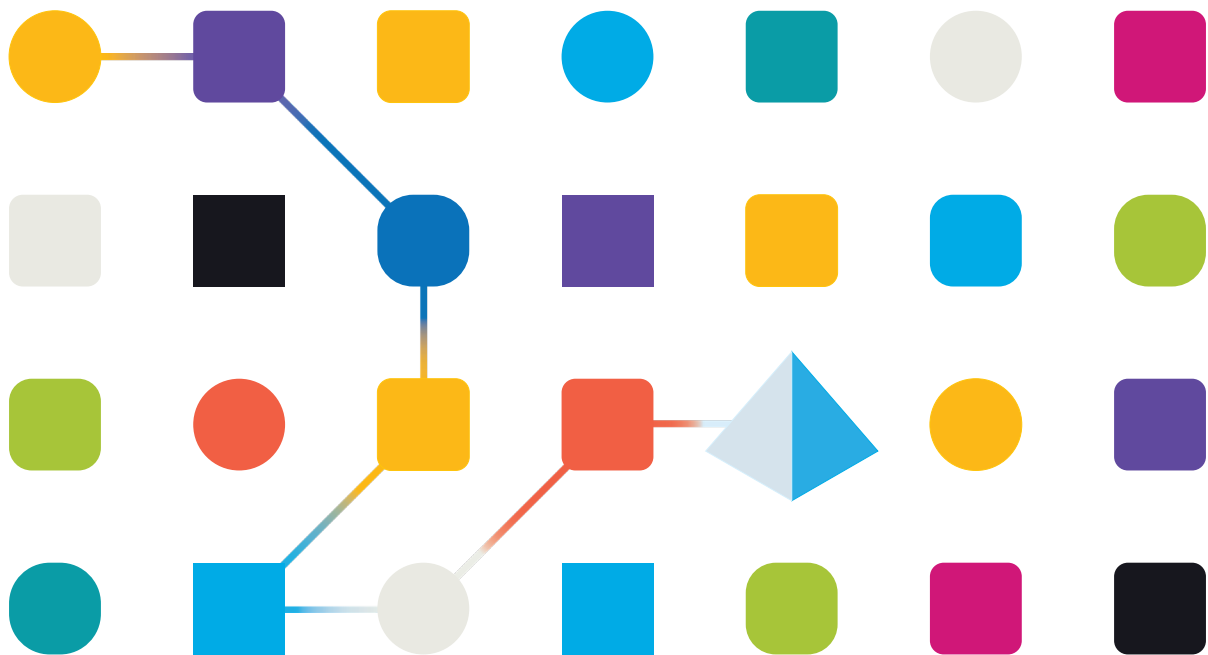




Blue Prism Mainframe Guide

IBM iAccess Client Solutions

Document Revision 1.0



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Introduction

Blue Prism does not currently support IBM iAccess Client Solution (ACS) using EHLLAPI Interface. The ACS software can however be automated with Blue Prism using specific configuration. ACS is a Java application and the configuration steps include using Java spy mode.

A troubleshooting section is provided at the end of this guide to assist during configuration.

Pre-requisites

The following are recommended versions (as opposed to specific requirements):

- **Blue Prism versions: v6.0.0 and later**

Note: This guide has been written using Blue Prism v6.5.1 and some of the screen shots may differ from the version being used and have been provided where possible.

- **IBM iAccess Client Solutions v1.1.7.3 (Windows 7 only) or later**

Note: The version used in this guide is v1.1.8.0 (32-bit)

- **Window 10 Operating System**

Note: Version used in this guide is 64-bit

- **Java Runtime v1.8.221 (32-bit)**

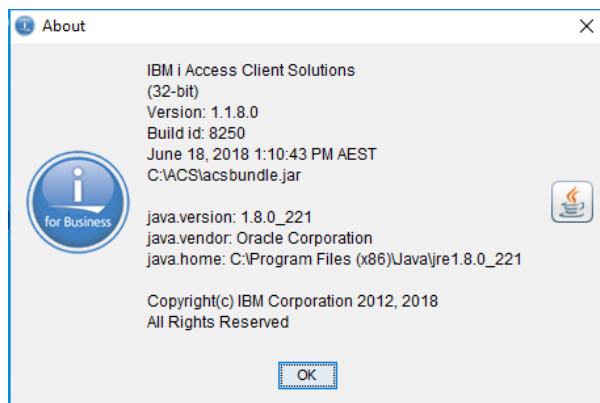
Note: Java 32-bit must be installed, even if the Operating System is 64-bit, for Blue Prism to successfully connect to the emulator

- **The PCSHLL32.DLL library**

Note: The “PCSHLL32.dll” library is a system file which provides functions required. For more information refer to the IBM website:

https://www.ibm.com/support/knowledgecenter/en/SSEQ5Y_12.0.0/com.ibm.pcomm.doc/books/html/emulator_programming07.htm

Interface	Entry Point	Header File	LIB	DLL
IBM Standard (16-bit)	hllapi	hapi_c.h	PCSCALLS.DLL	PCSHLL.DLL
IBM Standard (32-bit)	hllapi	ehllapi32.h	EHLAPI32.LIB	EHLAPI32.DLL
IBM Enhanced (32-bit)	hllapi	hapi_c.h	PCSCAL32.LIB	PCSHLL32.DLL
WinHLLAPI (16-bit)	winhllapi	whllapi.h	WHLLAPI.LIB	WHLLAPI.DLL
WinHLLAPI (32-bit)	winhllapi	whllapi.h	WHLAPI32.LIB	WHLAPI32.DLL

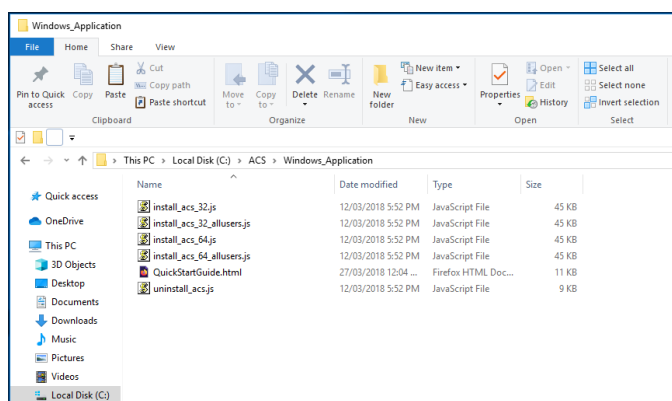


Supported versions of the emulator are available for download from the IBM website (account required):

<https://www-01.ibm.com/support/docview.wss?uid=isg3T1026805>

iAccess Client Solutions Installation

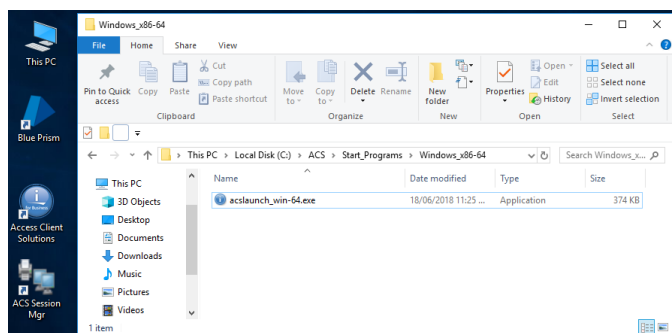
Once the download is unpacked, the install files will reside in the directory specified during that process. For example, in below screenshot this was specified as C:\ACS. The iAccess is then installed using the installer program found in the **Windows Application** sub-folder of that directory:



Select the required 32-bit or 64-bit installer depending on the Operating System bitness in use.

In this guide, the “**install_acs_64**” (64-bit) package was installed.

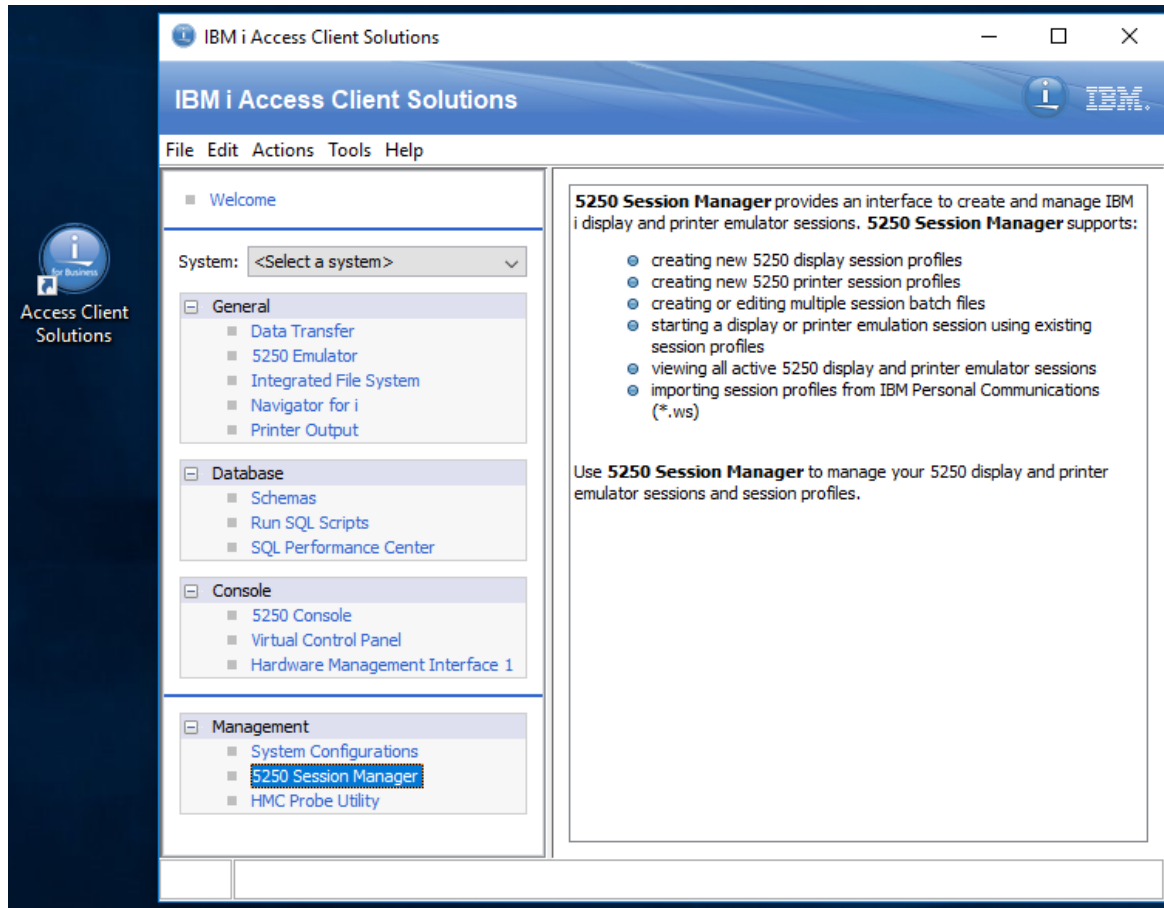
As part of the installation process, a shortcut is placed on the User Desktop. The shortcut links to the executable **acslaunch_win-64.exe** which is located in folder **C:\<install_folder>\Start_Programs\Windows_x86-64:**



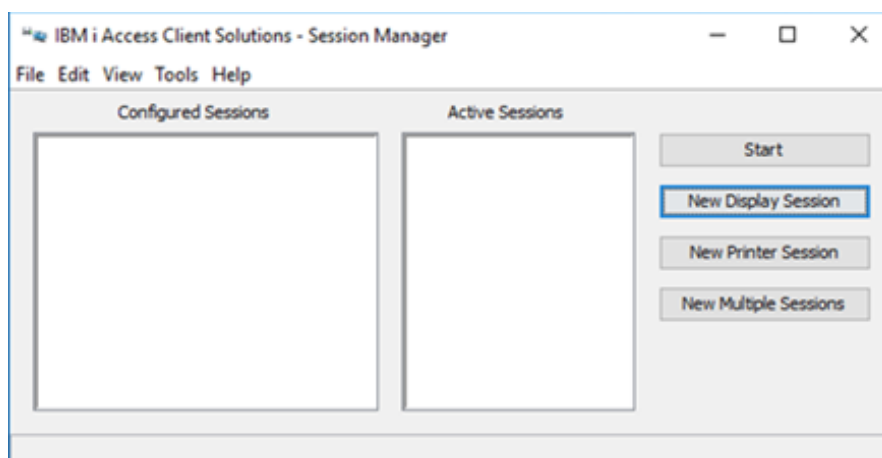
iAccess Client Solutions Configuration

Perform the following steps to configure iAccess Client Solutions:

1. Launch the iAccess Client Solutions interface and click on the **5250 Session Manager** to reveal the configuration screen:



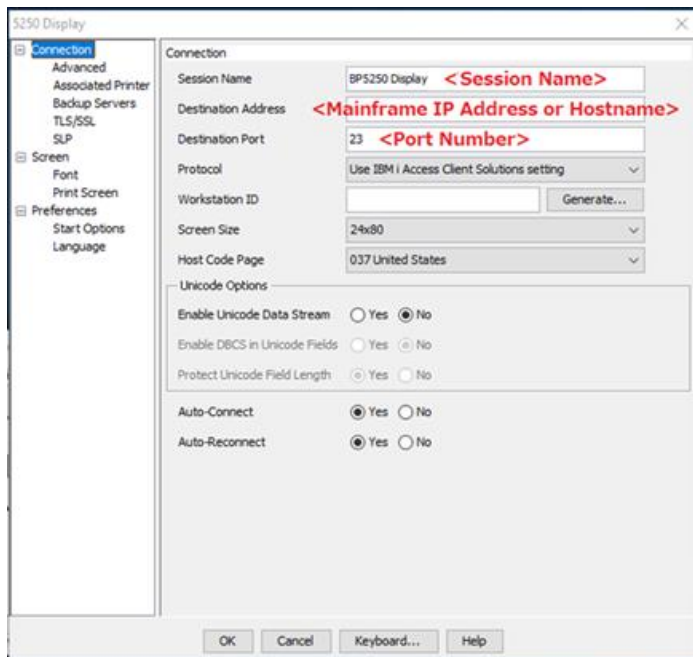
2. When the **Session Manager** window appears, click the **New Display Session** button:



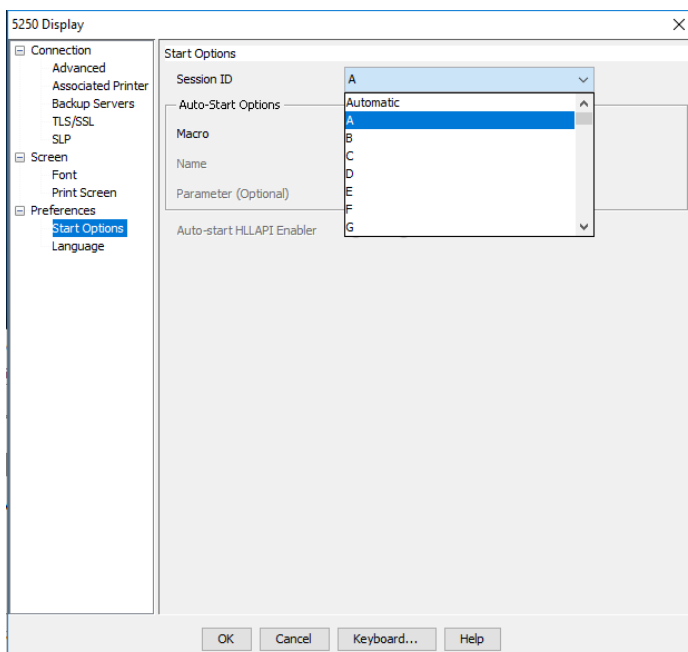
- When the **5250 Display** window appears, under **Connection**, set the **Session Name** value to a suitable name (e.g.: “**BP5250 Display**”). Enter the *Mainframe IP Address or Hostname* in the **Destination Address** field and the port number in the **Destination Port** field (this information can be obtained from the customer’s IT team, or by looking at the settings of an existing session):

Configure Mainframe connection:

- Session Name
- Hostname or IP address of Mainframe
- Connection Port

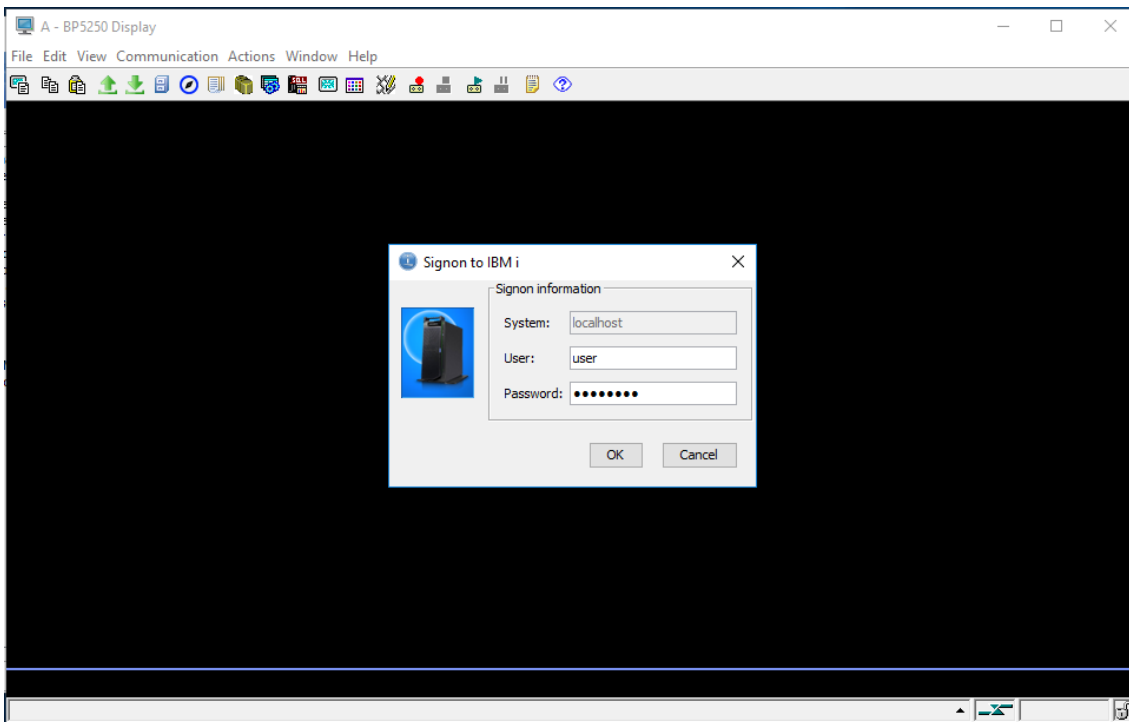


- Select the **Preferences > Start Options** view and set the **Session ID** to **A**. Click the **OK** button at the bottom of the window to launch the Session.

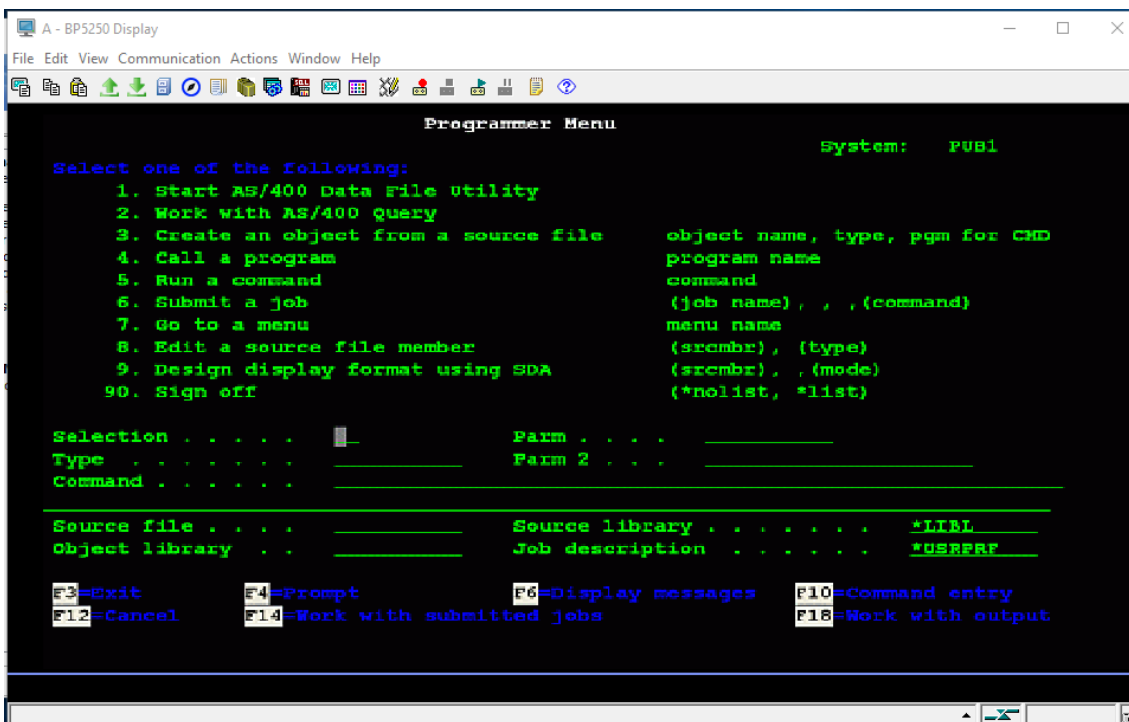


The ACS emulator session starts automatically.

- Enter Signon Information (**User** and **Password**) and click **OK**.

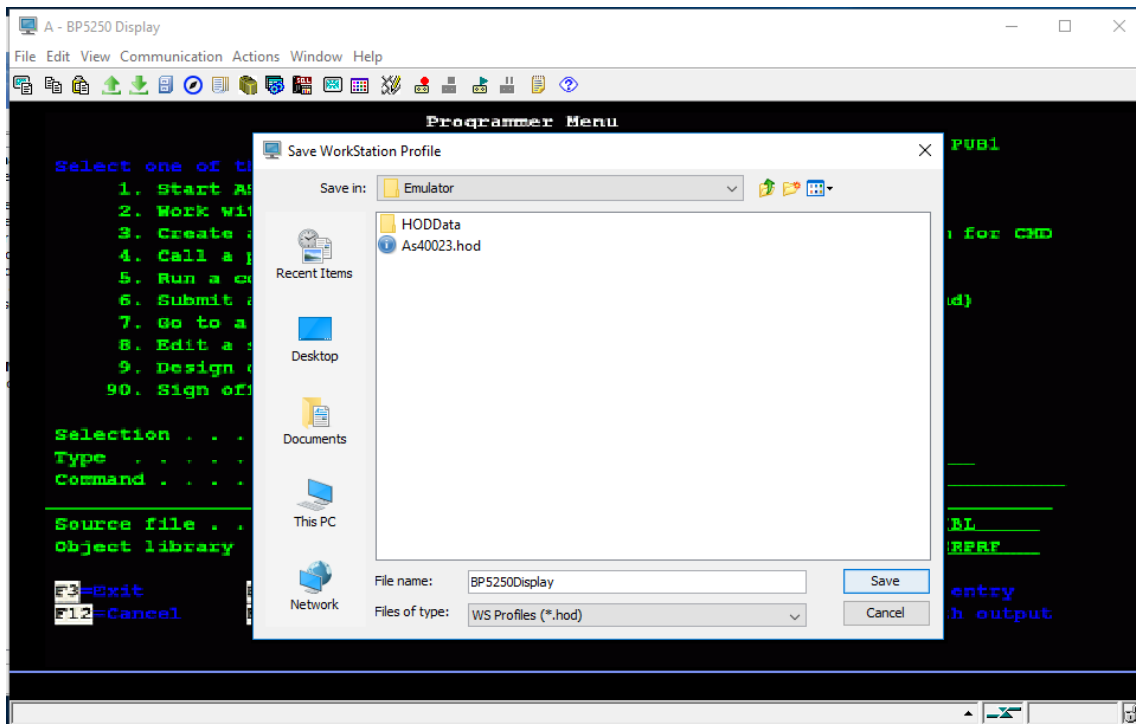


- Wait for the Emulator Session to come up and connect to the host.
- Confirm the title bar reads **A – BP5250 Display** (i.e.: Session ID – Session Name):



8. In the menu bar, click **'File > Save As'**, then provide a filename (e.g.: **BP5250Display.hod**) and save the Session File.

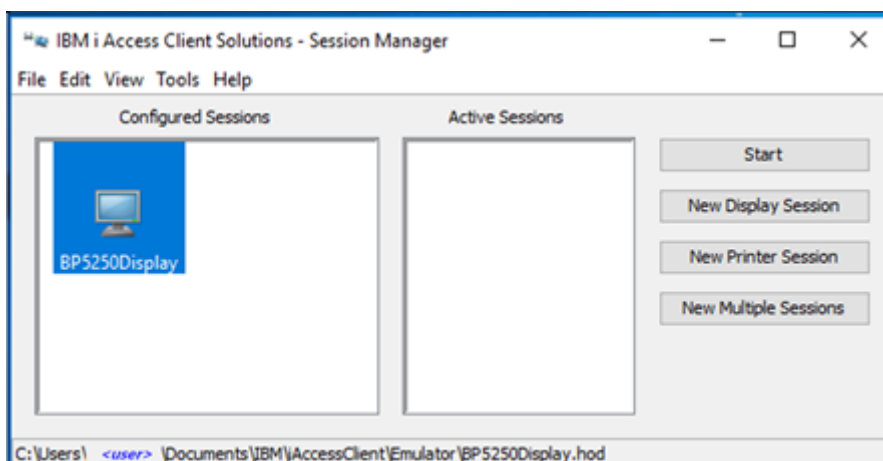
Note: The location of the saved session file (.HOD) can vary. Sometimes, the file is stored in the user's Documents folder (e.g.: C:\Users\<user>\Documents\IBM\iAccessClient\Emulator) and other times, it may be stored in the user's specific AppData location (e.g.: C:\Users\<user>\AppData\Roaming\...)

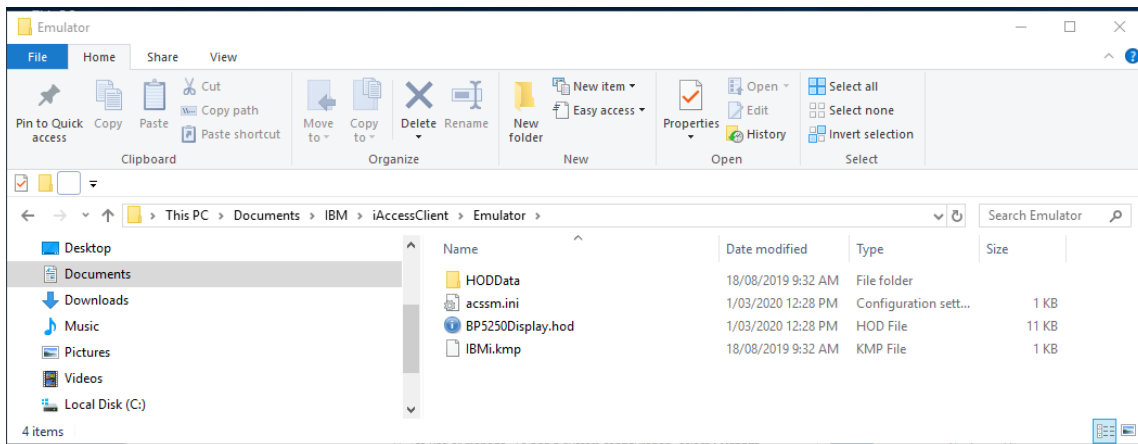


9. Close the emulator window by clicking the **CLOSE** button on the right side of the title bar (i.e.: **'X'**). The window should close without prompting to save changes.

Note: Changes made to the window size save automatically.

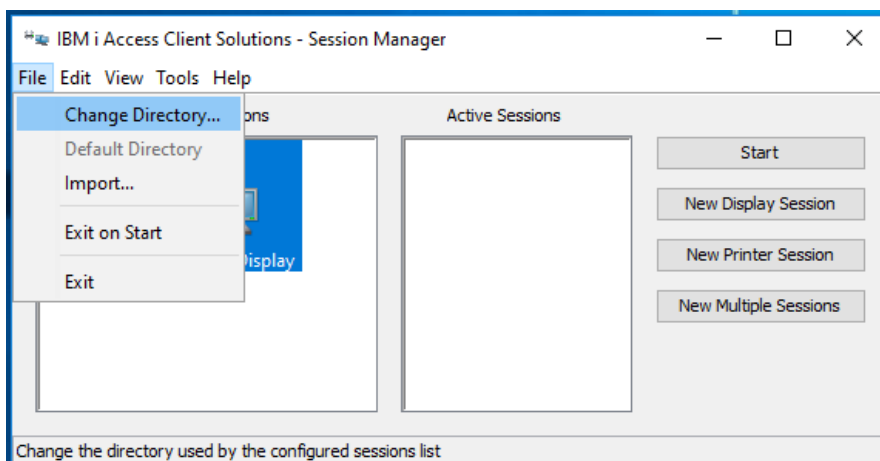
10. Return to the **Session Manager** window. Check if you see the **BP5250Display** session (as shown below):





11. If the **BP5250Display** session is **NOT** displayed in the Session Manager, it is because the Session Manager is not pointed to the directory containing the **BP5250Display.hod** file you created. On the **File** menu, click **Change Directory**. Navigate to the directory containing the saved session file, select **BP5250Display.hod** and then click **Open**.

The **BP5250Display** session should now appear in the Session Manager window (as depicted in a previous screenshot).



12. In the **Session Manager**, double-click the **BP5250Display** display to Launch **BP5250Display** session.

Blue Prism Configuration

Since the IBM iAccess Client Solutions is a Java-based application and the emulator itself is a Mainframe application, it is necessary to create two separate Business Objects.

One Business Object is used to spy ACS GUI screen by Java Spy mode and/or other spy modes, and the second Business Object is used to spy the Mainframe screen using the Mainframe Spy mode.

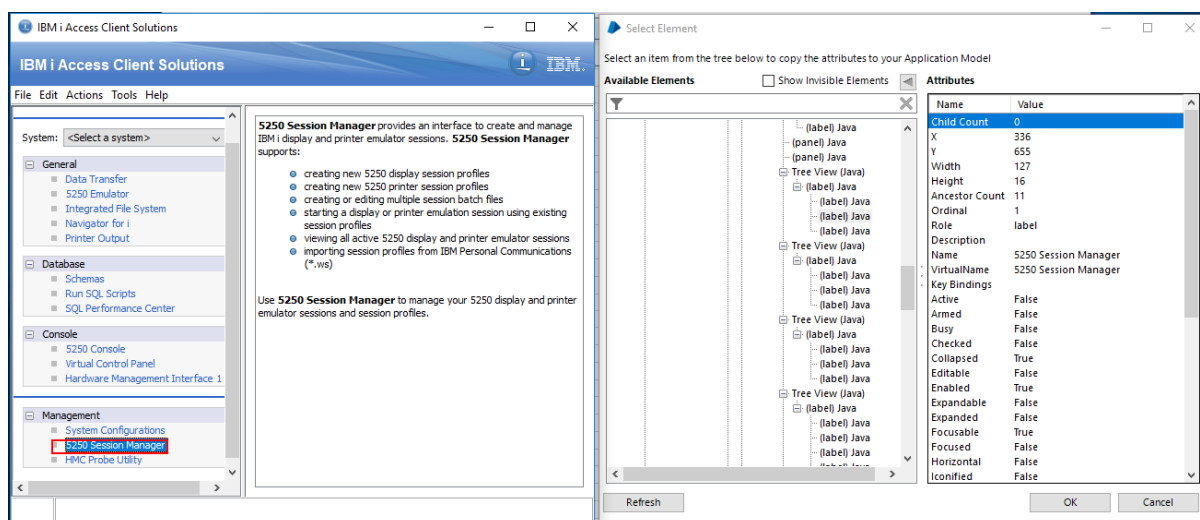
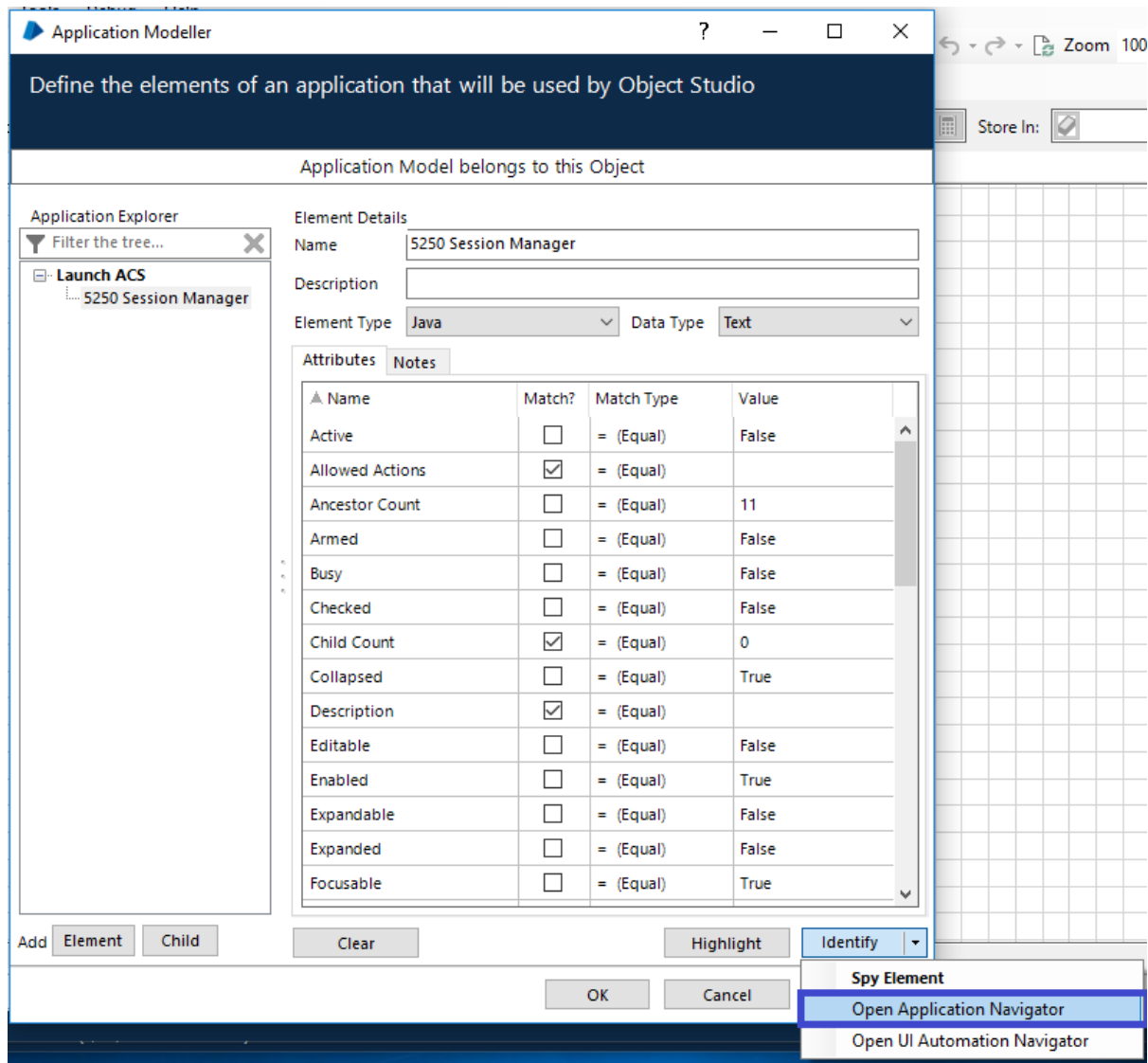
Business Object 1 (ACS GUI screen):

The first Business Object is to Launch/Attach the ACS GUI and logging in to Mainframe. This needs to use the Java Spy mode.

The screenshot shows the 'Application Modeller' window with the title 'Define the elements of an application that will be used by Object Studio'. The window is divided into two main sections. On the left is the 'Application Explorer' with a tree view showing 'Launch ACS' and 'Element1'. On the right is the configuration area for the selected application. The configuration area includes the following fields and controls:

- Application Name:** A text box containing 'Launch ACS'.
- JAR File Path:** A text box containing 'C:\ACS\acsbundle.jar' and a 'Browse...' button.
- Command Line Parameters:** A text box for entering parameters to be passed to the target application.
- Working Directory:** A text box for entering the directory the target application will use.
- Application Manager mode:** A dropdown menu set to 'Embedded (default)'.
- Timeout:** A section for providing the time the object will wait for the application to respond before throwing an exception, with fields for Days, Hours, Mins, and Secs.
- Options:** A text box for entering any options specific to this target application, as directed by Blue Prism technical support.

At the bottom of the window, there are several buttons: 'Add', 'Element', 'Child', 'Launch', 'Diagnostics', 'Application Wizard', 'OK', 'Cancel', and 'Apply'.

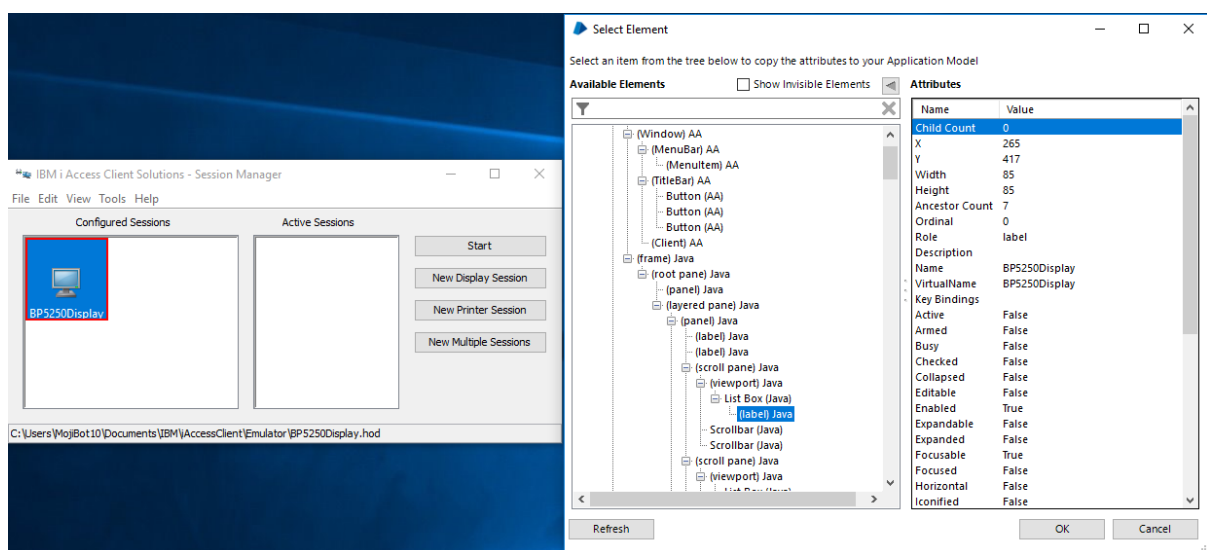
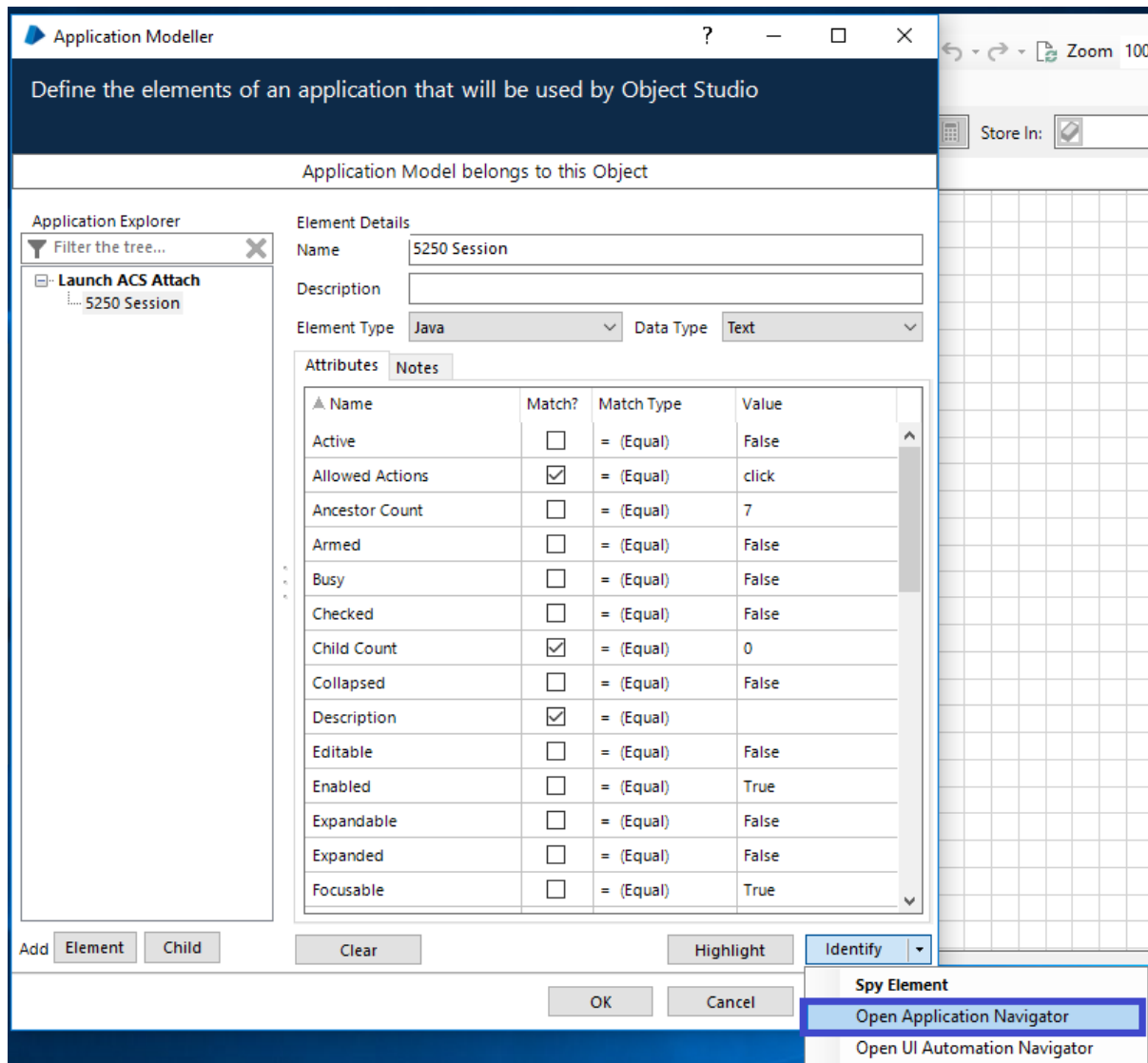


To Attach the new window Session Manager, sometimes, another Business Object may need to be created.

The screenshot shows the 'Application Modeller' window with the title 'Define the elements of an application that will be used by Object Studio'. The 'Diagnostics' tab is selected, and the 'Application Model belongs to this Object' section is active. The 'Application Explorer' on the left shows a tree with 'Launch ACS Attach' and its child '5250 Session'. The main configuration area contains the following fields and options:

- Application Name:** Launch ACS Attach
- Enter the window title of the target application (the wildcards *, ?, # are valid):** *IBM*
- Enter the Windows process name of the target application:** java*
- If not found for attaching, your application may be launched automatically if desired. Enter the path of your java application, or leave blank to receive an error in this situation instead.**
C:\ACS\acsbundle.jar (with a 'Browse...' button)
- Enter the command line parameters (if any) to be passed, when the specified executable is launched:** (empty text box)
- Select the Application Manager mode:** Embedded (default) (dropdown menu)
- Provide the time that the object will wait for the application to respond before throwing an exception:** (empty text box)

At the bottom, there are buttons for 'Add', 'Element', 'Child', 'Attach', 'Diagnostics' (highlighted), and 'Application Wizard'. At the very bottom are 'OK', 'Cancel', and 'Apply' buttons.



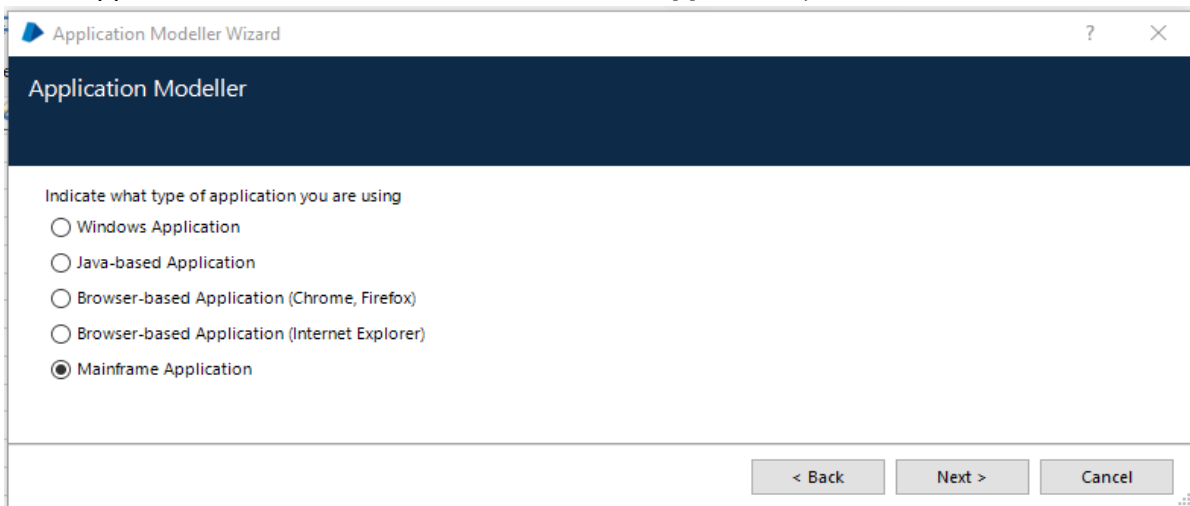
For more details on how to spy a Java application, refer to the [Java Automation Guide](#) Guide available from the **Blue Prism Portal > Documents** section.

Business Object 2 (Mainframe screen):

The following instructions work only with an open session, i.e. the ACS Mainframe session emulator must be running already before attempting to Attach.

After launch and logging in to the Mainframe screen (the session is opened), the second Business Object is going to connect to the running session and use Mainframe Spy mode.

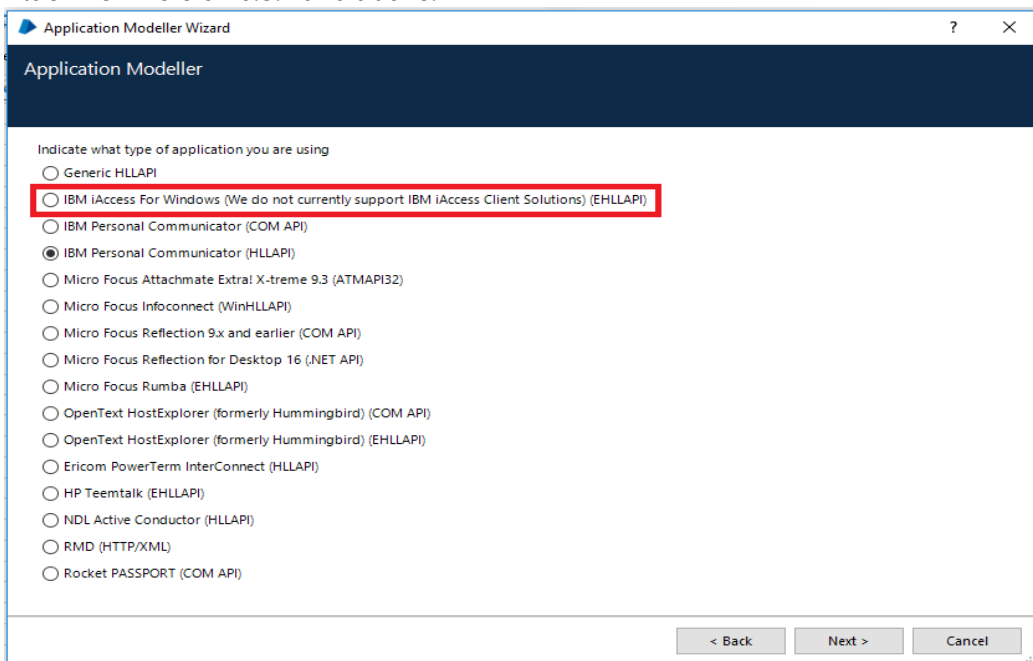
1. Create a new Business Object.
2. In the Application Modeller Wizard select **Mainframe Application**, then click **Next**.



3. For IBM Mainframe or AS400 select **IBM Personal Communicator (HLLAPI)**, then click **Next**.

Note: Blue Prism currently does not support **IBM iAccess Client Solution with EHLLAPI Interface For Windows**, therefore the options shown below that are highlighted with red square should **NOT** be selected.

Blue Prism version 6.5.1 and above:

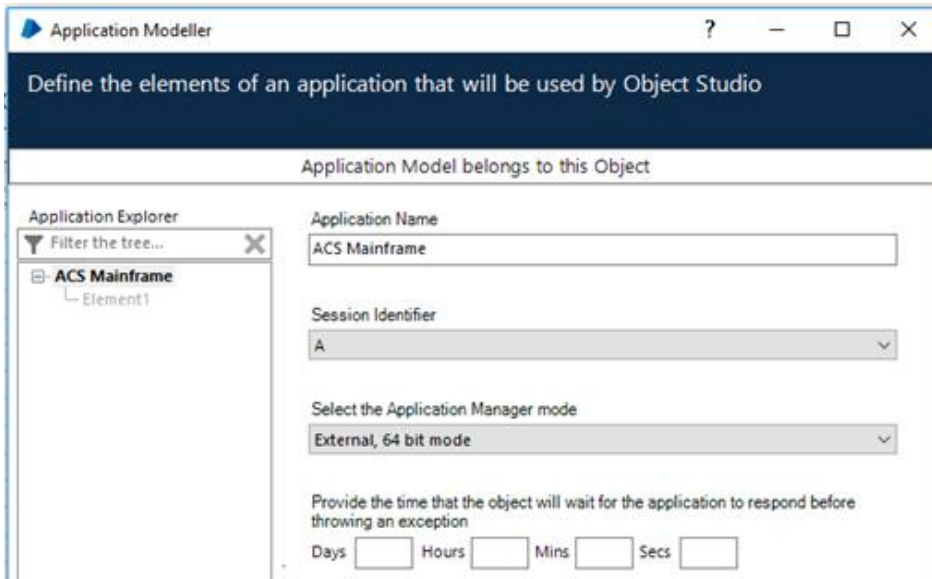


For earlier versions of Blue Prism (prior 6.5.1) the option will show as IBM iAccess (EHLLAPI):

4. Select the **Session Identifier** and click **Next**.

Note: The **Session Identifier** must match with the **Session ID** that was selected in the session profile. Refer to below screenshot.

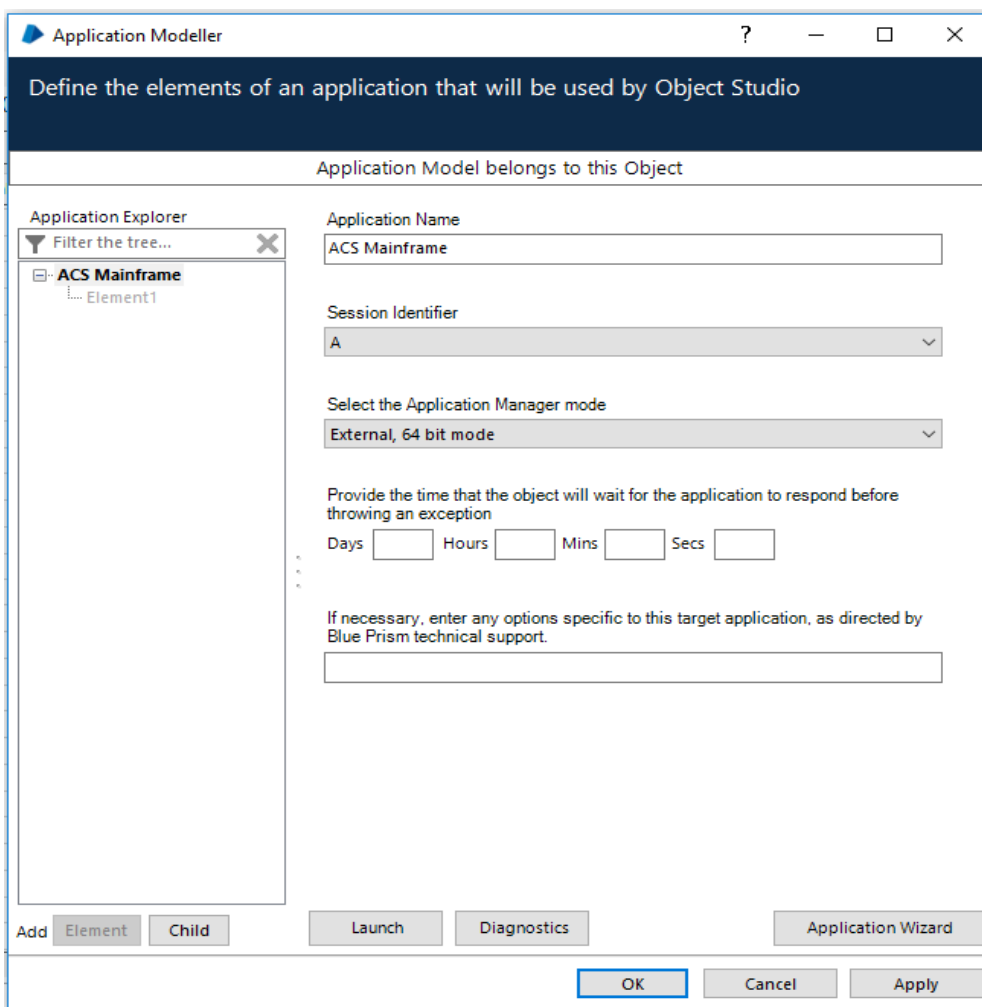
- Set the Application Manager mode to match the bitness of the ACS software (*Note - “Embedded” mode works for both bitness, however sometimes, you may need to set it to “External, 64-bit mode” if using 64-bit ACS software*).



The screenshot shows the 'Application Modeller' window with the title 'Define the elements of an application that will be used by Object Studio'. The 'Application Explorer' on the left shows a tree with 'ACS Mainframe' and 'Element1'. The main configuration area on the right includes:

- Application Name:** ACS Mainframe
- Session Identifier:** A
- Select the Application Manager mode:** External, 64 bit mode
- Provide the time that the object will wait for the application to respond before throwing an exception:** Days, Hours, Mins, Secs (all set to 0)

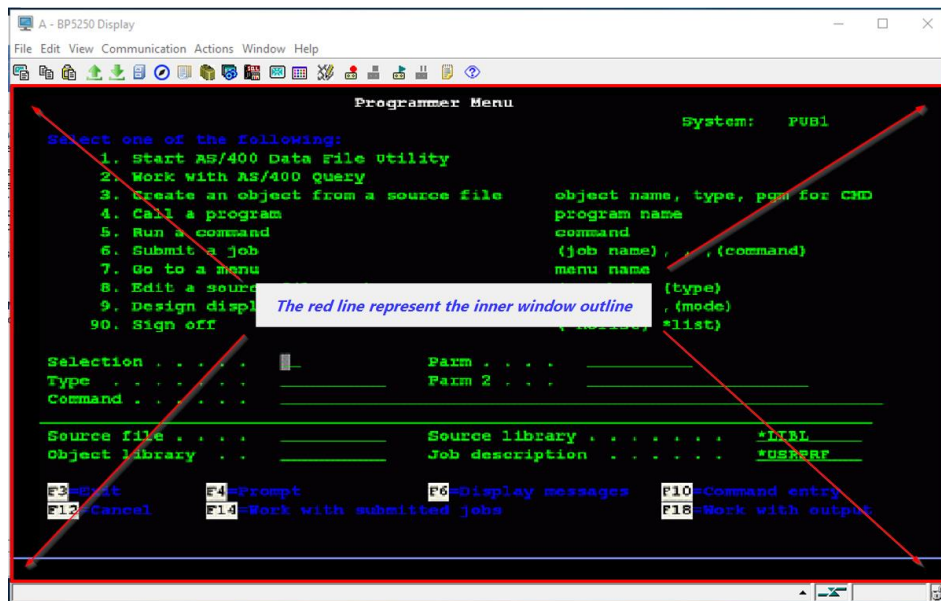
- Click the **Launch** button in Application Modeller to Attach to the running session.



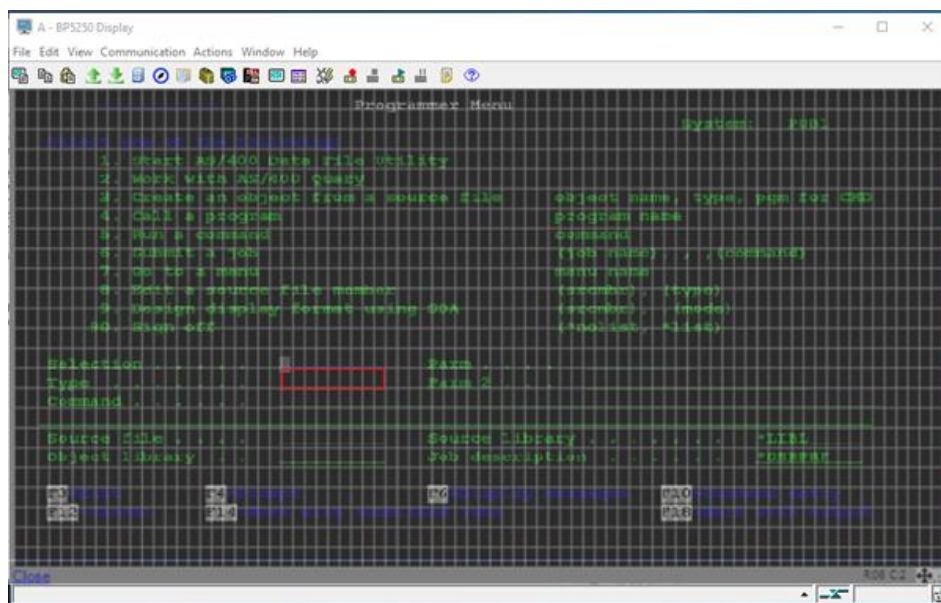
This screenshot is identical to the previous one, but it includes the bottom section of the window. At the bottom, there are several buttons: 'Add', 'Element', 'Child', 'Launch', 'Diagnostics', 'Application Wizard', 'OK', 'Cancel', and 'Apply'. The 'Launch' button is highlighted with a blue border, indicating it is the next step in the process.

Identifying elements in ACS Mainframe emulator

Using the **Identify** button, highlight the inner window using Win32 Mode spy mode and confirm the selection by using the left-click mouse button.



This will produce the identification grid as below:

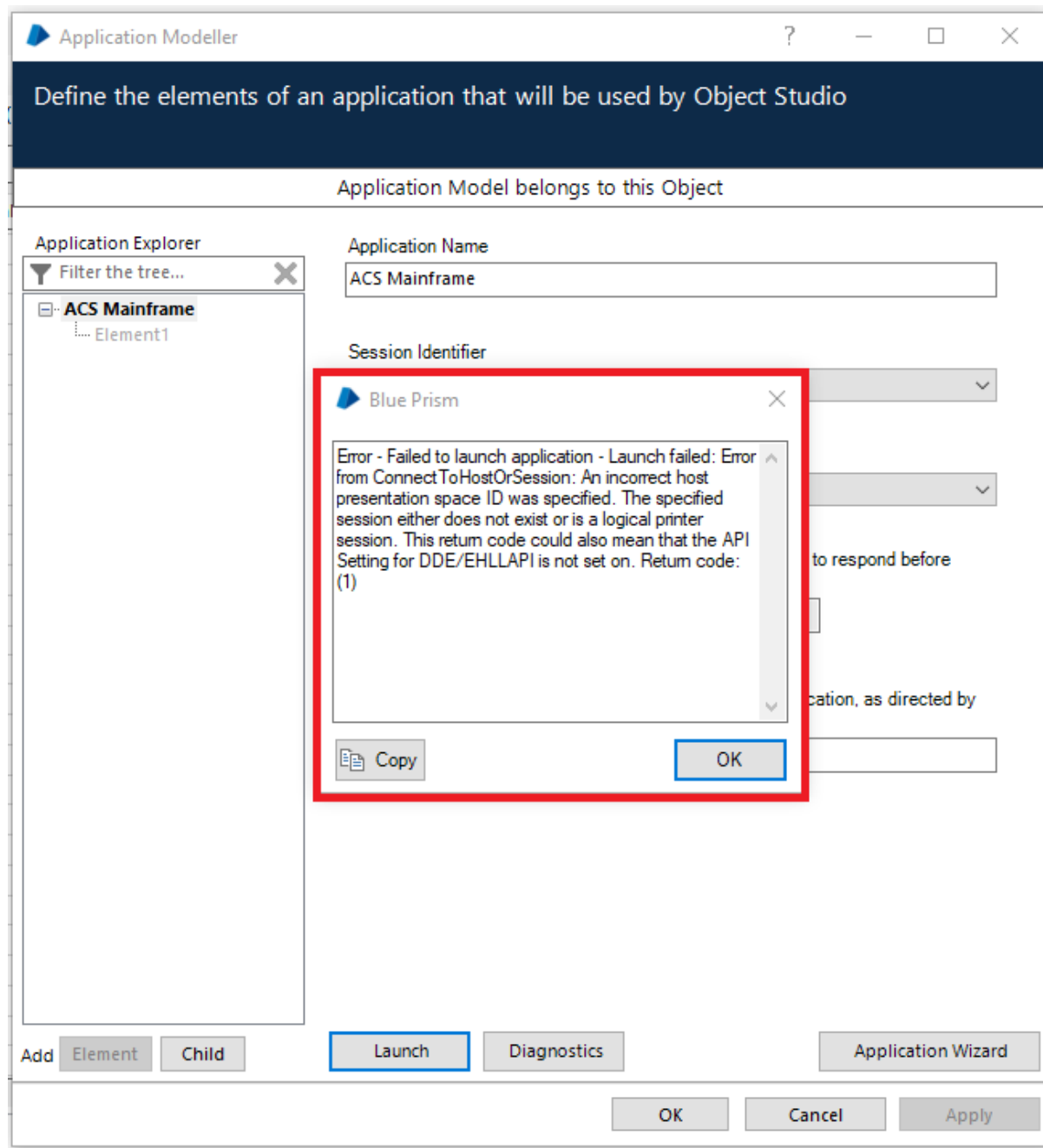


For more details on how to spy a Mainframe application, refer to the [Using the Blue Prism Mainframe Spy Guide](#) available from the **Blue Prism Portal > Documents** section.

Troubleshooting

- **Problem 1:**

If the following error message pops up:



- **Cause 1:**

There is a mismatch of Session ID between ACS Mainframe session ID and Blue Prism Application Modeller Session ID.

To resolve, check the Session ID matches between the ACS Mainframe session configuration and the Blue Prism Application Modeller Session ID.

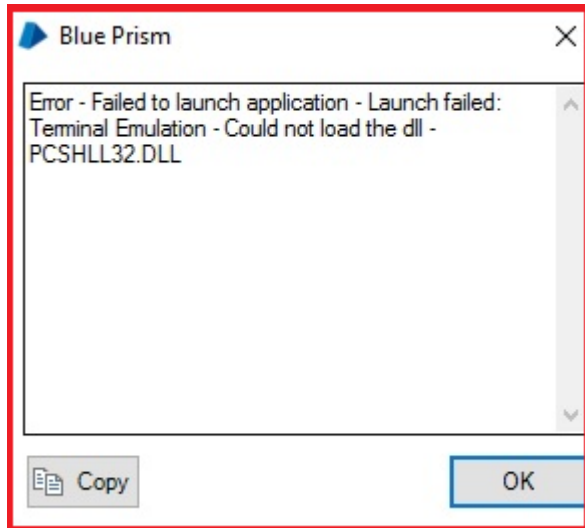
- **Cause 2:**

The Mainframe Session has not launched yet and is not connected to the Mainframe. To resolve, ensure the Mainframe Session is launched and already attached.

- **Problem 2:**

If the following error message pops up, it is because Blue Prism cannot find the relevant library dll file:

"Could not load the dll - PCSHLL32.DLL. "



Solution:

Search **PCSHLL32.DLL** file on the PC and then:

1. Copy PCSHLL32.dll to your "C:\Program Files\Blue Prism Limited\Blue Prism Automate" directory.
2. Copy PCSHLL32.dll to the **Windows system** directory.

The **%windir%\system** variable retrieves the path of this directory for 64-bit files on a 64-bit OS, and 32-bit files on a 32-bit OS.

For 32-bit files hosted on a 64-bit OS the directory is **%windir%\SysWOW64**

- **Problem 3:**

If the Java spy mode does not work on the ACS GUI, then the cause often relates to the Java Access Bridge either not being installed or not being activated.

To resolve this issue, please refer to the [Java Access Bridge User Guide](#) document available on the Blue Prism Portal > Documents section.