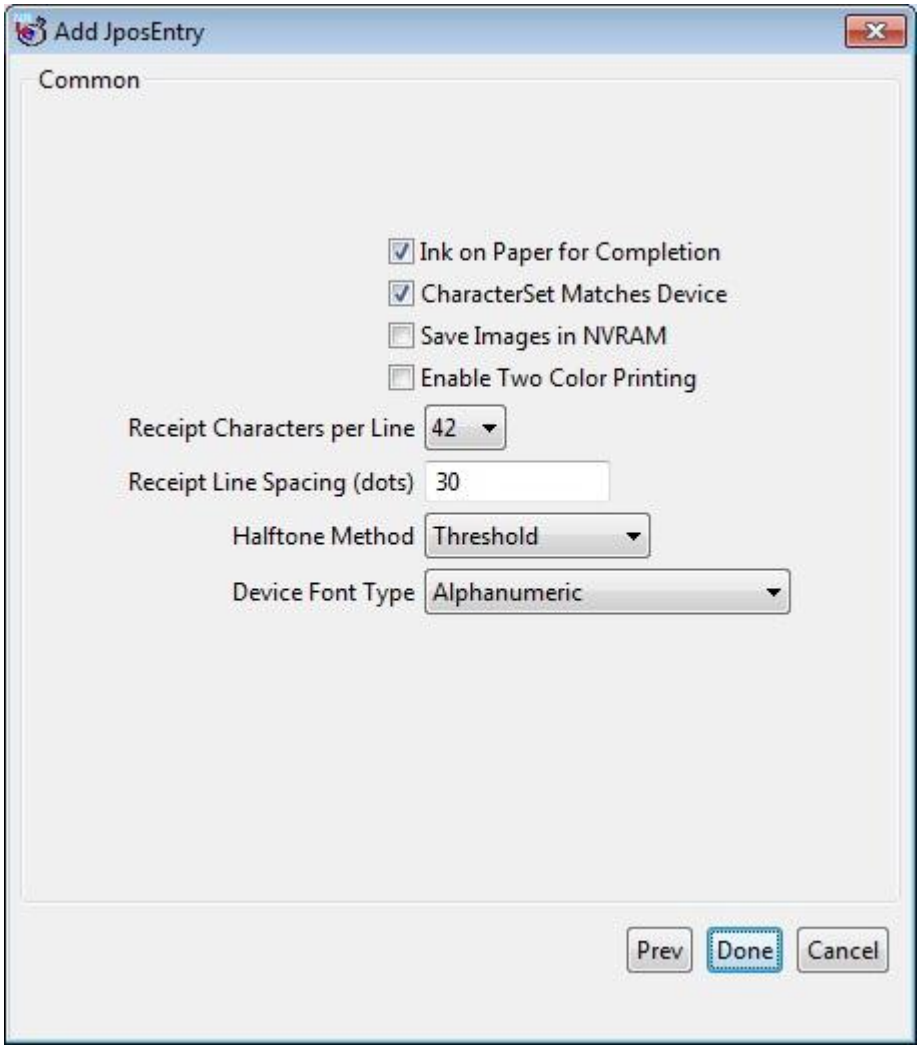
In the “**Port Type**” drop down list select “**USB**”.

Click on the “**Next**” button.



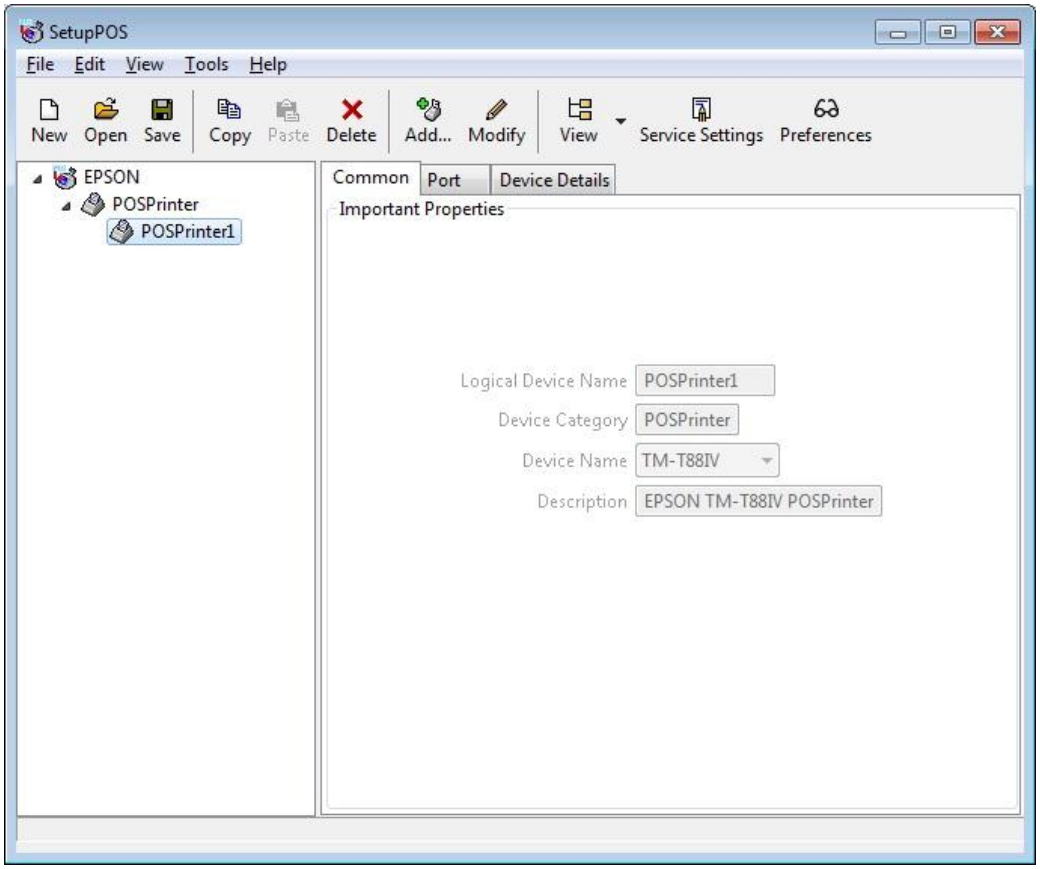
4. The "**Add JposEntry**" "**Common**" window will appear.

   Click on the "**Done**" button and take the default settings.



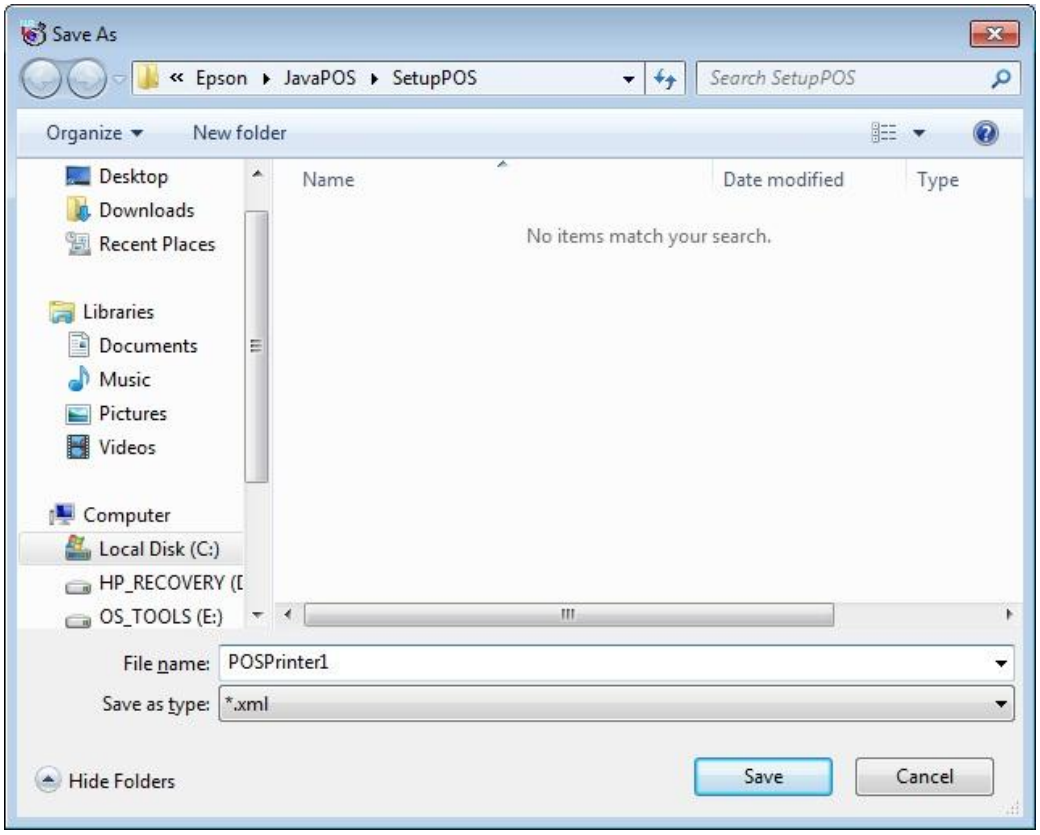
5. The "**SetupPOS**" window will appear.

   Click on the "**Save**" button.



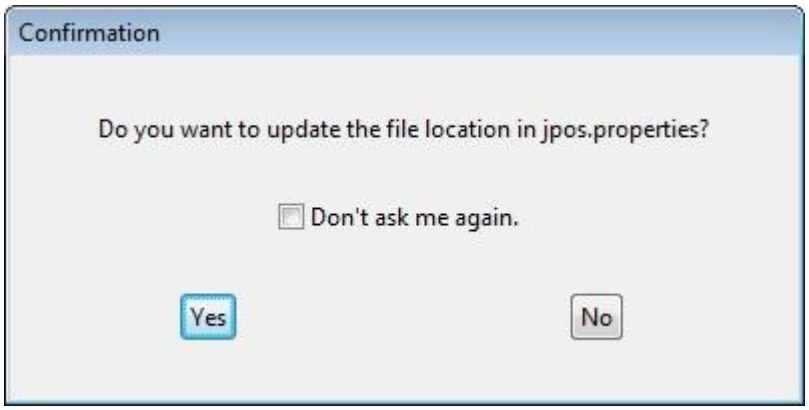
6. The "**Save As**" window will appear.

   In the "**File name:**" field type in "**POSPrinter1**" and then click on the "**Save**" button.



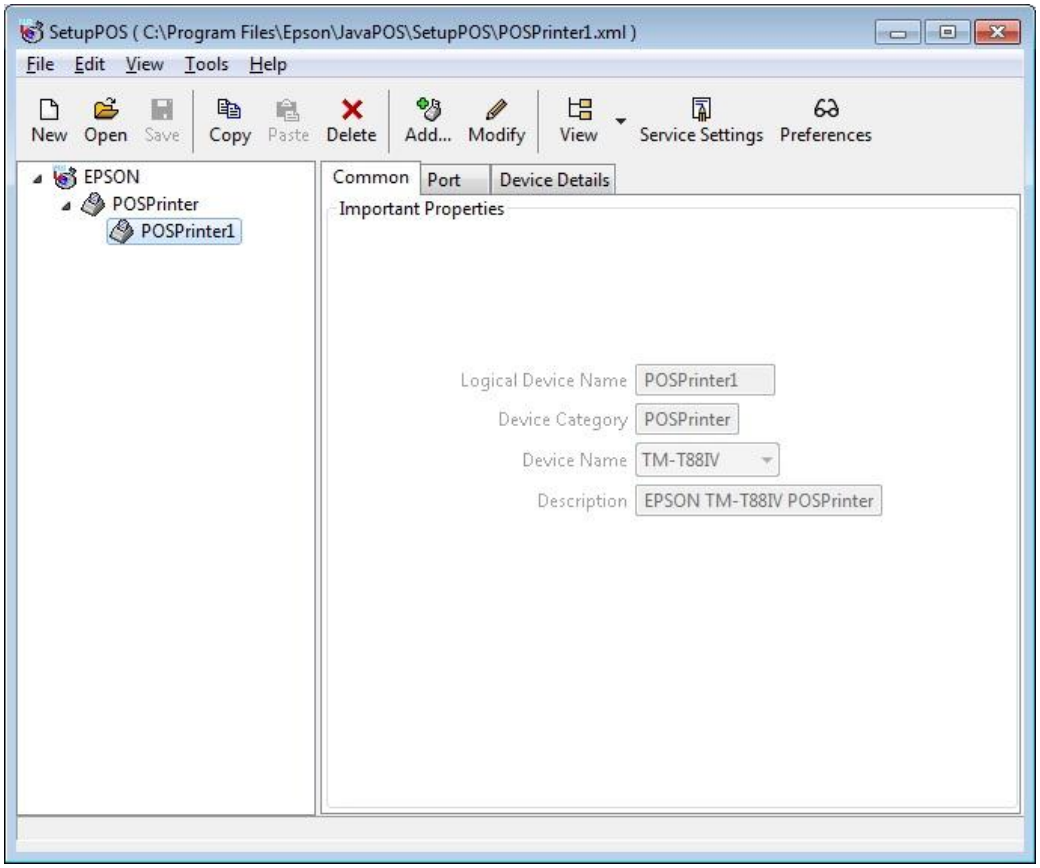
7. The "**Confirmation**" window will appear.

   Click on the "**Yes**" button.



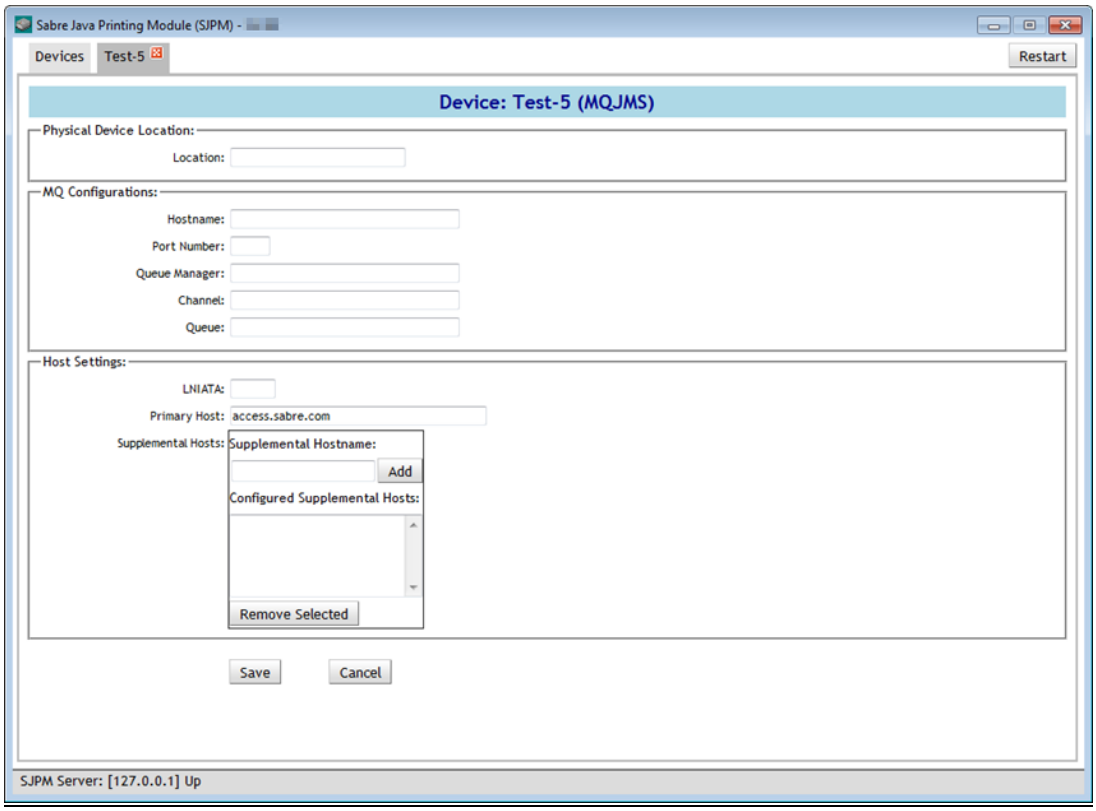
8. The "**SetupPOS**" window will appear. Configuration is now complete. POSPrinter1_xml is now created in the "**Epson JavaPOS**" folder.

   Close the window by clicking on the "**X**" in the top right corner of the window.



6.2.5 MQJMS Driver

The "**MQJMS**" Driver is an ASCII protocol, hardcopy driver which allows the user to print data from the Sabre Host to a MQ JMS Server Queue with various configuration options. The screenshot below shows the "**MQJMS**" Driver's configuration tab.



"MQJMS" driver configuration options:

"**Physical Device Location:**"

"**Location:**"

The "**Location**" configuration is for a pseudo name or a physical location of the printing device. This configuration is used by the grouping function in SJPM that allows you to group devices together based on the "**Location**" field.

"**MQ Configurations:**"

"**Hostname:**"

The "**Hostname**" configuration is for setting the MQ Server hostname.

"**Port Number:**"

The "**Port Number**" configuration is for setting the port number of the MQ Server.

"**Queue Manager:**"

The "**Queue Manager**" configuration is for the Queue Manager name on the configured MQ Server.

"**Channel:**"

The "**Channel**" configuration is for the Channel for the MQ Manager.

"**Queue:**"

The "**Queue**" configuration is for the Queue name where the messages will be delivered.

"**Host Settings:**"

"**LNIATA:**"

The "**LNIATA**" configuration is for the LNIATA (Sabre Address) of the device you are configuring to print to.

"**Primary Host:**"

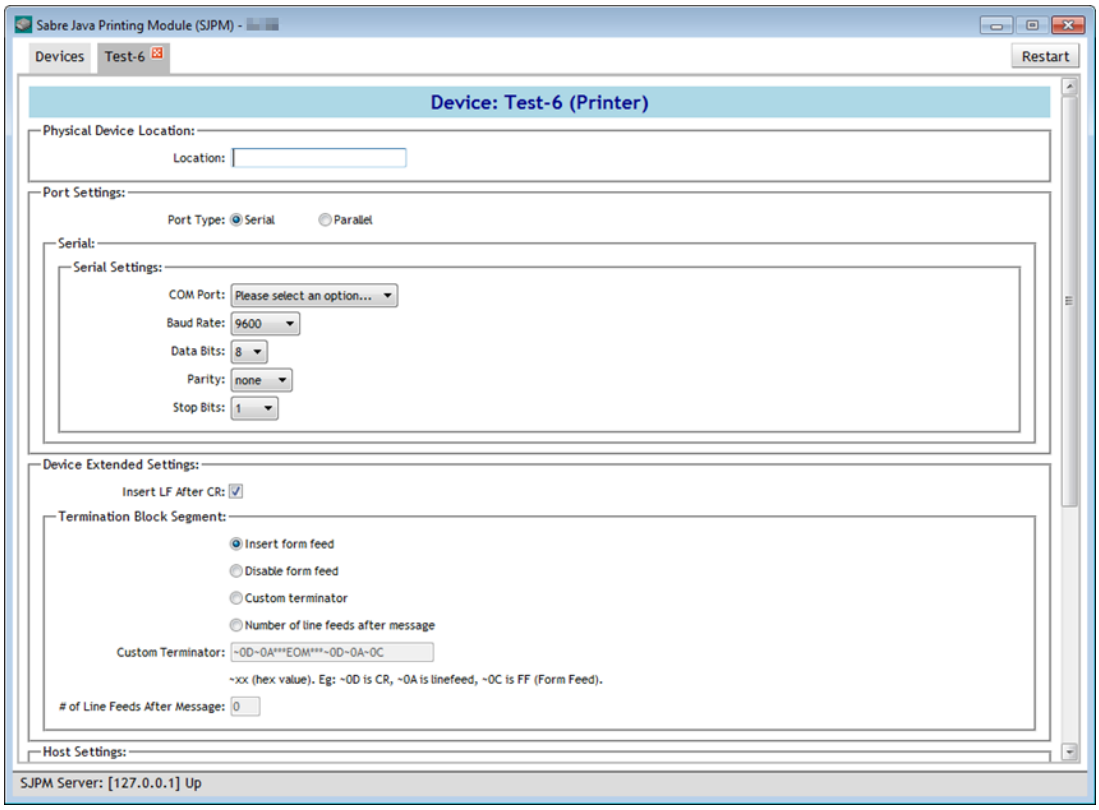
The "**Primary Host**" configuration is for the address to the Sabre Host. The default is set to "**access.sabre.com**".

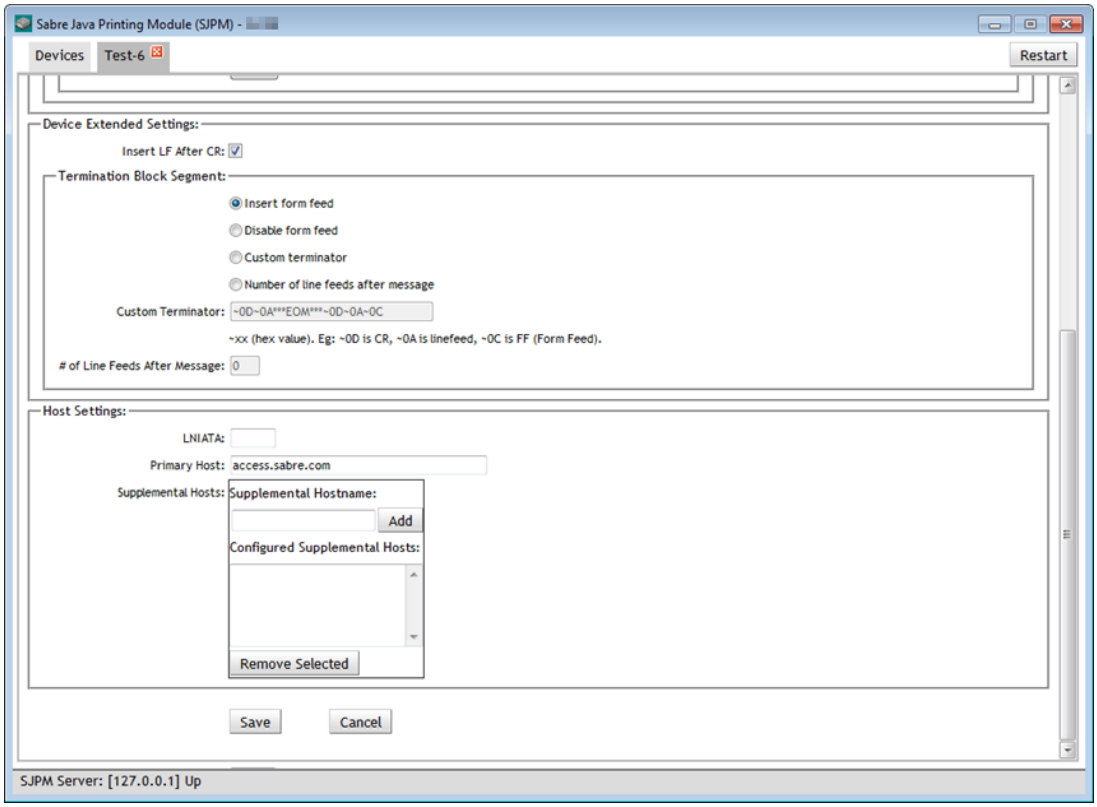
"**Supplemental Hosts:**"

The "**Supplemental Hosts**" configuration allows for supplemental host addresses to be configured for the device. This will allow printing to the device from multiple host addresses. (See section **6.1.1 Supplemental Hosts Configuration** for a detailed explanation)

6.2.6 Printer Driver

The "**Printer**" Driver is an ASCII protocol, hardcopy driver which allows the user to print data from the Sabre Host to a printer with various configuration options using both Serial and Parallel interfaces. The screenshots below show the "**Printer**" Driver's configuration tab.





"**Printer**" **driver configuration options:**

"**Physical Device Location:**"

"**Location:**"

The "**Location**" configuration is for a pseudo name or a physical location of the printing device. This configuration is used by the grouping function in SJPM that allows you to group devices together based on the "**Location**" field.

"**Port Settings:**"

"**Port Type:**"

The "**Port Type**" selection set the interface type to use when printing. The default is set to "**Serial**".

Available selections are:

"**Serial**" – for Serial Interface printing

"**Parallel**" – for Parallel Interface printing

"**Serial:**"

"**Serial Settings:**"

"**COM Port:**"

The "**COM Port**" configuration sets the COM port. Select the COM port that the printer is connected to on the PC. The default is set to "**Please select an option...**".

"**Baud Rate:**"

The "**Baud Rate**" configuration sets the baud rate for communications with the printer. The default is set to "**9600**". This setting must match the baud rate setting configured in the connected printer.

"**Data Bits:**"

The "**Data Bits**" configuration sets the data bits for communications with the printer. The default is set to "**8**". This setting must match the data bits setting configured in the connected printer.

"**Parity:**"

The "**Parity**" configuration sets the parity for communications with the printer. The default is set to "**none**". This setting must match the parity setting configured in the connected printer.

"**Stop Bits:**"

The "**Stop Bits**" configuration sets the stop bits for communications with the printer. The default is set to "**1**". This setting must match the stop bits setting configured in the connected printer.

"**Parallel:**"

"**Parallel Settings:**"

"**LPT Port:**"

The "**LPT Port**" configuration sets the LPT port. Select the LPT port that the printer is connected to on the PC. The default is set to "**Please select an option...**".

"**Device Extended Settings:**"

"**Insert LF After CR:**"

The "**Insert LF After CR**" selection inserts a Line Feed after a Carriage Return if checked. This option is checked by default.

"**Termination Block Segment:**"

"**Insert form feed**"

The "**Insert form feed**" selection inserts a Form Feed at the end of the message data if selected. This selection is set as default.

"**Disable form feed**"

The "**Disable form feed**" selection disables Form Feed if selected.

"**Custom terminator**"

The "**Custom terminator**" selection inserts a custom terminator, if selected that can be user edited. The default custom terminator is set to "**~0D~0A***EOM***~0D~0A~0C**".

"**Number of line feeds after message**"

The "**Number of line feeds after message**" selection inserts the number of Line Feeds entered at the end of the message data if selected. The default is set to "**0**".

"**Host Settings:**"

"**LNIATA:**"

The "**LNIATA**" configuration is for the LNIATA (Sabre Address) of the device you are configuring to print to.

"**Primary Host:**"

The "**Primary Host**" configuration is for the address to the Sabre Host. The default is set to "**access.sabre.com**".

"**Supplemental Hosts:**"

The "**Supplemental Hosts**" configuration allows for supplemental host addresses to be configured for the device. This will allow printing to the device from multiple host addresses. (See section **6.1.1 Supplemental Hosts Configuration** for a detailed explanation)

6.2.7 System Driver

The "**System**" Driver is an ASCII protocol; hardcopy driver which allows the user to print data from the Sabre Host to a Network printer with various configuration options.

Note: To ensure proper functionality with the SJPM "**System**" Driver, the driver for the printer you plan to print to should be downloaded from the manufacturer's website and installed. Do not use the driver for the printer that comes with Windows.

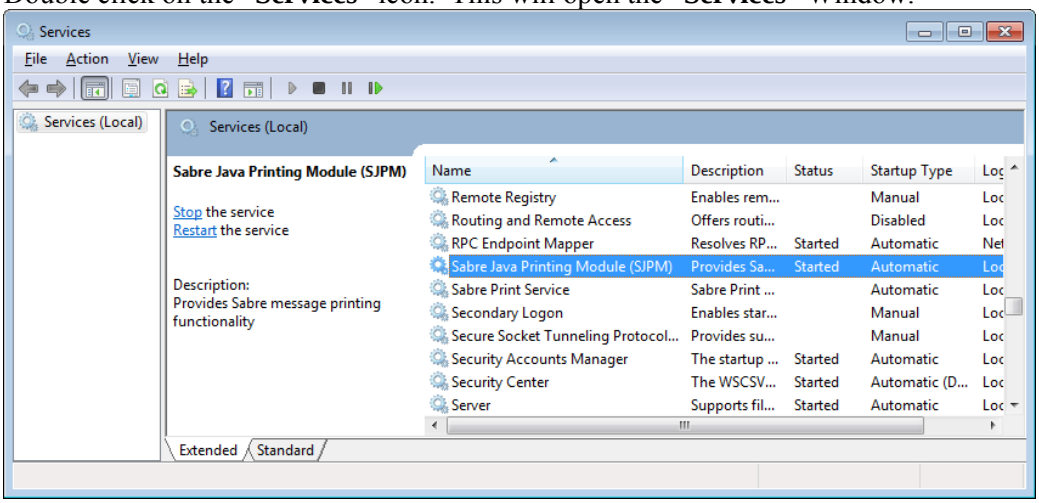
6.2.7.1 Sabre Java Printing Module (SJPM) Properties

Allow user rights to "System" printer driver

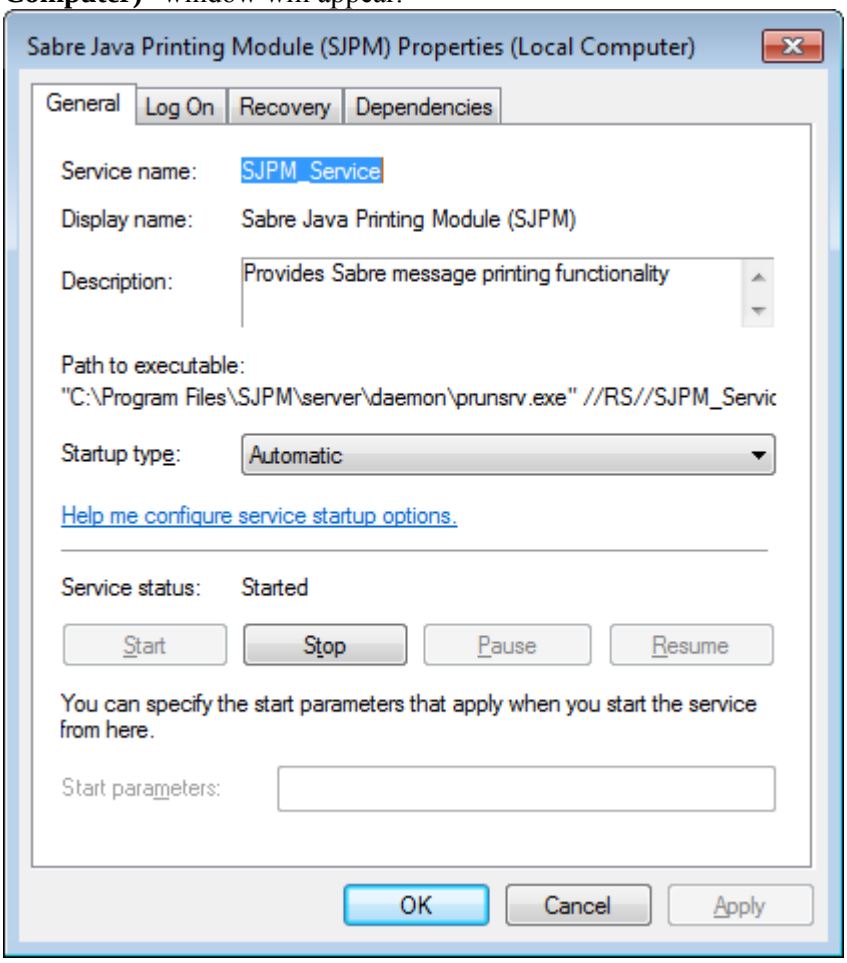
Setup of the **Sabre Java Printing Module (SJPM)** Service User is required to allow SJPM access rights to print to any system printers that are configured to be owned by a non-Administrative user and make them visible for configuration in the SJPM System Driver's configuration tab.

The following process should be completed before addition and configuration of the System Driver in SJPM if the SJPM user needs to print to system printers configured to be owned by a non-Administrative user.

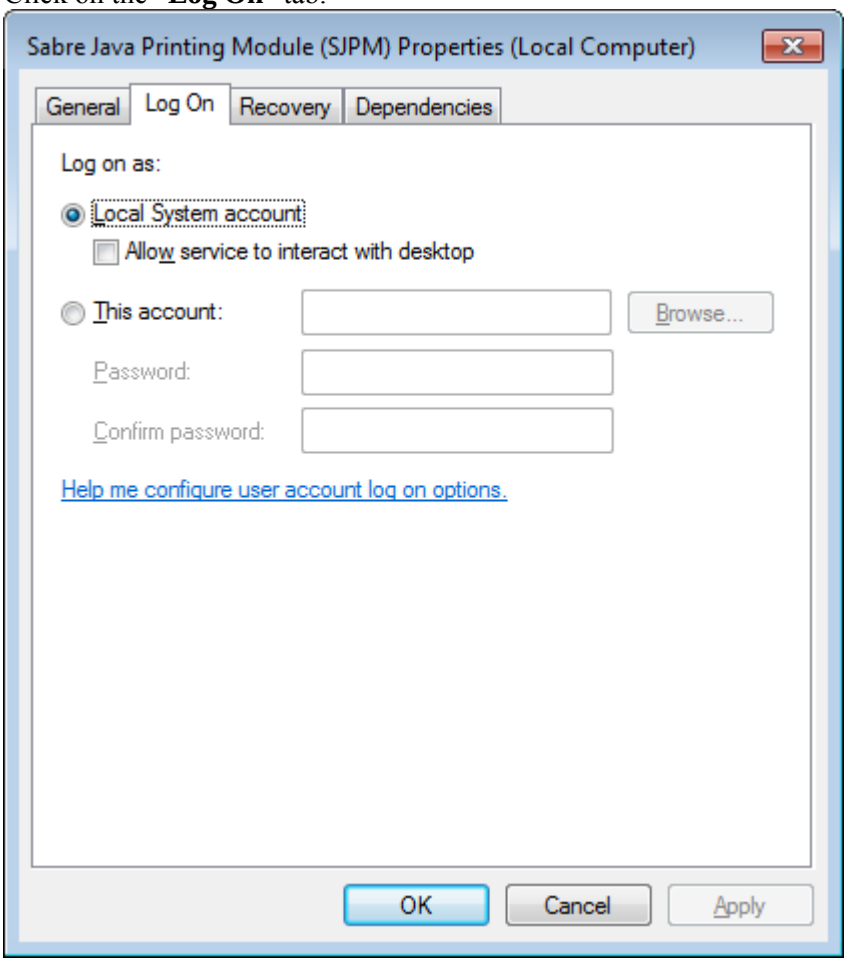
1. In Windows XP click on "**Start**", then "**Settings**", and then "**Control Panel**" to open the "**Control Panel**". In Windows 7 and Windows 8 click on "**Start**", and then "**Control Panel**".
2. Click on "**System and Security**" and then click on "**Administrative Tools**".
3. Double click on the "**Services**" icon. This will open the "**Services**" Window.



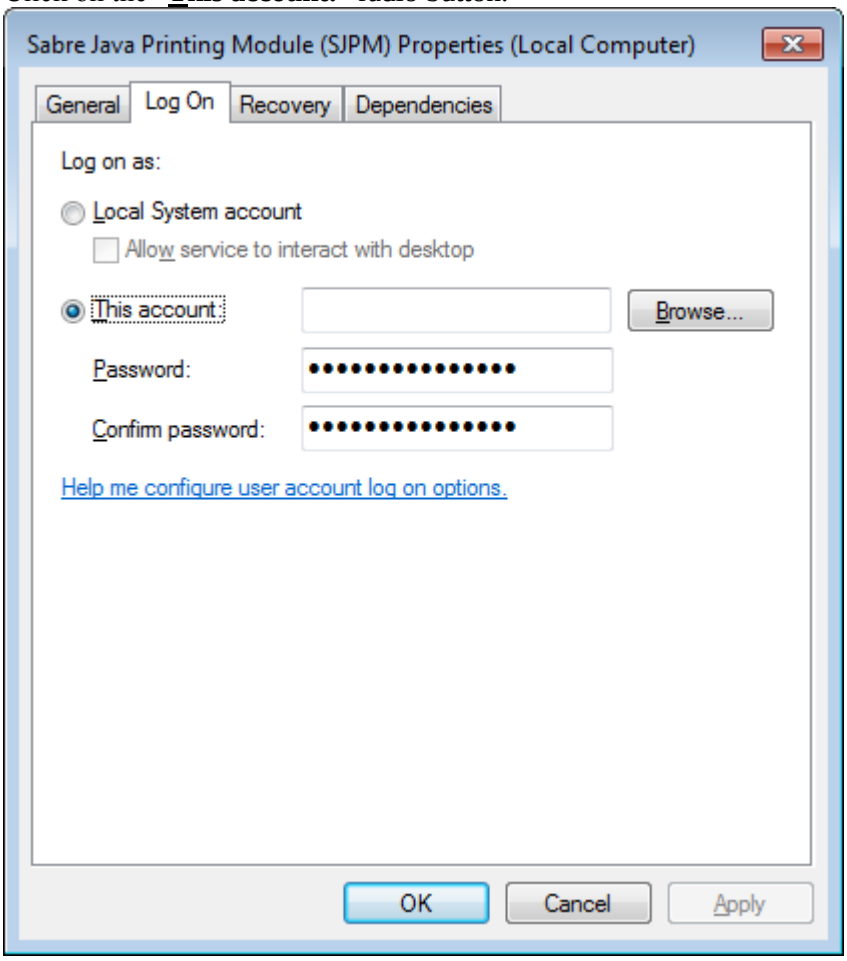
4. Right click on the "**Sabre Java Printing Module (SJPM)**" service and then click on "**Properties**". The "**Sabre Java Printing Module (SJPM) Properties (Local Computer)**" window will appear.



5. Click on the "**Log On**" tab.



6. Click on the "**This account:**" radio button.

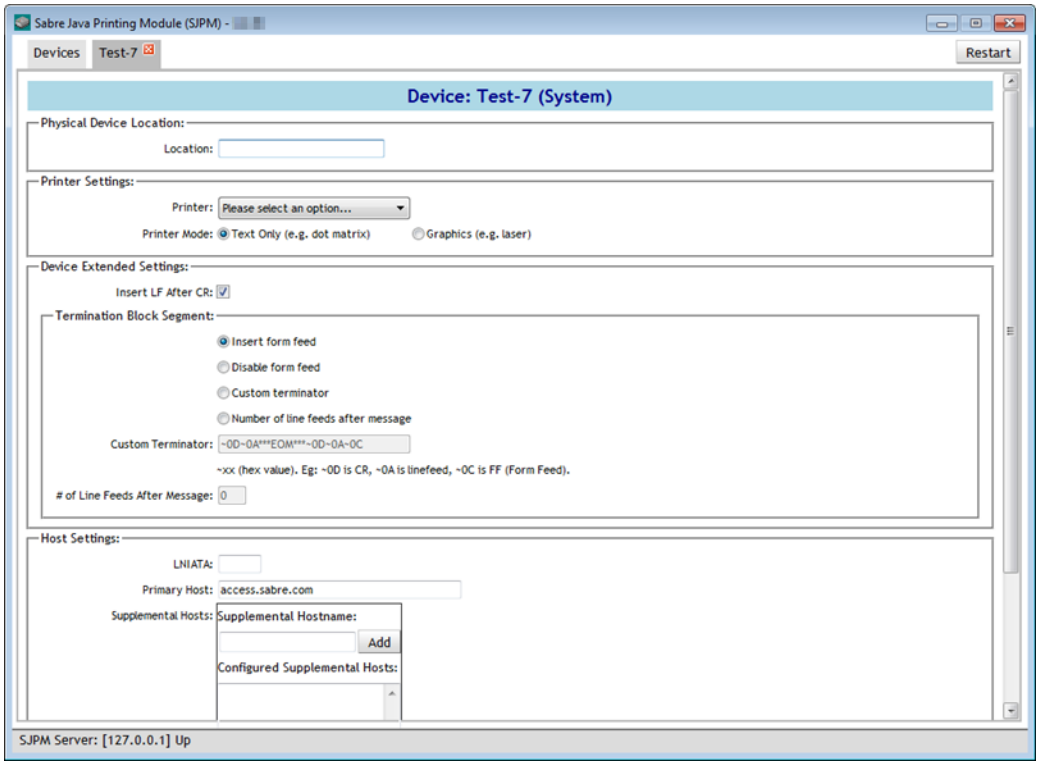


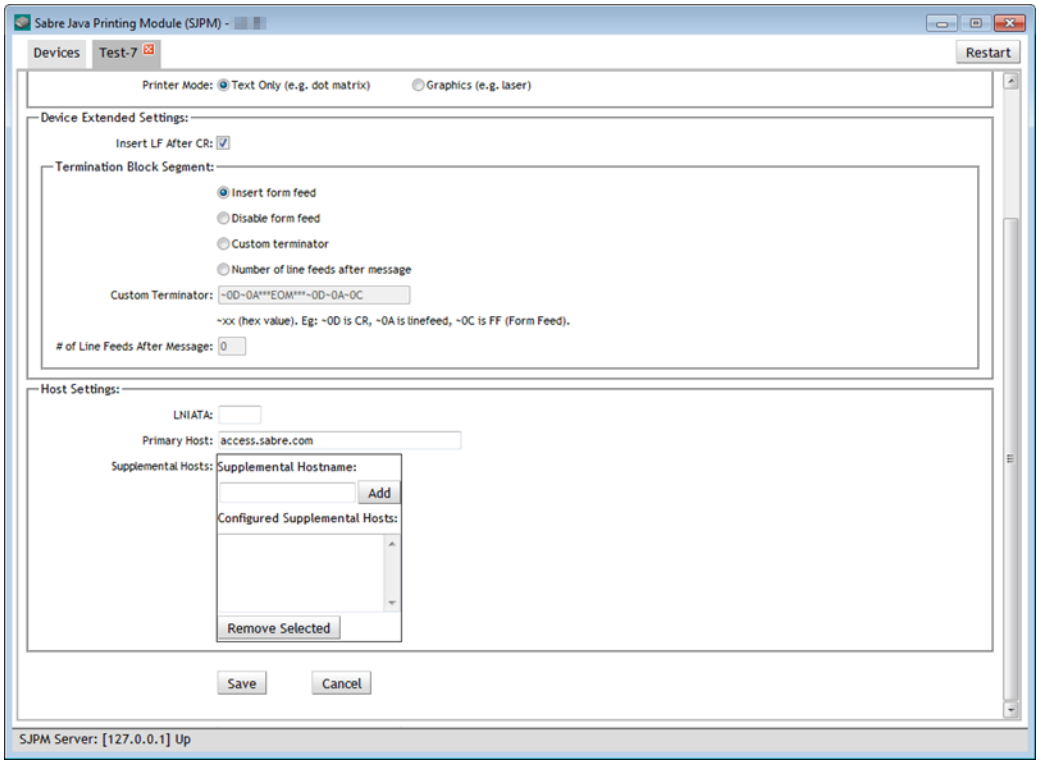
7. In the "**This account:**" field type in your Windows User name.
   In the "**Password:**" field type in your Windows Password.
   In the "**Confirm password:**" field type in your Windows Password again.
   Click on the "**OK**" button.
8. Close the "**Services**" windows and continue with the SJPM System Driver configuration.

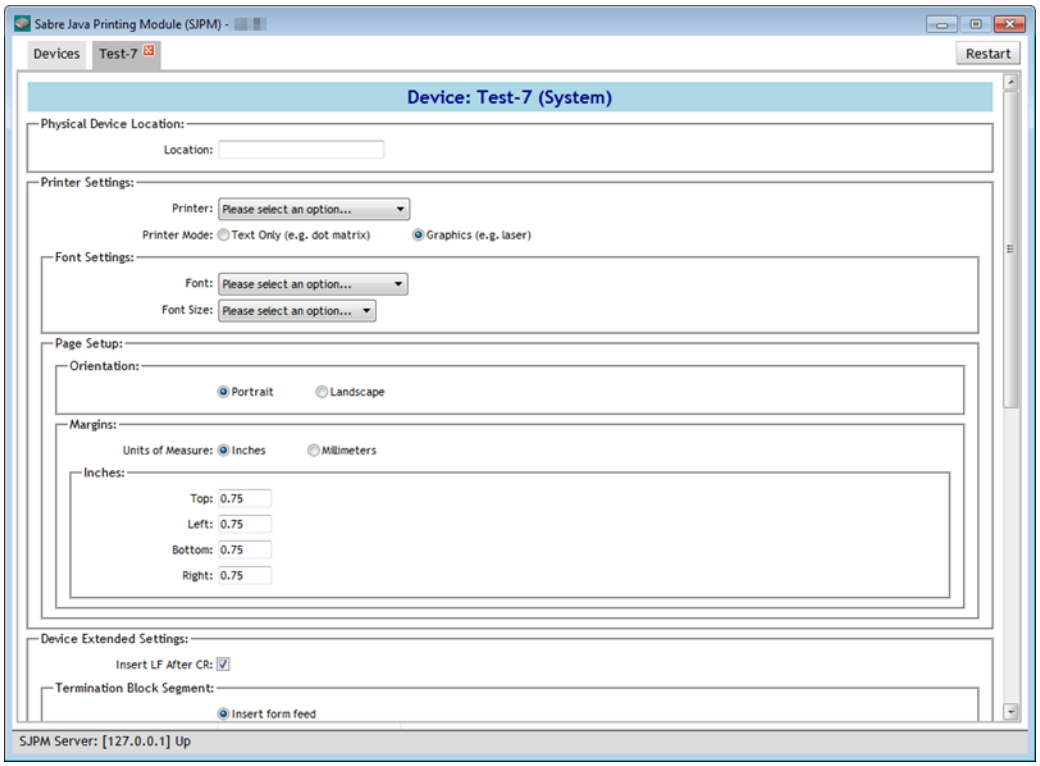
6.2.7.2 System Driver Generic Text Only Font Selection

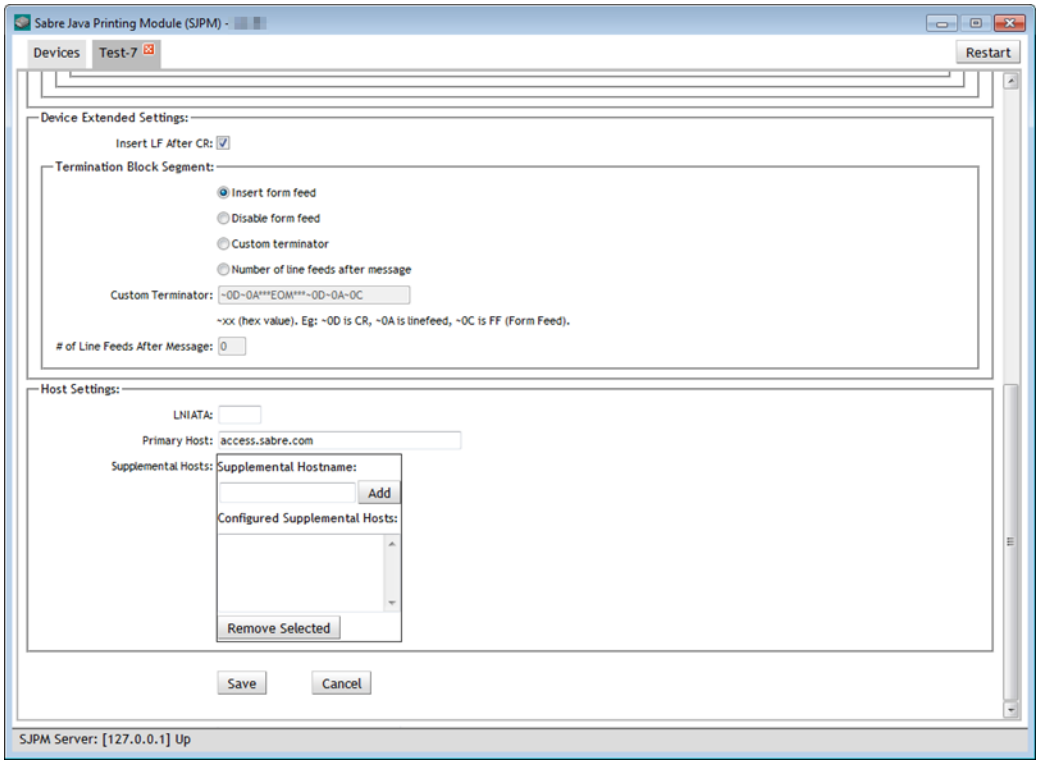
Generic Text only Printer Driver:

When using the "**Generic Text Only**" printer driver in Windows with SJPM's "**System**" Driver and the "**Graphics (e.g. laser)**" selection you must select the "**monospace.plain**" font from the "**Font:**" drop down list in the System Driver's configuration tab for data to be delivered correctly to file. If the "**monospace.plain**" font is not selected the driver may print empty lines to the file.




Sabre Java Printing Module (SJPM) -
Devices
Test-7
Restart
Printer Mode: Text Only (e.g. dot matrix) Graphics (e.g. laser)
Device Extended Settings:
Insert LF After CR:
Termination Block Segment:
Insert form feed
Disable form feed
Custom terminator
Number of line feeds after message
Custom Terminator: ~0D~0A***EOM***~0D~0A~0C
~xx (hex value). Eg: ~0D is CR, ~0A is linefeed, ~0C is FF (Form Feed).
# of Line Feeds After Message: 0
Host Settings:
LNIATA:
Primary Host: access.sabre.com
Supplemental Hosts:
Supplemental Hostname:
Add
Configured Supplemental Hosts:
Remove Selected
Save
Cancel
SJPM Server: [127.0.0.1] Up


Sabre Java Printing Module (SJPM) -
Devices
Test-7
Restart
Device: Test-7 (System)
Physical Device Location:
Location:
Printer Settings:
Printer: Please select an option...
Printer Mode: Text Only (e.g. dot matrix) Graphics (e.g. laser)
Font Settings:
Font: Please select an option...
Font Size: Please select an option...
Page Setup:
Orientation:
Portrait Landscape
Margins:
Units of Measure: Inches Millimeters
Inches:
Top: 0.75
Left: 0.75
Bottom: 0.75
Right: 0.75
Device Extended Settings:
Insert LF After CR:
Termination Block Segment:
Insert form feed
SJPM Server: [127.0.0.1] Up



"System" driver configuration options:

"Physical Device Location:"

"Location:"

The "**Location**" configuration is for a pseudo name or a physical location of the printing device. This configuration is used by the grouping function in SJPM that allows you to group devices together based on the "**Location**" field.

"Printer Settings:"

"Printer:"

The "**Printer**" configuration is for selection of the System printer you want to use to print to.

"Printer Mode:"

The "**Printer Mode**" selection sets the print mope. The default is set to "**Graphics Only (e.g. laser)**".

Available selections are:

"**Text Only (e.g. dot matrix)**" - for Text Only print such as used with dot matrix printers

"**Graphics Only (e.g. laser)**" – for Graphics Only print such as used with laser printers

"**Font Settings:**"

"**Font:**"

The "**Font**" configuration is for the Font to use with the System printer.

"**Font Size:**"

The "**Font Size**" configuration is for the Font Size to use with the System printer.

"**Page Setup:**"

"**Orientation:**"

The "**Orientation**" selection sets the page orientation. The default is set to "**Portrait**".

Available selections are:

"**Portrait**" - for the Portrait orientation

"**Landscape**" - for the Landscape orientation

"**Margins:**"

The "**Margins**" selection sets the Top, Left, Bottom, and Right Margins size. Settings can be set in inches or millimeters.

"**Device Extended Settings:**"

"**Insert LF After CR:**"

The "**Insert LF After CR**" selection inserts a Line Feed after a Carriage Return if checked. This option is checked by default.

"**Termination Block Segment:**"

"**Insert form feed**"

The "**Insert form feed**" selection inserts a Form Feed at the end of the message data if selected. This selection is set as default.

"**Disable form feed**"

The "**Disable form feed**" selection disables Form Feed if selected.

"**Custom terminator**"

The "**Custom terminator**" selection inserts a custom terminator, if selected that can be user edited. The default custom terminator is set to "**~0D~0A***EOM***~0D~0A~0C**".

"**Number of line feeds after message**"

The "**Number of line feeds after message**" selection inserts the number of Line Feeds entered at the end of the message data if selected. The default is set to "**0**".

"**Host Settings:**"

"**LNIATA:**"

The "**LNIATA**" configuration is for the LNIATA (Sabre Address) of the device you are configuring to print to.

"**Primary Host:**"

The "**Primary Host**" configuration is for the address to the Sabre Host. The default is set to "**access.sabre.com**".

"**Supplemental Hosts:**"

The "**Supplemental Hosts**" configuration allows for supplemental host addresses to be configured for the device. This will allow printing to the device from multiple host addresses. (See section **6.1.1 Supplemental Hosts Configuration** for a detailed explanation)

Troubleshooting

7

7.1 Enabling SJPM Logging

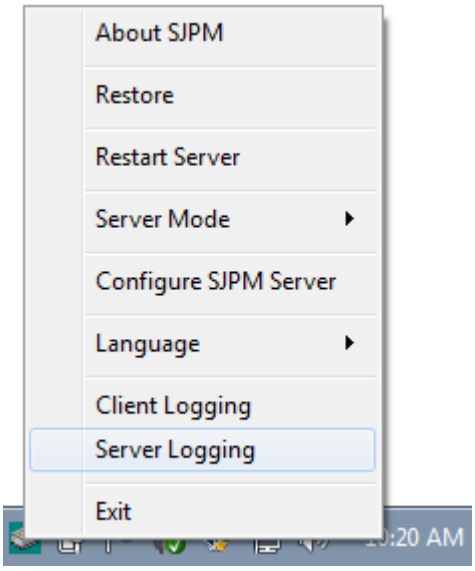
SJPM logging is disabled by default. Logging must be enabled in order to generate SJPM log files for use in troubleshooting.

7.1.1 Enabling SJPM Server Logging – System Tray Icon Menu

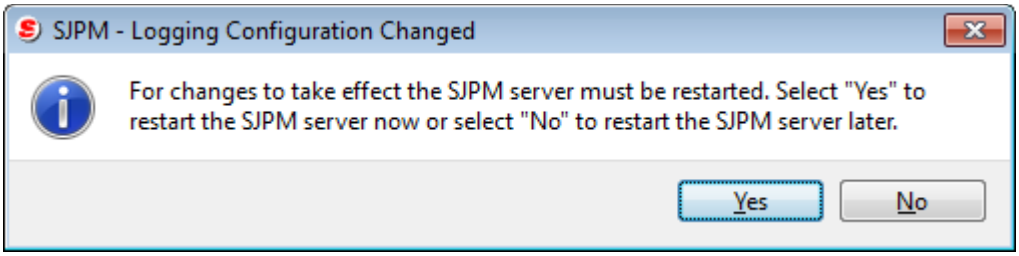
Enable SJPM Server logging from the SJPM Windows System Tray Icon Menu:

The steps below describe the process to enable SJPM Server logging.

1. Right click on the SJPM Windows System Tray Icon.
2. Highlight and left click on "**Server Logging**".



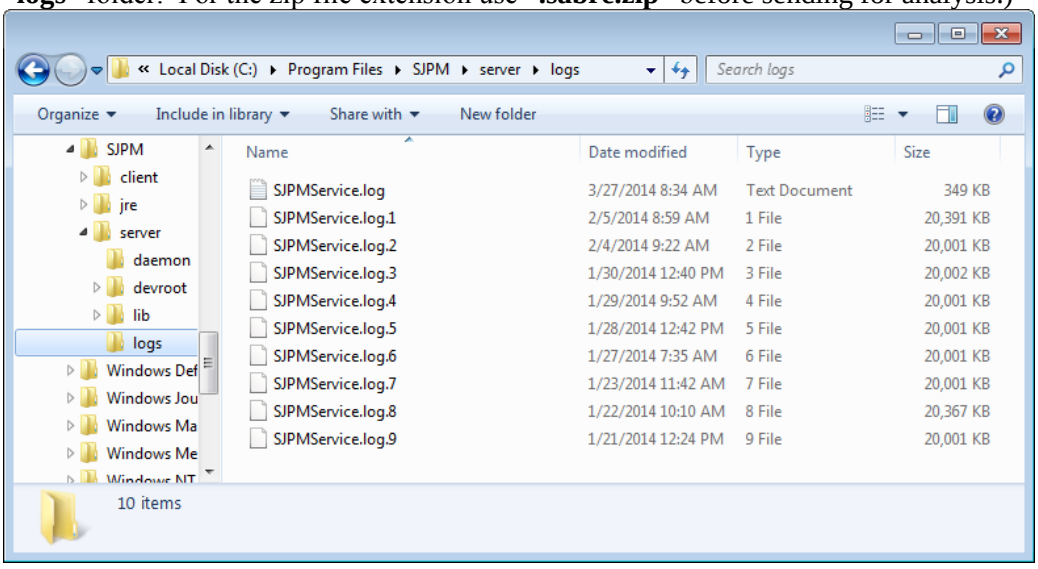
3. The "**SJPM – Logging Configuration Changed**" window will appear. Click on the "**Yes**" button to restart the SJPM Server.



The SJPM Client GUI will display the current logging status, logging level, and location of the log file.

SJPM will create the log file "**SJPMServer.log**" in the "**C:\Program Files\SJPM\Server\logs**" directory ("**C:\Program Files (x86)\SJPM\server\logs**" for Windows 7 64bit and Windows 8 64bit).

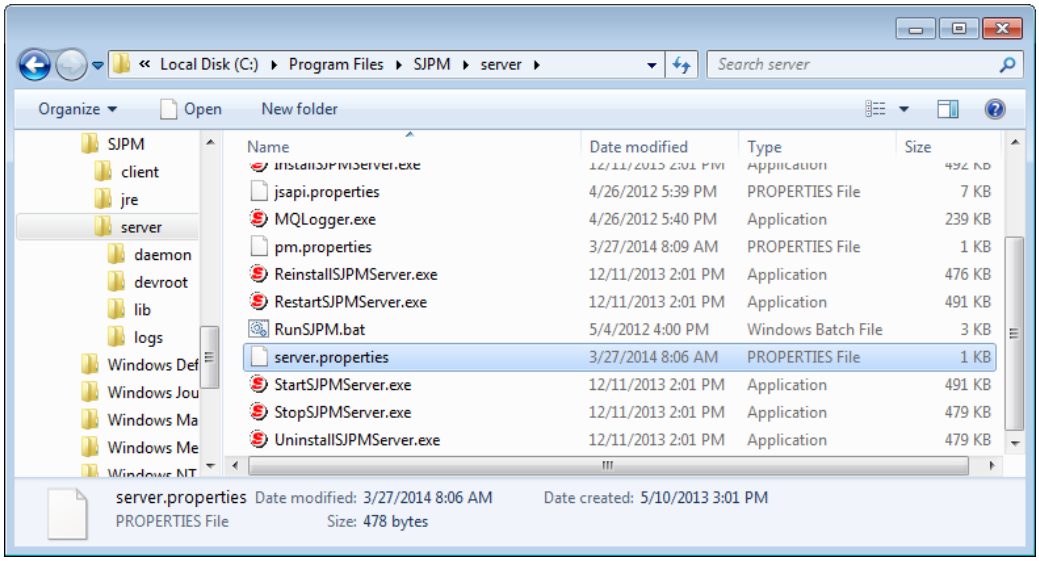
SJPM Server Logging creates ten (10) rolling log files. (Zip up all of the log files in the "**logs**" folder. For the zip file extension use "**.sabre.zip**" before sending for analysis.)



7.1.2 Enabling SJPM Server Logging – File Edit

Enable SJPM Server logging in the "server.properties" file:

Use a text editor and open the "**server.properties**" file that is located in the "**C:\Program Files\SJPM\Server**" directory ("**C:\Program Files (x86)\SJPM\server**" for Windows 7 64bit and Windows 8 64bit).



The steps below describe the process to manually enable SJPM Server logging.

1. In the "**server.properties**" file search for the text string "**loglevel=NONE**".

   Change the "**loglevel**" to "**ALL**". **Example: loglevel=ALL**

   Available log levels are:

   FATAL – Log only fatal errors

   ERROR – Log only errors

   WARN – Log only warnings

   INFO – Log only information

   DEBUG – Log only debug information

   TRACE – Log only trace information

   ALL – Log all of the above

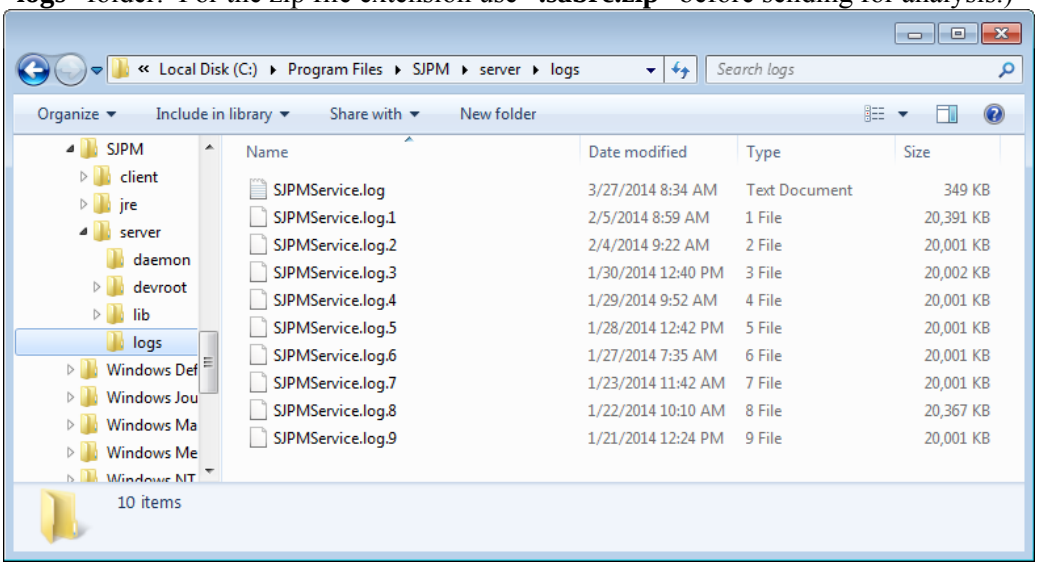
2. Save the changes to the "**server.properties**" file and then close the file.

3. Restart the SJPM Server.

   The SJPM Client GUI will display the current logging status, logging level, and location of the log file.

SJPM will create the log file "**SJPMServer.log**" in the "**C:\Program Files\SJPM\Server\logs**" directory ("**C:\Program Files (x86)\SJPM\server\logs**" for Windows 7 64bit and Windows 8 64bit).

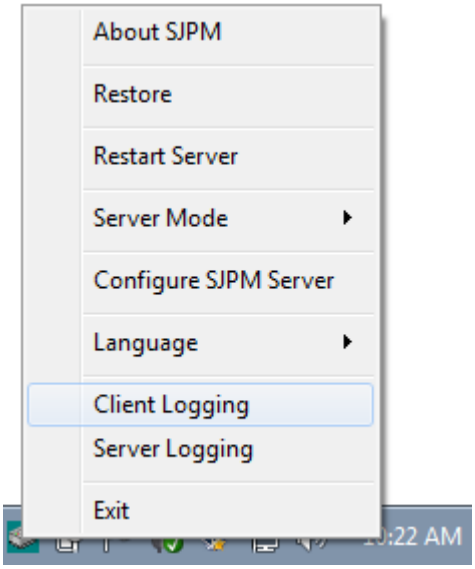
SJPM Server Logging creates ten (10) rolling log files. (Zip up all of the log files in the "**logs**" folder. For the zip file extension use "**.sabre.zip**" before sending for analysis.)



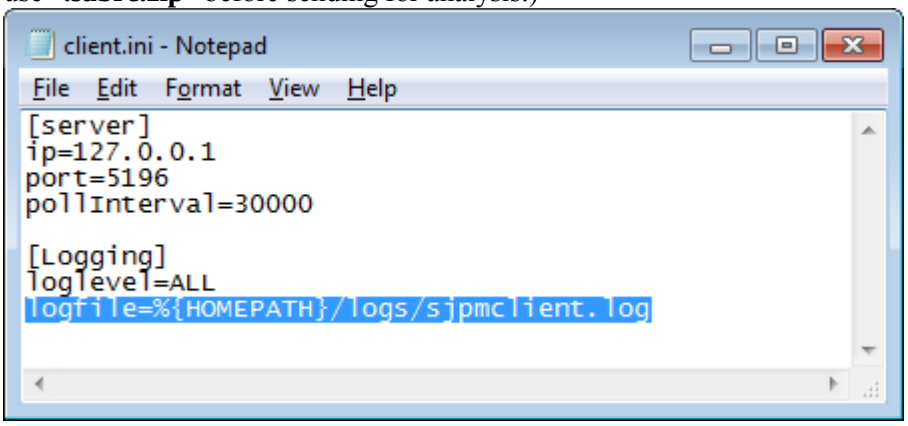
Enable SJPM Client logging from the SJPM Windows System Tray Icon Menu:

The steps below describe the process to enable SJPM Client logging.

1. Right click on the SJPM Windows System Tray Icon.
2. Highlight and left click on "**Client Logging**".

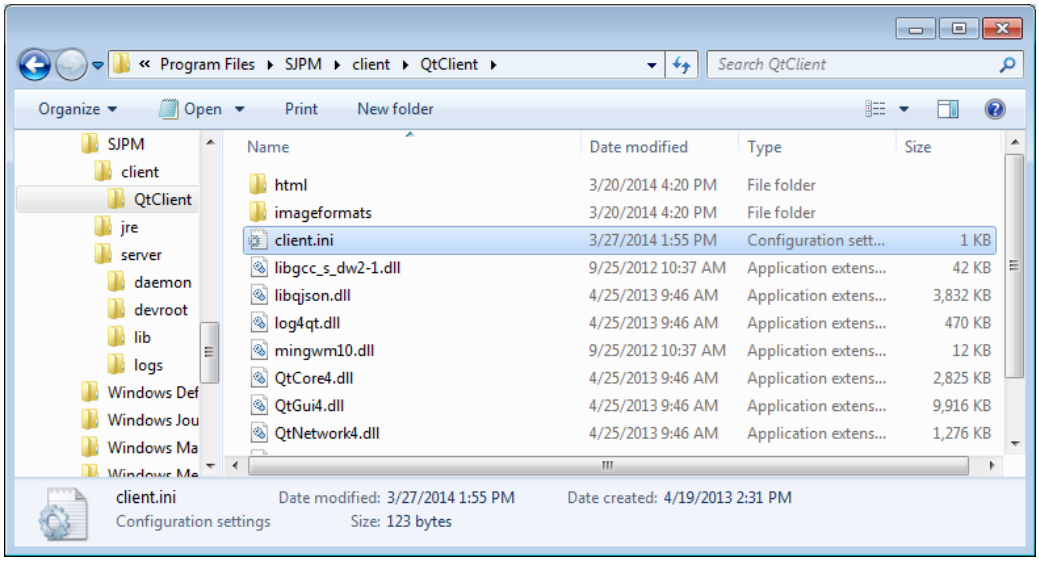


SJPM will create the "**sjpmclient.log**" file in "**logfile=%{HOMEPATH}/logs/sjpmclient.log**". You can also look in the "**client.ini**" file for the log file location. (Zip up the "**sjpmclient.log**" file. For the zip file extension use "**.sabre.zip**" before sending for analysis.)



Enable SJPM Client logging in the "client.ini" file:

Use a text editor and open the "**client.ini**" file that is located in the "**C:\Program Files\SJPM\client\QtClient**" directory ("**C:\Program Files (x86)\SJPM\client\QtClient**" for Windows 7 64bit and Windows 8 64bit).



The steps below describe the process to manually enable SJPM Client logging.

1. In the "**client.ini**" file search for the text string "**loglevel=OFF**".

   Change the "**loglevel**" to "**ALL**". **Example: loglevel=ALL**

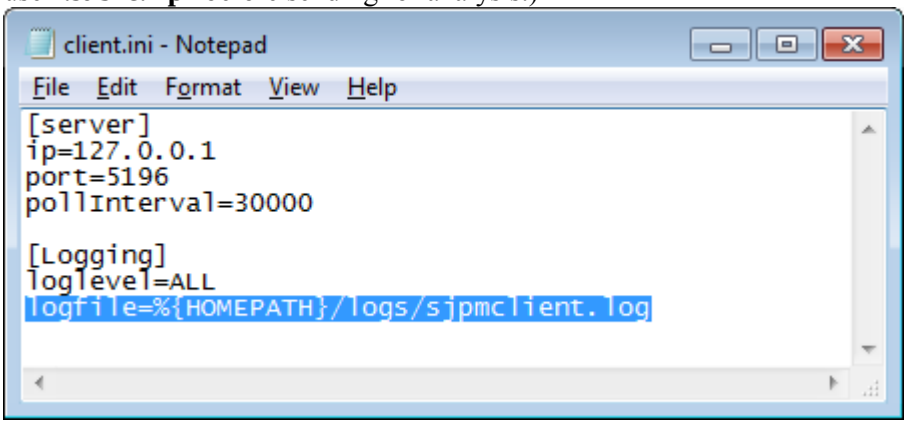
2. Save the changes to the "**client.ini**" file and close the file.

3. Right click on the SJPM Windows Taskbar Icon and then highlight and left click on "**Exit**".

4. Run the SJPM Client GUI from the Windows "**Start**" menu.

   Click on the Windows "**Start**" button, and then click on "**Programs**", "**All Programs**" for Windows 7. Click on the SJPM folder and then click on "**SJPM Client**".

   SJPM will create the "**sjpmclient.log**" file in "**logfile=%{HOMEPATH}/logs/sjpmclient.log**". You can also look in the "**client.ini**" file for the log file location. (Zip up the "**sjpmclient.log**" file. For the zip file extension use "**.sabre.zip**" before sending for analysis.)



7.2 Disabling SJPM Logging

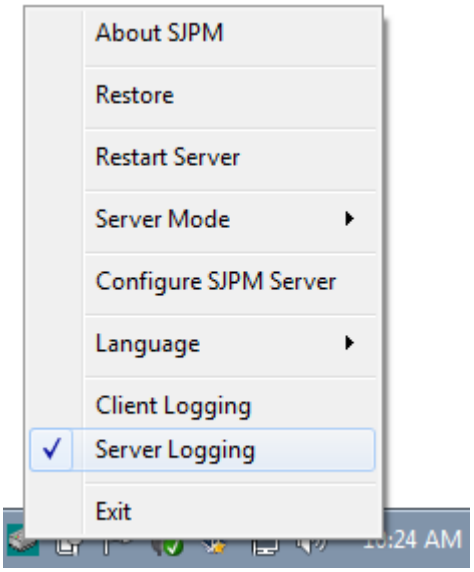
SJPM logging is disabled by default. Logging must be enabled in order to generate SJPM log files for use in troubleshooting.

7.2.1 Disabling SJPM Server Logging – System Tray Icon Menu

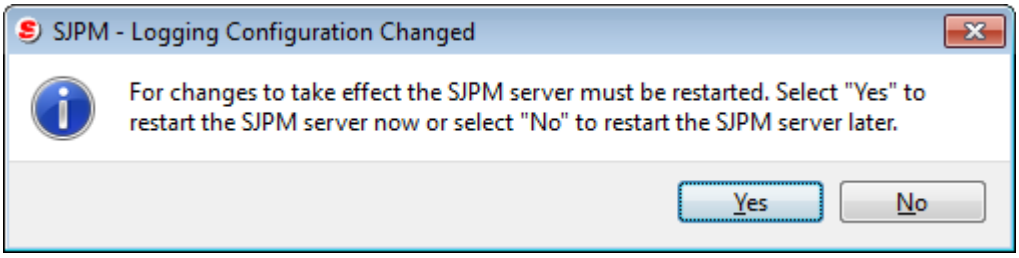
Disable SJPM Server logging from the SJPM Windows System Tray Icon Menu:

The steps below describe the process to disable SJPM Server logging.

1. Right click on the SJPM Windows System Tray Icon.
2. Highlight and left click on "**Server Logging**".



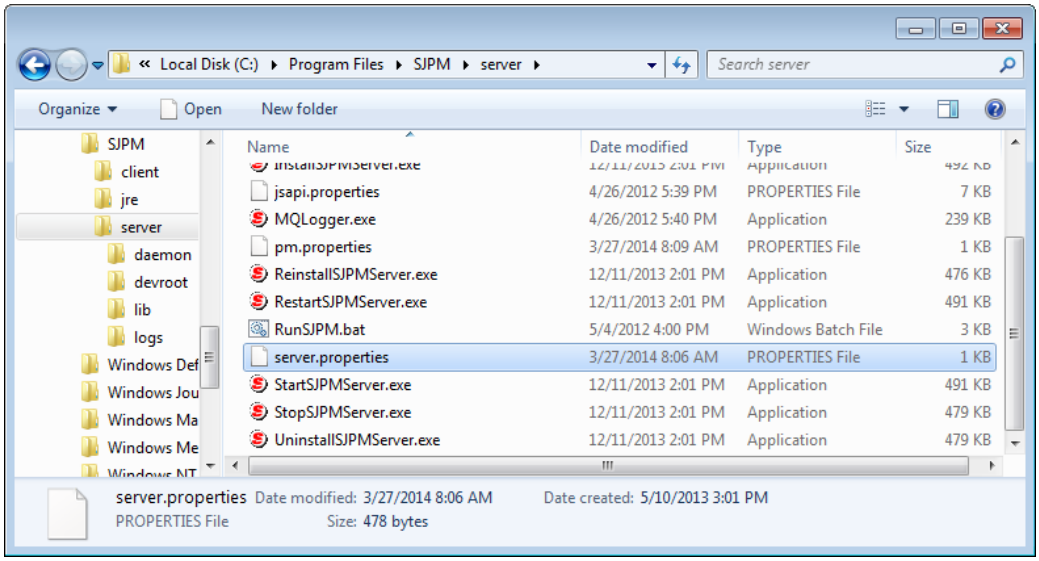
3. The "**SJPM – Logging Configuration Changed**" window will appear. Click on the "**Yes**" button to restart the SJPM Server.



7.2.2 Disabling SJPM Server Logging – File Edit

Disable SJPM Server logging in the "server.properties" file:

Use a text editor and open the "**server.properties**" file that is located in the "**C:\Program Files\SJPM\Server**" directory ("**C:\Program Files (x86)\SJPM\server**" for Windows 7 64bit and Windows 8 64bit).



The steps below describe the process to manually enable SJPM Server logging.

1. In the "**server.properties**" file search for the text string "**loglevel=ALL**".

   Change the "**loglevel**" to "**NONE**". **Example: loglevel=NONE**

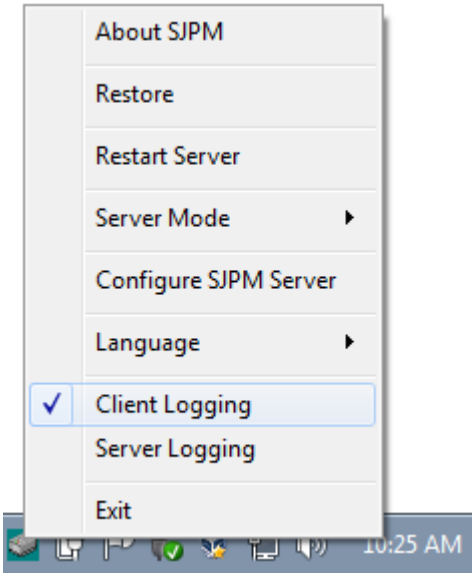
2. Save the changes to the "**server.properties**" file and then close the file.

3. Restart the SJPM Server.

Disable SJPM Client logging from the SJPM Windows System Tray Icon Menu:

The steps below describe the process to disable SJPM Client logging.

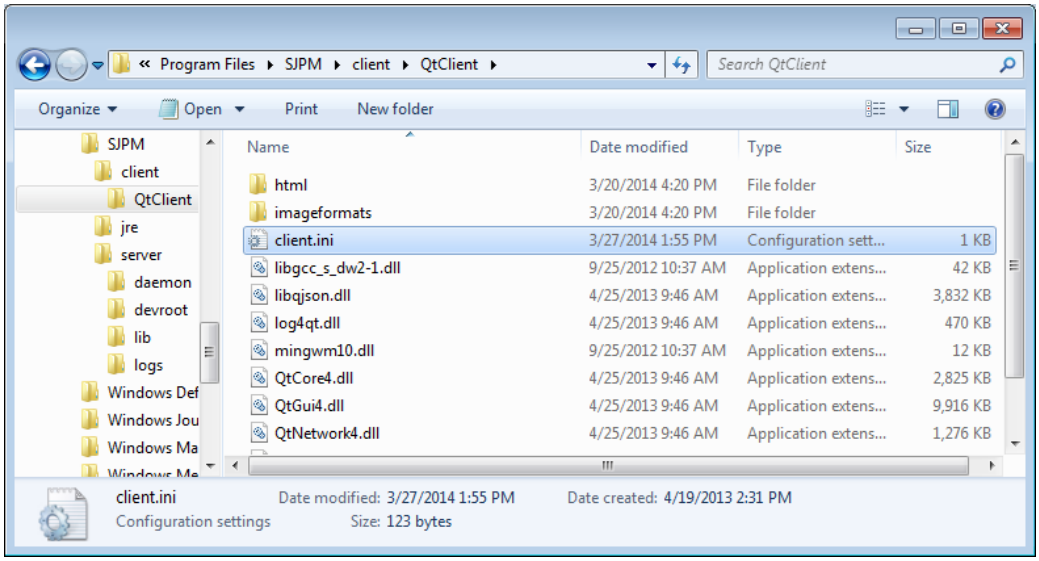
1. Right click on the SJPM Windows System Tray Icon.
2. Highlight and left click on "**Client Logging**".



7.2.4 Disabling SJPM Client Logging – File Edit

Disable SJPM Client logging in the "client.ini" file:

Use a text editor and open the "**client.ini**" file that is located in the "**C:\Program Files\SJPM\client\QtClient**" directory ("**C:\Program Files (x86)\SJPM\client\QtClient**" for Windows 7 64bit and Windows 8 64bit).



The steps below describe the process to manually disable SJPM Client logging.

1. In the "**client.ini**" file search for the text string "**loglevel=ALL**".

   Change the "**loglevel**" to "**OFF**". **Example: loglevel=OFF**

2. Save the changes to the "**client.ini**" file and then close the file.

3. Right click on the SJPM taskbar icon and then highlight and left click on "**Exit**".

4. Run the SJPM Client GUI from the Windows "**Start**" menu.

   Click on the Windows "**Start**" button, and then click on "**Programs**", "**All Programs**" for Windows 7. Click on the SJPM folder and then click on "**SJPM Client**".

Appendix

A. SJPM Recommended Requirements

Operating System Software

- Windows 7 32Bit, Windows 7 64Bit, Windows 8 64Bit, Windows 8.1 64Bit and Linux.
- Other systems running as an application with Java 1.6 or above.

SJPM GUI – Configured Devices

The recommended number of configured devices for the SJPM GUI is **35**. The GUI is capable of handling more devices but this could result in performance issues while viewing the SJPM GUI. The maximum number of configured devices is determined by the machine's CPU and Memory capabilities.

Java™ Runtime Environment

- Java 2 Platform, Standard Edition 1.7.0_25 (included with the SJPM installation)

Hardware

- Processor
  Intel Pentium 4 or higher
- RAM
  2 GB or higher
- Video Resolution
  1024 x 768 or higher
- Hard disk Space
  300 MB of free disk space

Network

- SABRE Host access required

Firewall Considerations

- SABRE Host access required
- Your firewall administrator should verify that all firewall configurations allow the following traffic types:
  - Outbound TCP connections to 151.193.141.0/24 (255.255.255.0) for the following TCP Port:
    - 30051 (NOFEP Printing)

Operating System Software

- Windows 7 32Bit, Windows 7 64Bit, Windows 8 64Bit, Windows 8.1 64Bit and Linux.
- Other systems running as an application with Java 1.6 or above.

Java™ Runtime Environment

- Java 2 Platform, Standard Edition 1.7.0_25 (included with the SJPM installation)

Hardware

- Processor
  Intel Pentium 4
- RAM
  1 GB
- Video Resolution
  1024x768
- Hard disk Space
  250 MB of free disk space

Network

- SABRE Host access required

Firewall Considerations

- SABRE Host access required
- Your firewall administrator should verify that all firewall configurations allow the following traffic types:
  - Outbound TCP connections to 151.193.141.0/24 (255.255.255.0) for the following TCP Port:
    - 30051 (NOFEP Printing)

C. Frequently Asked Questions

The SJPM FAQ provides questions and answers to the most popular questions on the install, uninstall, configuration, operation, and support of Sabre Java Printing Module (SJPM).

Sabre Java Printing Module (SJPM) Frequently Asked Questions.

Q: What Operating Systems are SJPM certified for use on?

A: SJPM is certified for use with the following operating systems. If the operating system is not listed below then it is not certified nor supported at this time.

- **Windows 7 32Bit**
- **Windows 7 64Bit**
- **Windows 8 64 Bit**
- **Windows 8.1 64 Bit**
- **Linux**

Q: How do I run SJPM on Linux?

A: See section "**4.3 Running SJPM on Linux**" in the SJPM User's Guide.

Q: Will SJPM run on Windows Server?

A: SJPM **IS NOT** certified for Windows Server operating systems. However, there are customers currently running SJPM on them with no issues and we have done minor testing on various versions with no issues.

Q: Can SJPM run on Citrix?

A: SJPM **IS NOT** certified for Citrix. However, there are several customers using it and we have done minor testing with no issues.

Q: Will SJPM run on Windows XP?

A: SJPM **IS NOT** certified for Windows XP operating systems. However, there are customers are currently running SJPM on them with no issues and we have done minor testing on various versions with no issues.

Q: Does SJPM update automatically?

A: No, SJPM does not automatically update. New versions of SJPM must be downloaded and installed manually.

When installing a newer version of SJPM; SJPM's automatic upgrade functionality eliminates the need to uninstall the previous version of SJPM. All device configurations are saved and migrated to the new SJPM installation version.

Q: Is SJPM automatically downloaded through "Install Sabre Applications" in SRW?

A: No, currently it is not available in SRW. It would need to be downloaded from agency eservices.

Login to agency eservices, then navigate to "**Support**", then "**Downloads**", and then click on the "**Sabre Java Print Module**" link.

Note: This is only for Travel Network customers.

Q: Where do I download SJPM?

A: **Travel Network Customers**

Travel Network Users can download SJPM from agency eservices.

Login to agency eservices, then navigate to "**Support**", then "**Downloads**", and then click on the "**Sabre Java Print Module**" link.

Sabre Airline Solutions Customers

Sabre Airline Solutions Users can download SJPM from the "**Sabre Community Portal**".

Q: Does SJPM require that Java be installed?

A: The Sabre Java Printing Module (SJPM) installation includes Java version **1.7.0_25**. The use of SJPM's installed Java is dependent on the "**SJPM_JAVA_HOME environment variable**" settings.

All SJPM Drivers will use SJPM's Java except for the "**JavaPOS**" Driver which requires Java version **1.6** minimum be installed.

Q: Can SJPM print to LPT printers?

A: Yes, the "**Printer**" Driver has configuration options for printing to Parallel printers.

Q: Can SJPM print to PDF?

A: Yes, the "**File**" Driver has configuration options for printing to PDF.

Q: Can SJPM be installed to another hard drive other than C:\?

A: Yes. This will require running the install from the command line.

Command:

Install_SJPM_TN_x86_32Bit_1.2.36.exe INSTALLDIR="Z:\TTT"

Q: Is SJPM available in other languages?

A: Yes. Currently SJPM is available in **English** and **Spanish**, accessible from the Windows Task Tray icon menu. Other languages will be added in later releases.

Q: How many devices can be configured in SJPM?

A: The recommended number of configured devices for the SJPM Client GUI is **35**. The GUI is capable of handling more devices but this could result in performance issues while viewing the SJPM GUI.

The maximum number of devices will be determined by the machine's CPU and Memory capabilities.

Q: Where are the SJPM log files created?

A: **Server Logging**

SJPM will create the log file "**SJPMServer.log**" in the "**C:\Program Files\SJPM\Server\logs**" directory ("**C:\Program Files (x86)\SJPM\server\logs**" for Windows 7 64bit and Windows 8 64bit) for default installations. If SJPM is installed on a different drive than default then the log files will be located on the install drive in the "**SJPM\server\logs**" folder.

SJPM Server Logging creates ten (10) rolling log files. (All 10 log files should be zipped up with the file extension of "**.sabre.zip**" before sending in for analysis.)

Client Logging

SJPM will create the log file "**sjpmclient.log**" in the "**logfile=%{HOMEPATH}/logs/sjpmclient.log**". You can also look in the "**client.ini**" file for the log file location.
(The log file should be zipped up with the file extension of "**.sabre.zip**" before sending in for analysis.)

Q: Is there a manual with instructions on SJPM?

A: Yes, there is a User's Guide that can be downloaded and it is also included in the SJPM installation under "**Start**", "**Programs**" or "**All Programs**", and "**SJPM**".

Q: Are there ports or firewall exclusions that need to be configured for SJPM?

A: SJPM functions the same as SPM (OADP) so it will not require any changes. For new Sabre users SJPM does not require any Windows setup for operation.

Q: Can SJPM be run more than once on a single machine?

A: No, currently this feature is not available but we will be working to add this functionality in later a release.

Q: Can SJPM run as a Service and an Application?

A: Yes. However, the run as an application function is not fully integrated into SJPM at this time and will require manual processes to run. The run as an application feature will be available in the 4Q2014 SJPM release.

Q: Can SJPM print to network printers?

A: Yes, using the "**System**" or "**Queue**" Drivers SJPM can print to network printers.

Q: Can you specify the location of output files?

A: Yes, with the SJPM "**File**" and "**IFQ**" Drivers you can specify the location. They are defaulted as follows:

File Driver = C:\Program Files\SJPM\Output\

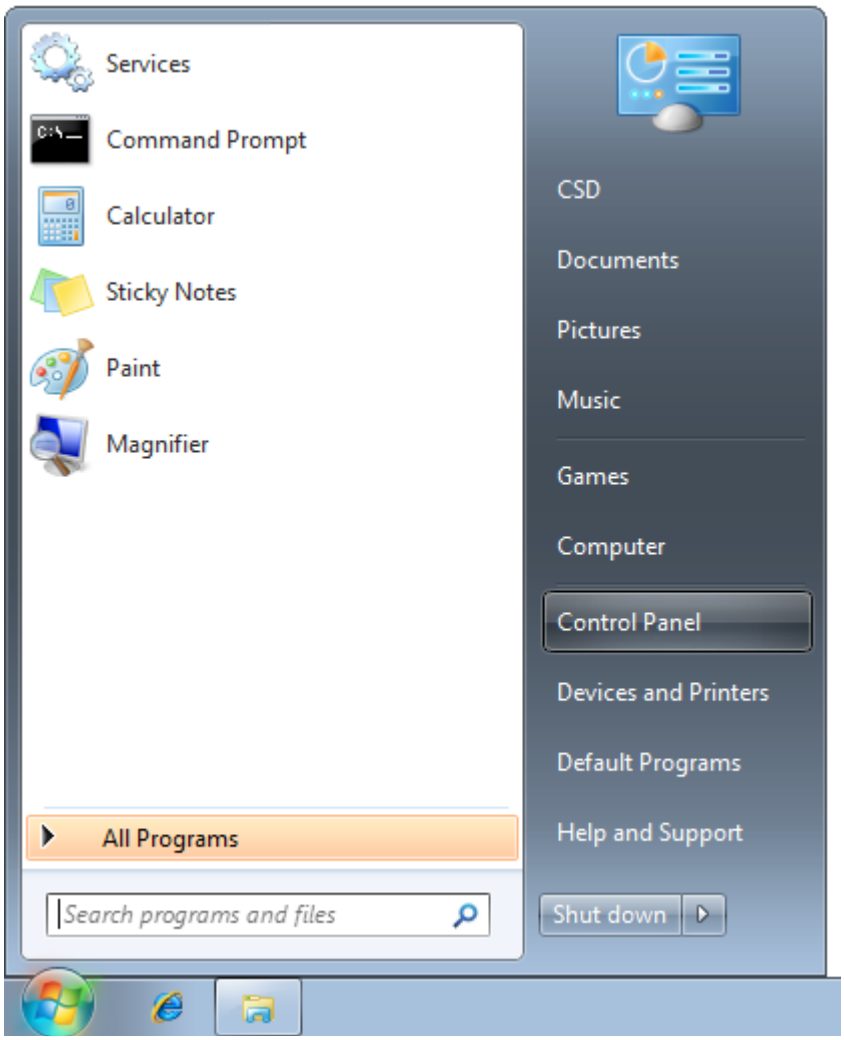
IFQ Driver = C:\SPL

D. Disable UAC in Windows 7 and Windows 8

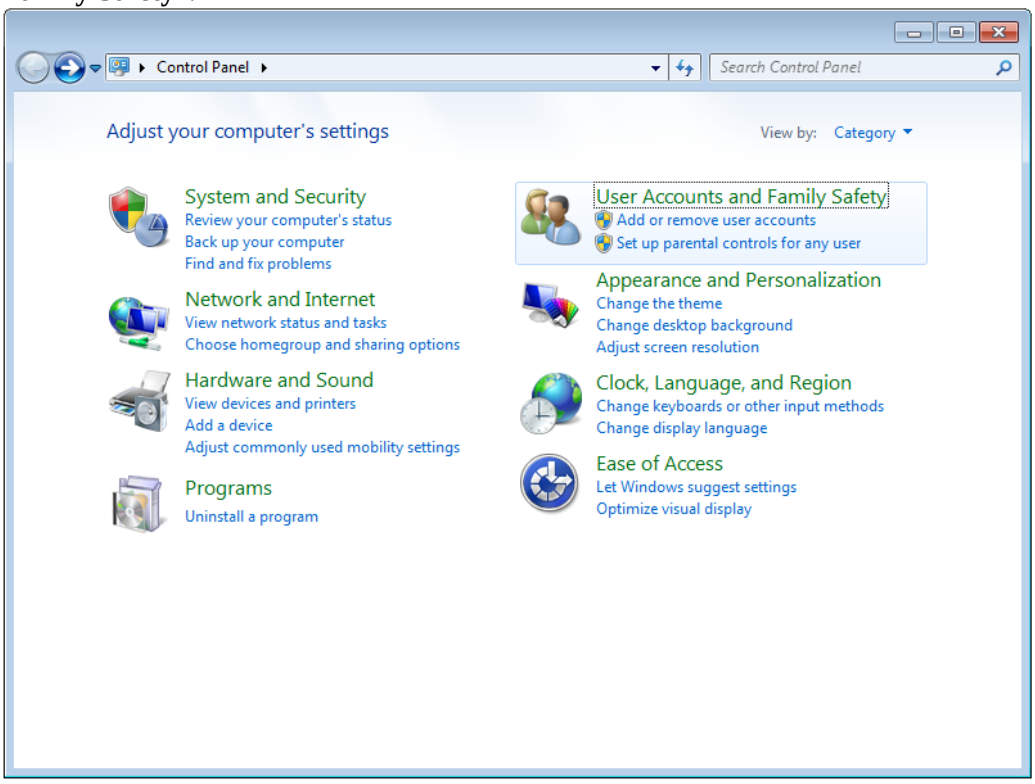
This section describes the processes for disabling the UAC in Windows 7 and Windows 8 operating systems. **(This Is Not Recommended)**

Windows 7

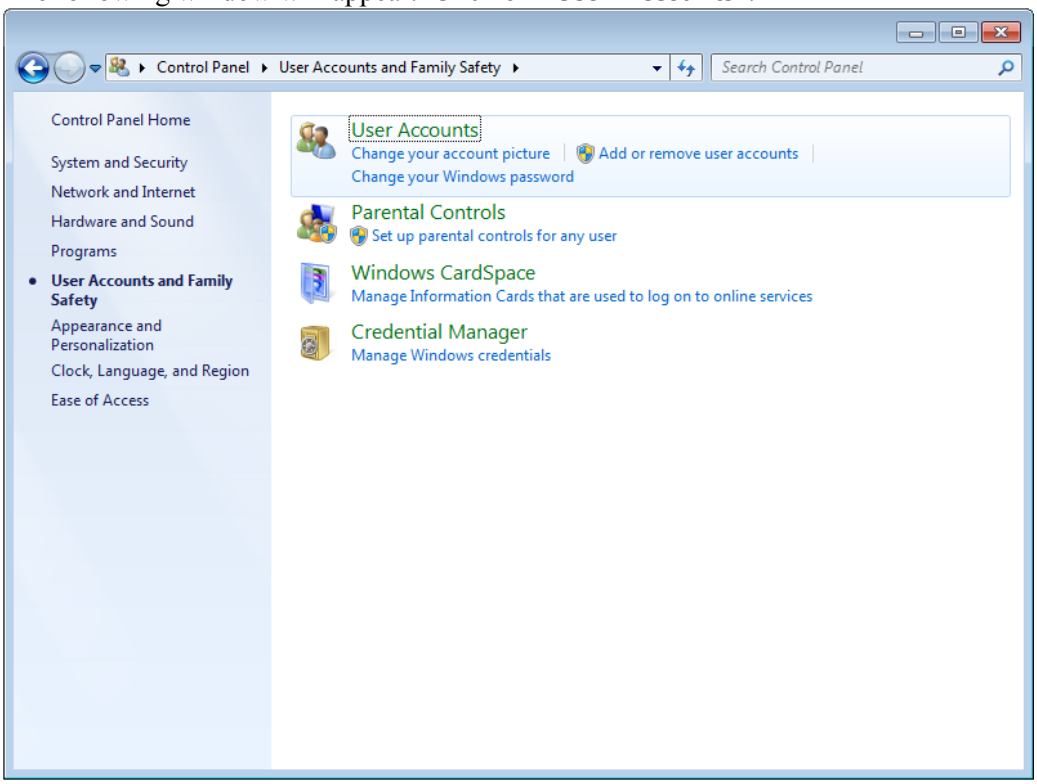
1. From the Windows Desk Top, click on the Windows "**Start**" button and then click on "**Control Panel**".



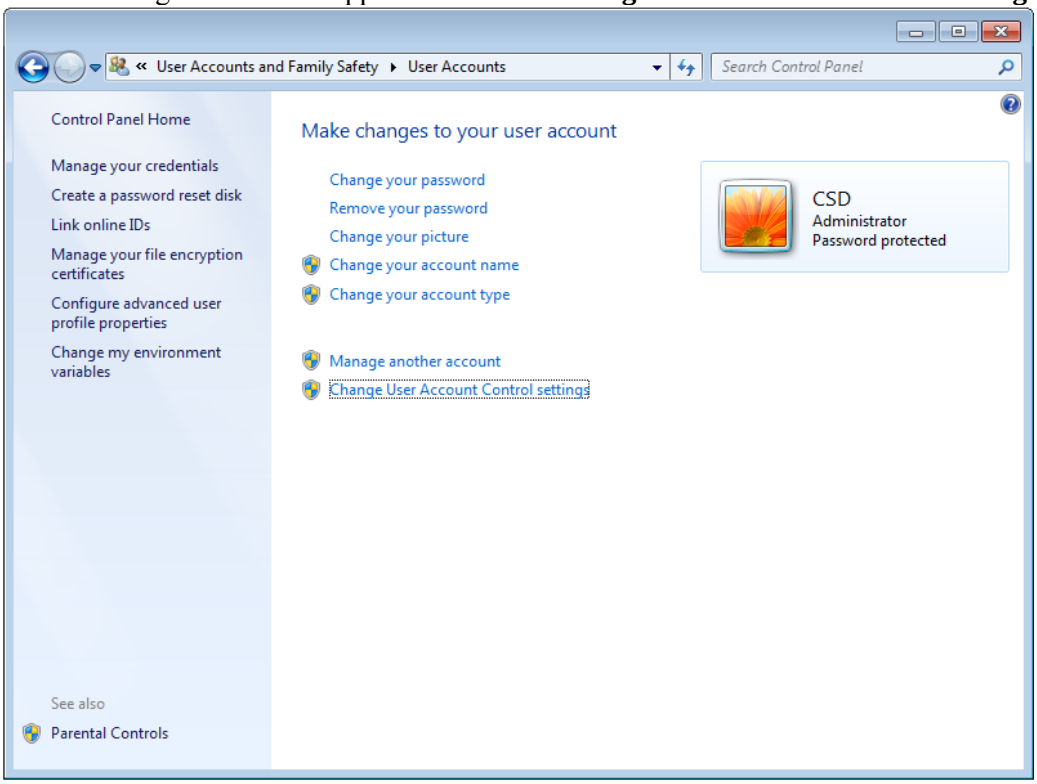
2. The "**Control Panel**" window will appear. Click on "**User Accounts**" or "**User Accounts and Family Safety**".



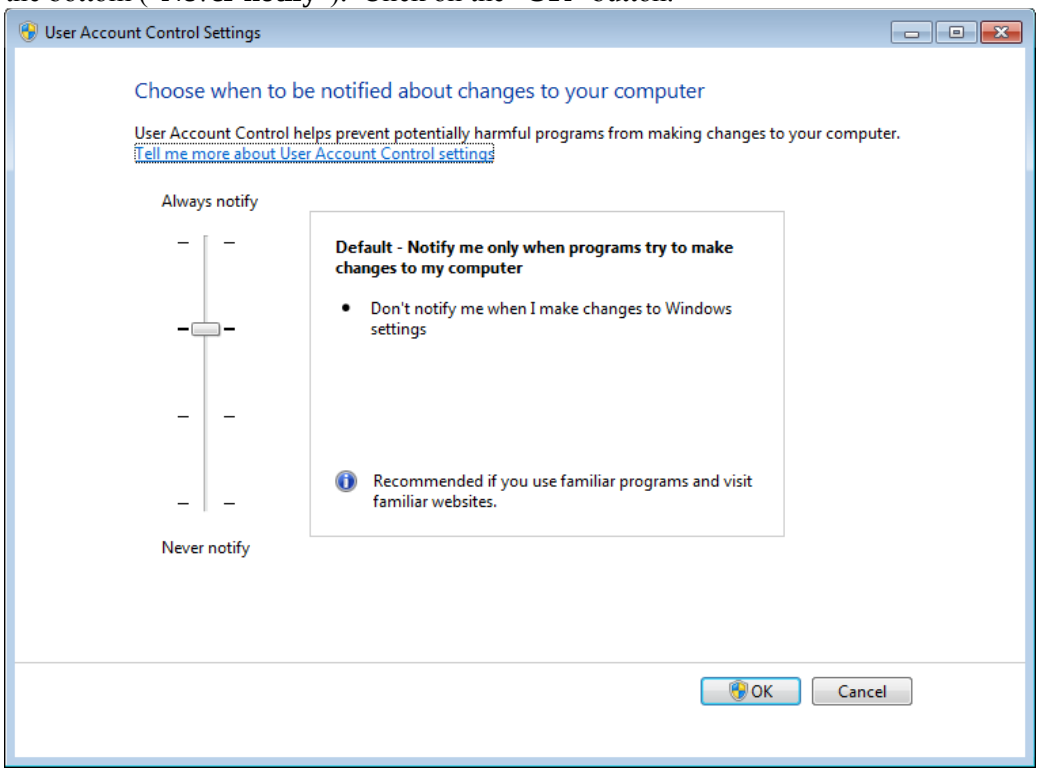
3. The following window will appear. Click on "**User Accounts**".



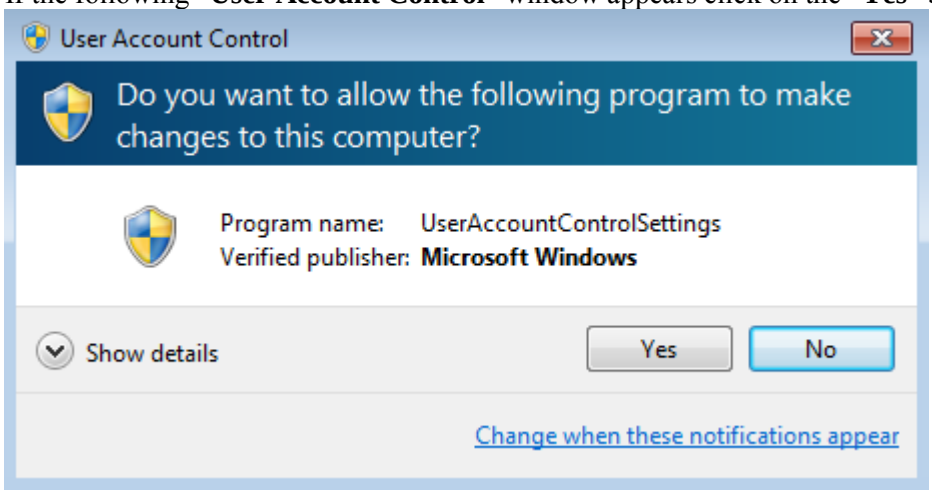
4. The following window will appear. Click on "**Change User Account Control Settings**".



5. The "**User Account Control Settings**" window will appear. Click on the slider and drag it to the bottom ("**Never notify**"). Click on the "**OK**" button.



6. If the following "**User Account Control**" window appears click on the "**Yes**" button.

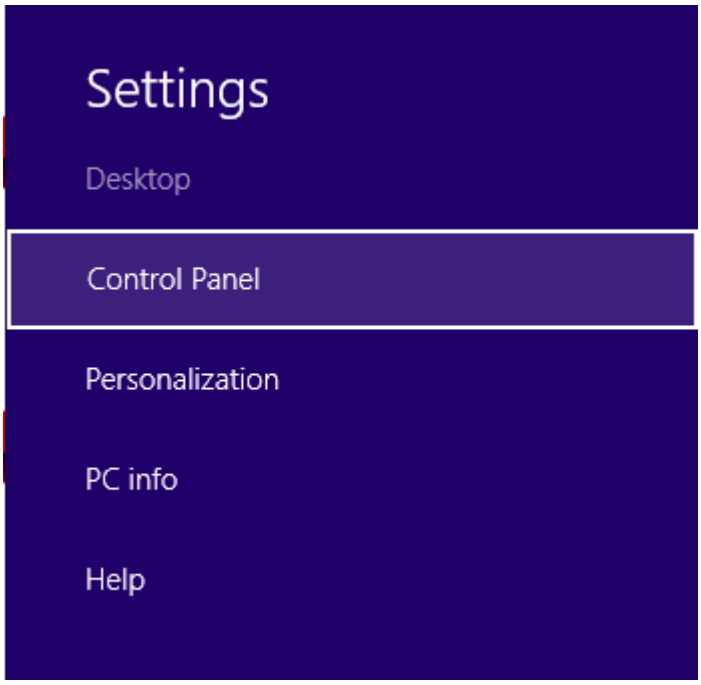


7. Close the "**Control Panel**" window.

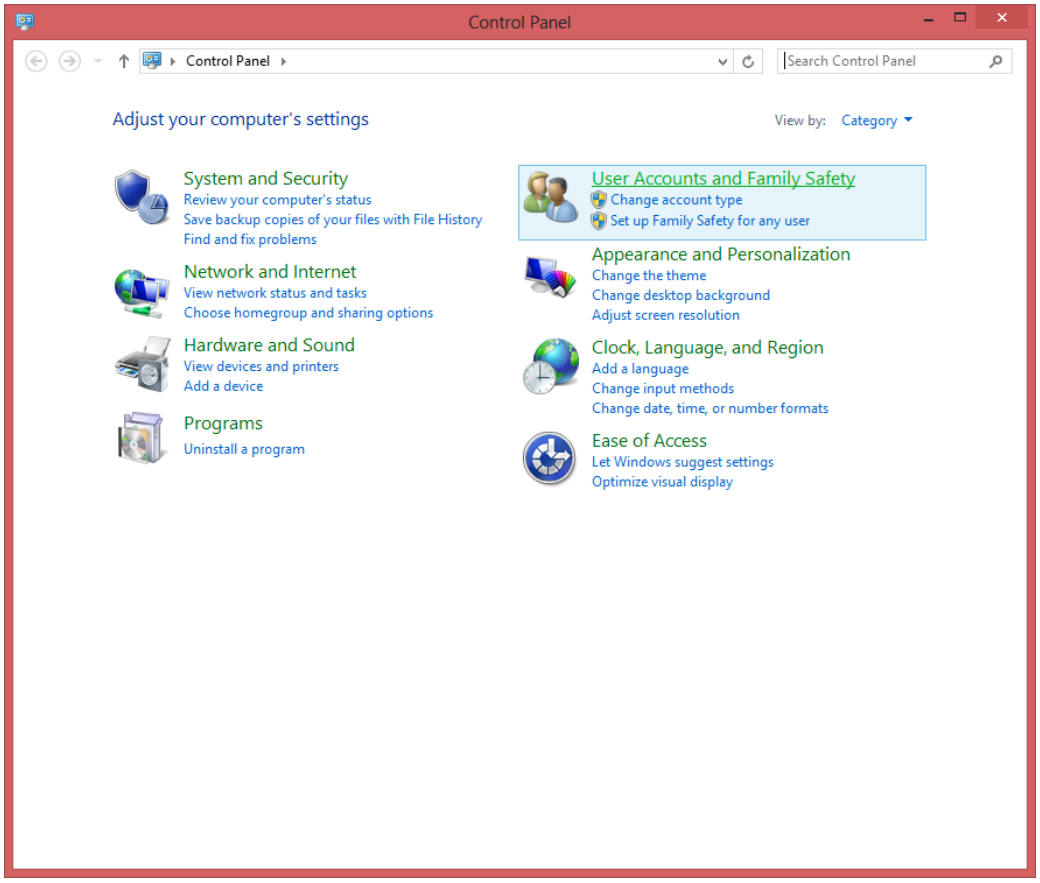
Windows 8

1. From the Windows Desk Top, move the mouse pointer to the bottom right corner of the screen and then on the charm bar click on the "**Settings**" icon.

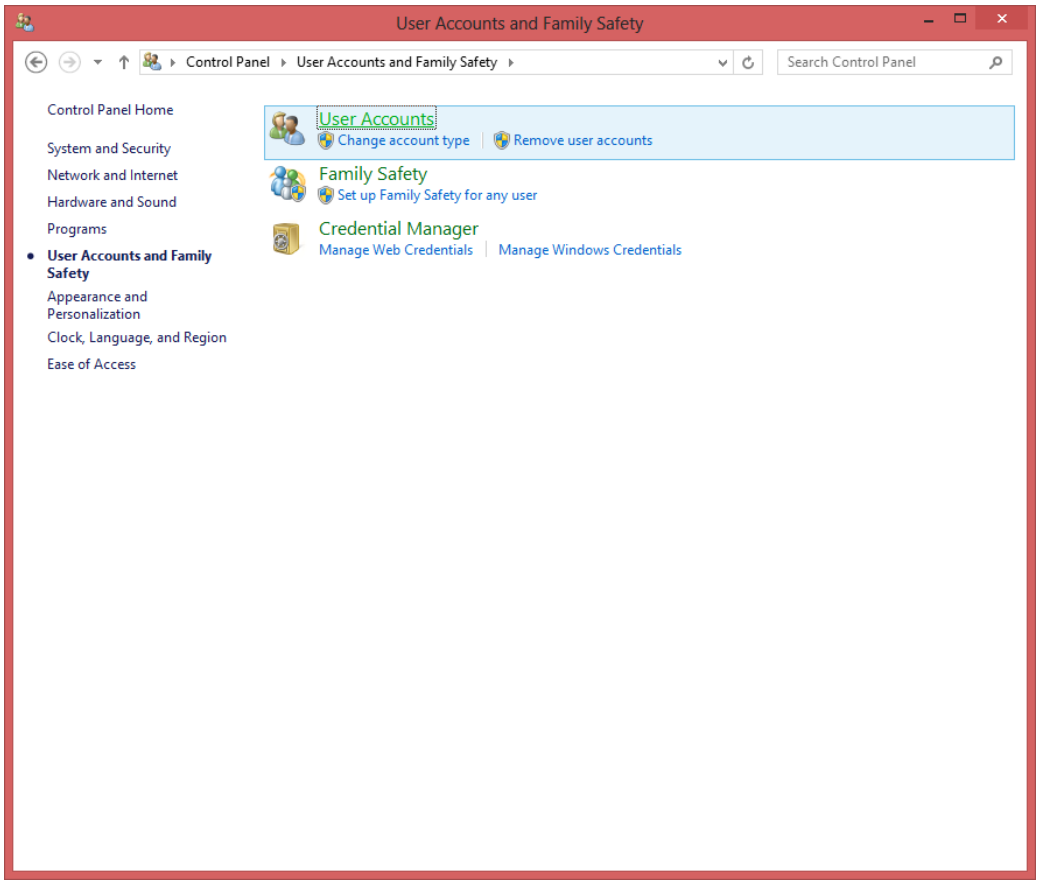
2. On the "**Settings**" menu click on the "**Control Panel**" menu item.



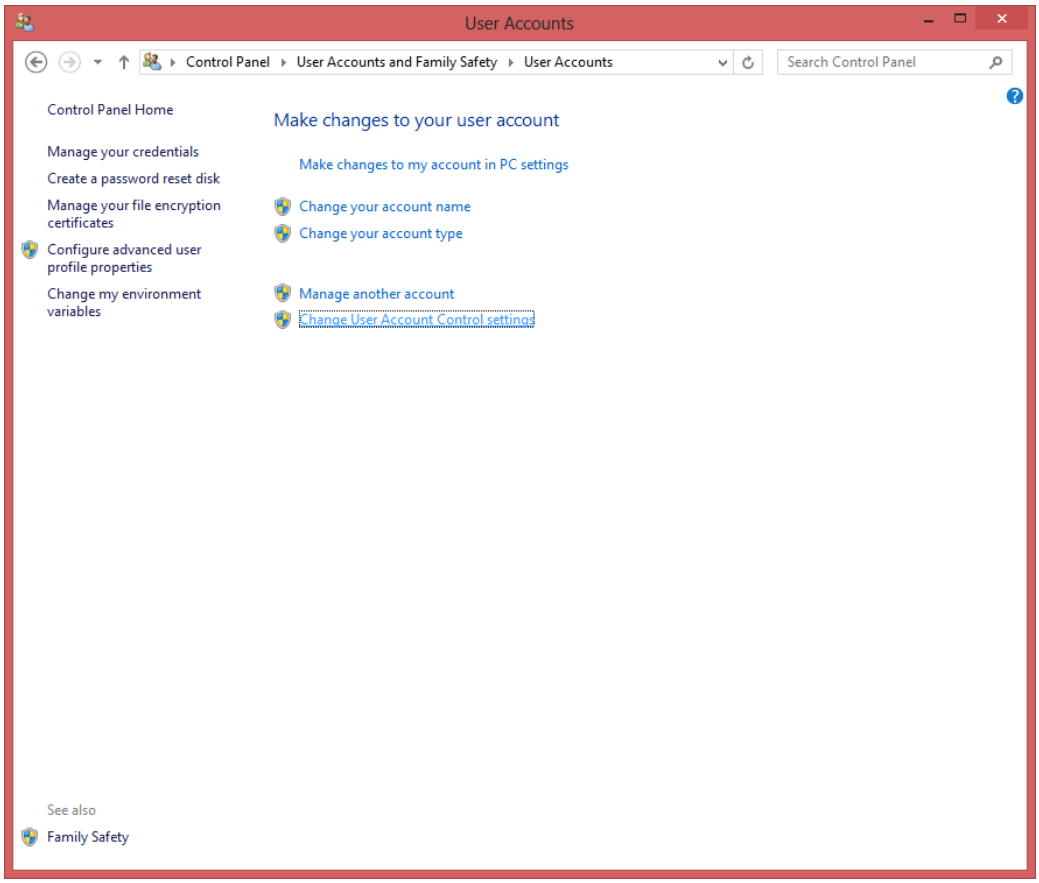
3. The "**Control Panel**" window will appear. Click on "**User Accounts and Family Safety**".



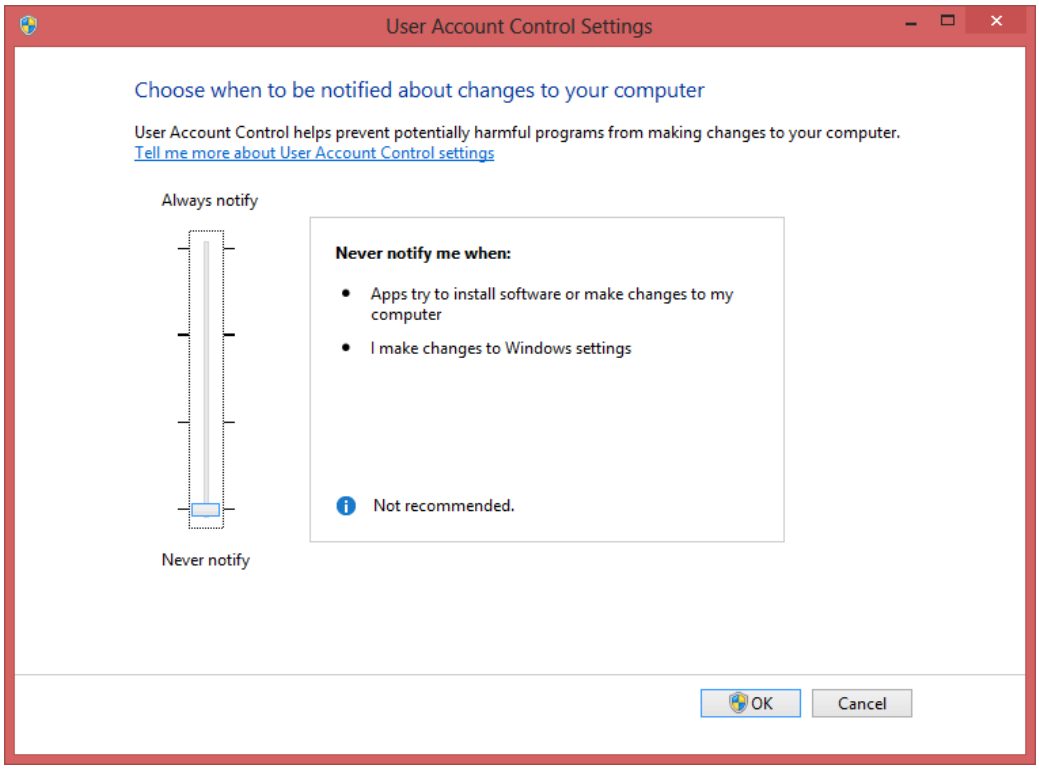
4. The "**User Accounts and Family Safety**" window will appear. Click on "**User Accounts**".



5. The "**User Accounts**" window will appear. Click on "**Change User Account Control settings**".



6. The "**User Account Control Settings**" window will appear. Click on the slider and drag it to the bottom ("**Never notify**"). Click on the "**OK**" button



7. Close the "**Control Panel**" window.