



ICA Java Client Drive and Printer Mapping

By Citrix Consulting Services

Citrix Systems, Inc.



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Introduction

The ICA Java client (version 6.2) enables access to a MetaFrame server from a client device running a Java virtual machine (JVM). The JVM can be a PC application, a Java-based device, or a Web browser that supports Java applets. The ICA Java client can be used in one of two modes: applet mode or application mode. Each mode can be used with or without Program Neighborhood.

As **Figure 1** illustrates, the ICA Java client when used in applet mode resides on a Web server. The Web server contains an HTML page with the ICA Java client applet tag. To execute the ICA Java Client in applet mode, the client device must be able to download the Java applet from the Web server. The client device does not store the Java applet itself. However, most browsers cache Java applets so that they do not need to be downloaded each time they are used.

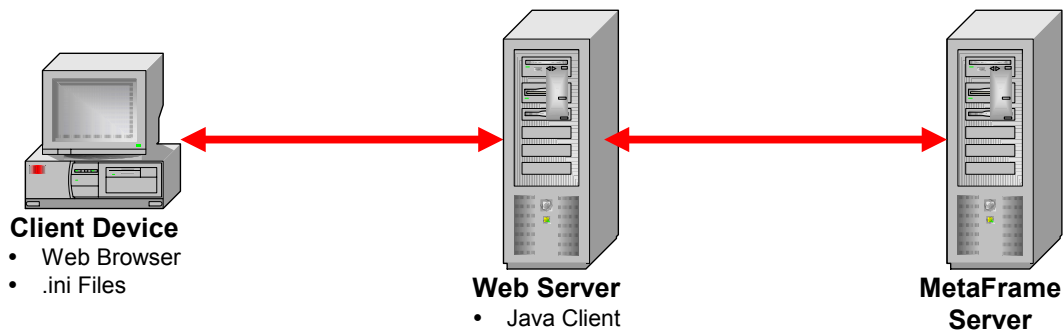


Figure 1: Applet Mode Architecture

As **Figure 2** illustrates, the ICA Java client when used in application mode resides on a client device that has a Java virtual machine installed. Connections to a MetaFrame server are initiated by executing the ICA Java client from the command line. The ICA Java client also includes script files that can be used to automate starting sessions in application mode.

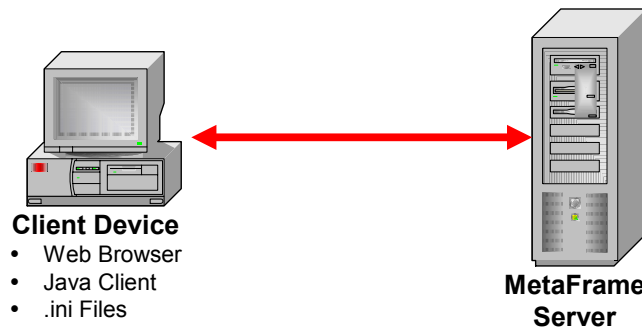


Figure 2: Application Mode Architecture

The ICA Java client supports client device mapping in both applet and application modes. Client device mapping allows a remote application running on the Citrix server to access printers and disk drives attached to the local client computer. The applications and system resources appear to the user at the client device as if they are running locally. Once initiated, drive and printer mapping settings are stored in the appsrv.ini file on the client device. Using the appsrv.ini file, the ICA Java client engine builds an information base that is in turn used to initiate future ICA sessions.



NOTE: This document provides specific instructions on how to map drives and printers using the Citrix ICA Java client in applet mode. Refer to the Citrix ICA Java Client Administrator's Guide for specific directions regarding driving mapping and printer auto-creation in application mode.

Drive Mapping

Drive mapping makes any directory mounted on the ICA client workstation, including CD-ROMs, available to the user during ICA sessions on MetaFrame servers. When a MetaFrame server is configured to allow client drive mapping, users can access their locally stored files, work with them during their ICA sessions, and then save them again either on a local drive or on a drive on the Citrix server. Client drive mapping allows drive letters on the MetaFrame server to be redirected to drives that exist on the client device; for example, drive H in a Citrix user session can be mapped to drive C of the local device running the Citrix ICA client.

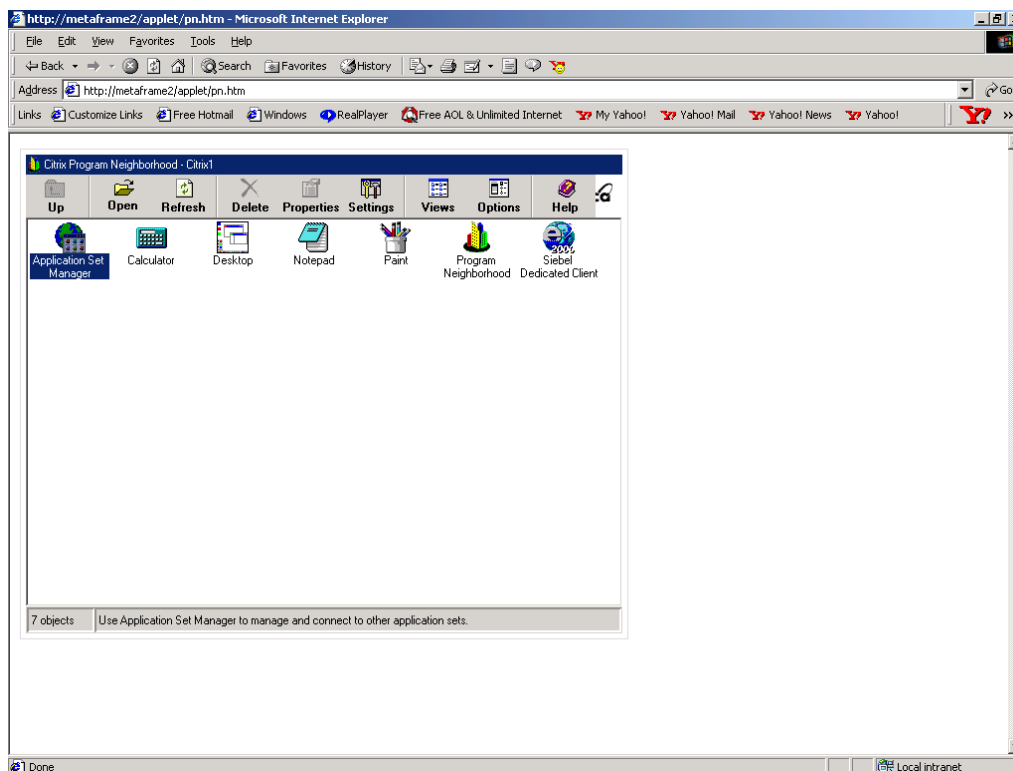
ICA Java client users can configure drive mapping using Program Neighborhood. When drive-mapping configurations are set, they are saved in the browser-specific appsvr.ini file on the client device. If an appsvr.ini file is already present in the respective directory on the client device, then it will be appended with the new drive mapping information. Refer to **Appendix B** for more information regarding the appsvr.ini file.

NOTE: Drive mappings can be configured through parameters in the applet HTML code. Drive mappings might also be pre-configured in the appsvr.ini file, which can be downloaded automatically when the user connects to the Web site. These methods are not recommended because they violate the Java security code.

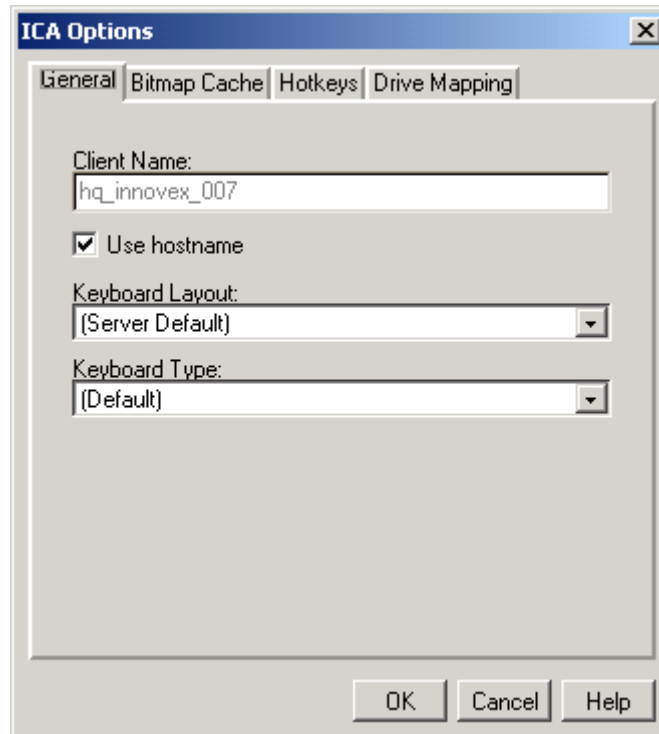
Program Neighborhood

To set drive mapping for the ICA Java client using Program Neighborhood, follow the directions provided below:

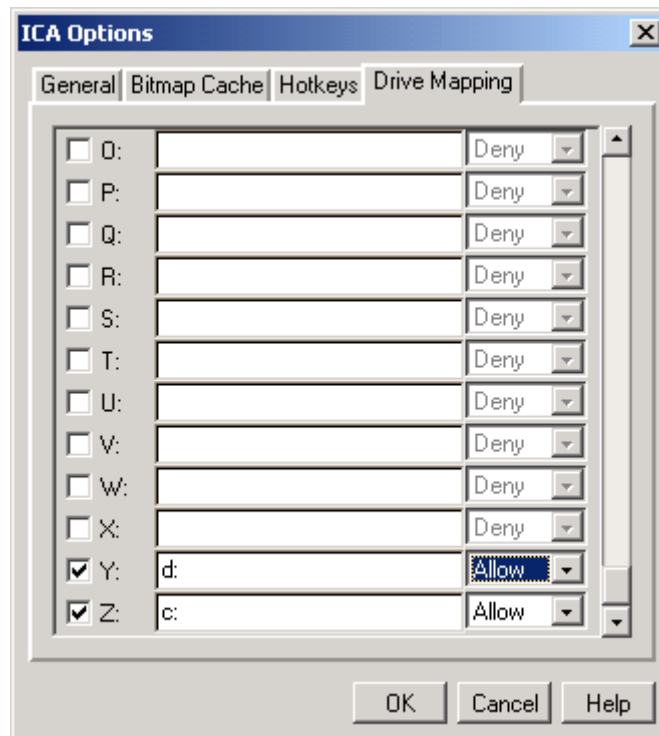
1. Launch Program Neighborhood using the ICA Java client and either Internet Explorer or Netscape. Once the user's credentials have been authenticated, the browser window will be similar to the one shown below.



2. Select *Options* in the upper right-hand corner of the Program Neighborhood screen. The *ICA Options* window shown below will open.

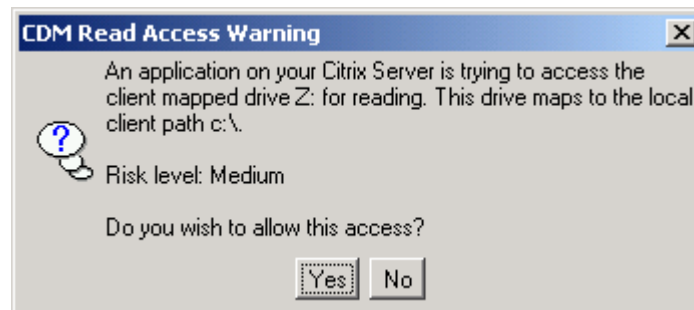


3. Select the *Drive Mapping* tab. You will see letters A: through Z: listed. These letters represent the drive letters available on the MetaFrame server.
4. As shown below, check the drive letters you would like to enable. In the space next to the drive letter, enter the path for the drive as it appears on the client device. Then specify the type of access: *Deny*, *Read*, *Allow*, and *Prompt*.



5. Click *OK* to close the *ICA Options* window.

Drive mappings can be tested using an application launched through Program Neighborhood. When accessing a mapped drive, a window similar to the one shown below may appear. If so, click *Yes* to allow access.



There is a possibility that drives may not appear in an application after they have been mapped. Closing the browser window entirely and then re-launching Program Neighborhood using the ICA Java client may resolve this issue.

This process needs to be followed for each client device that requires drive mapping. Once drive mapping has been configured through Program Neighborhood, then mapped drives should be accessible through other published applications from the same client device.

NOTE: Users need to have access to Program Neighborhood so that they can map their client devices' drives. However, having access to Program Neighborhood may raise issues if Citrix administrators want to restrict access to specific application sets and published applications. User access to the Application Set Manager, Custom ICA Connections, Find New Application Set, and Add ICA Connection in Program Neighborhood icons can be restricted through the HTML code. Refer to Appendix C: PN Configuration for additional information.

Other Drive Mapping Considerations

The following are some considerations to keep in mind when configuring drive mapping using the ICA Java client:

- A client device's floppy disk and CD-ROM drives can both be mapped using the ICA Java client. However, these drives will not appear as being available to the user unless they actually have a diskette or compact disk inserted.
- Date and time stamps are not set on files created or edited on mapped drives using the ICA Java client.
- The ICA Java client cannot be used to report a mapped drive's capacity or usage. Instead, use the operating system of your local machine to determine the capacity of mapped drives.
- Applications sometimes lock the files that they use to prevent other applications from accessing them. The JDK 1.1 API specification includes no support for locking a file; it is, therefore, impossible to do so from within the ICA Java client. Any client drive mapping commands that attempt to do this will appear to succeed, although the lock has not occurred. If two applications attempt to access the same file at the same time, this could result in data corruption.

Printer Mapping

The ICA Java client can be configured to map client printers to an ICA session so that client system users can print to their local or network printers. Printers can be created with ICA Client Printer Configuration or auto-created through HTML code.

Like drive mappings, printer mappings are saved in the browser-specific `appsrv.ini` file on the client device. If an `appsrv.ini` file is already present in the respective directory on the client device, then it can be appended with the new auto-created printer information. Refer to **Appendix B** for information regarding the `appsrv.ini` file. If `printer.ini` also exists in the respective directory and the file contains a `LocalClientPrinters` section, then printers defined in `printer.ini` are used and new printers defined by the client are saved here.

NOTE: The Citrix ICA Win32 client also supports printer mapping. With the Win32 client, users find their local printers mapped to their sessions and ready for use as soon as they connect. If the Connect Client Printers at Logon box is checked in the terminal connection or user profile, the client printers are automatically connected when users log on and are deleted when they log off if the printers do not contain any print jobs. If print jobs are present, the printer (and its associated jobs) is retained.

HTML Code

With the ICA Java client, auto-created printers are configured in the HTML page. When users log on to a Citrix server, their printers appear in Print Manager in the Printers folder and are ready for use. When users log off, their local printers are deleted from the Citrix server.

To auto-create printers, the ICA Java client must be passed three mandatory values and one optional value:

- **Printer name.** Specify any name by which you would like to identify the printer.
- **Port name.** Specify a file name, port name, or printer IP address (or network name) and print queue.
When printing to a port, specify the port (for example, `LPT1:`). When printing to a network printer, specify the printer's IP address or network name and print queue (for example, `ipaddress:printqueuename`).
- **Driver.** Specify the printer driver. This name must exactly match the drive name on the Citrix server.
- **Comment: WFCDefault.** This value makes the printer the default. If the Citrix server is set to connect only to the user's default printer, then this value must be specified.

The parameter name to use when passing the printer name to the ICA Java client is `user.localprinters`. When passing the port name, use the parameter `user.printername.port`, in which `printername` is the name you specify in `user.localclientprinters`. When passing the driver, use the parameter `user.printername.driver`, in which `printername` is also the name specified in `user.localclientprinters`.

An example is given below. This code is excerpted from the `notepad.htm` file shown in **Appendix A**.

```
<param name="user.localclientprinters" value="office">
<param name="user.office.port" value="LPT1:">
<param name="user.office.driver" value="HP OfficeJet Series 700">
<PARAM name="user.office.comment" value="WFCDefault">
```

In this example, the printer's name is *jet*, the port is set to *LPT1:*, and the driver is set to *HP OfficeJet Series 700*. Multiple printers can also be configured, as the code below illustrates:

```
<param name="user.localclientprinters" value="office, laser">
<param name="user.office.port" value="LPT1:">
```

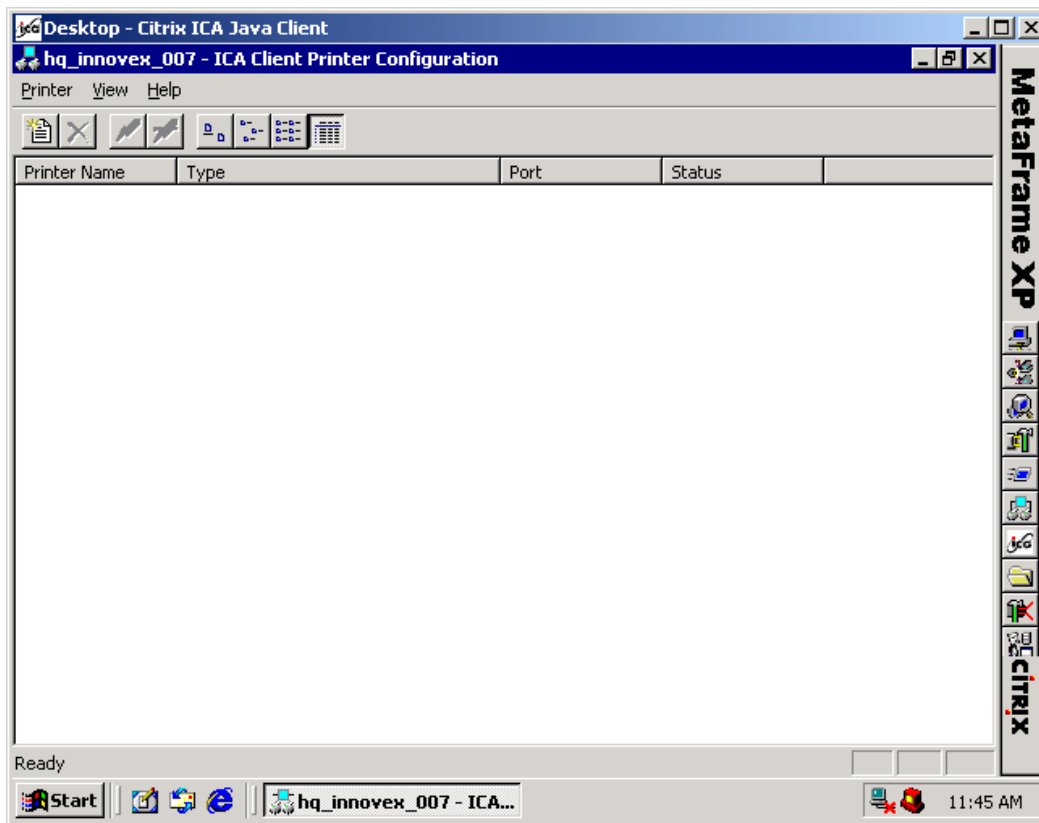
```
<param name="user.office.driver" value="HP OfficeJet Series 700">  
<param name="user.laser.port" value="LPT2:">  
<param name="user.laser.driver" value="HP LaserJet 4050 Series PCL">
```

In this example, the printer's names are *office* and *laser*, the ports are set to LPT1: and LPT2:, and the drivers are set to HP OfficeJet Series 700 and HP LaserJet 4050 Series PCL.

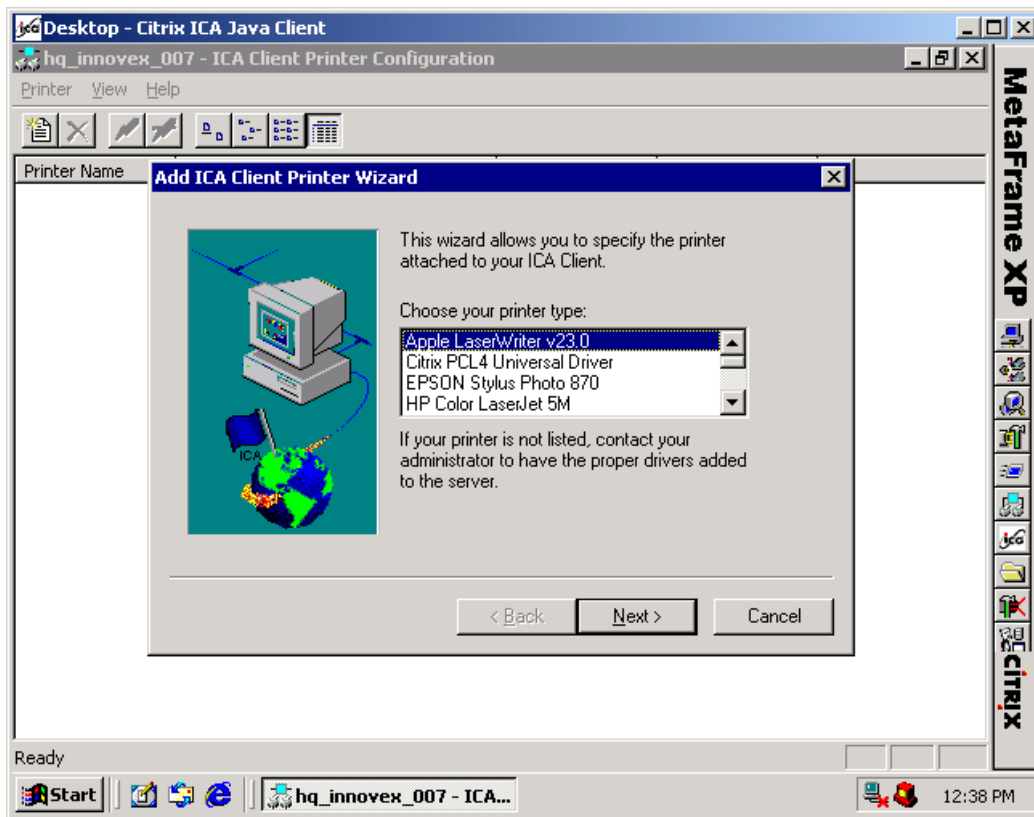
ICA Client Printer Configuration Utility

Users may also configure printers by using the ICA Client Print Configuration utility available through the MetaFrame published desktop. This information is then saved in the browser-specific appsv.ini file located on the client device. To set up printer configuration using the utility, follow the directions given below:

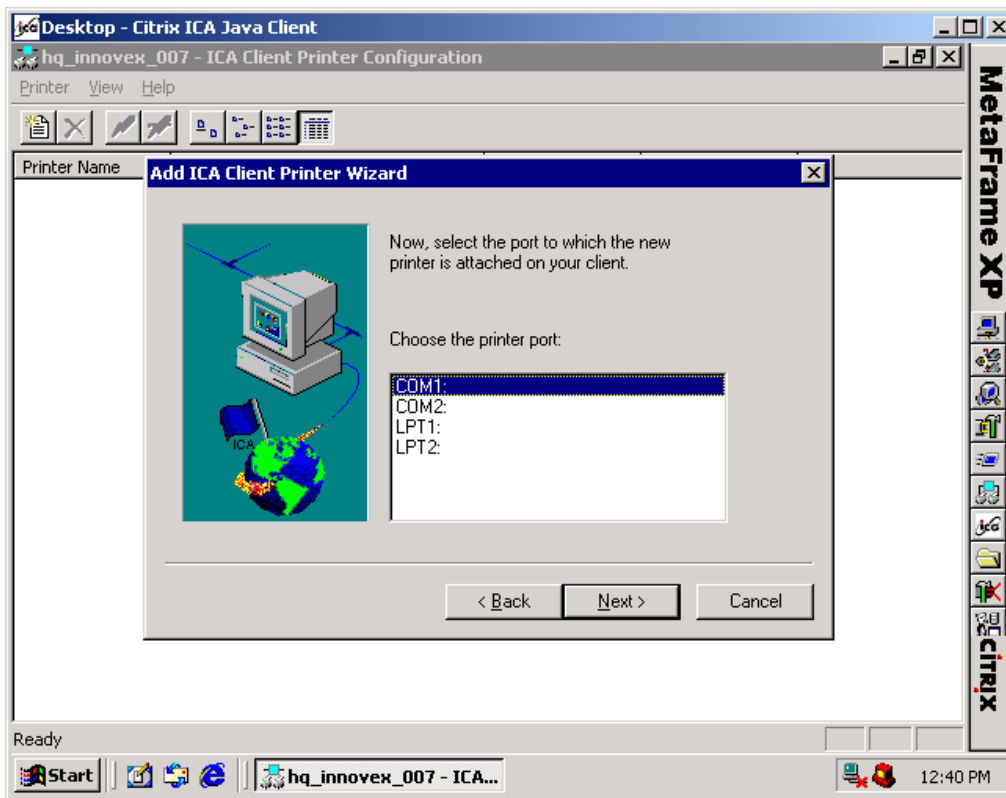
1. Using the ICA Java client, launch a published desktop.
2. Go to Start → Programs → Citrix → MetaFrame XP → ICA Client Printer Configuration. Depending upon your desktop configuration, the utility may be in a different location. A window similar to the one shown below will open:



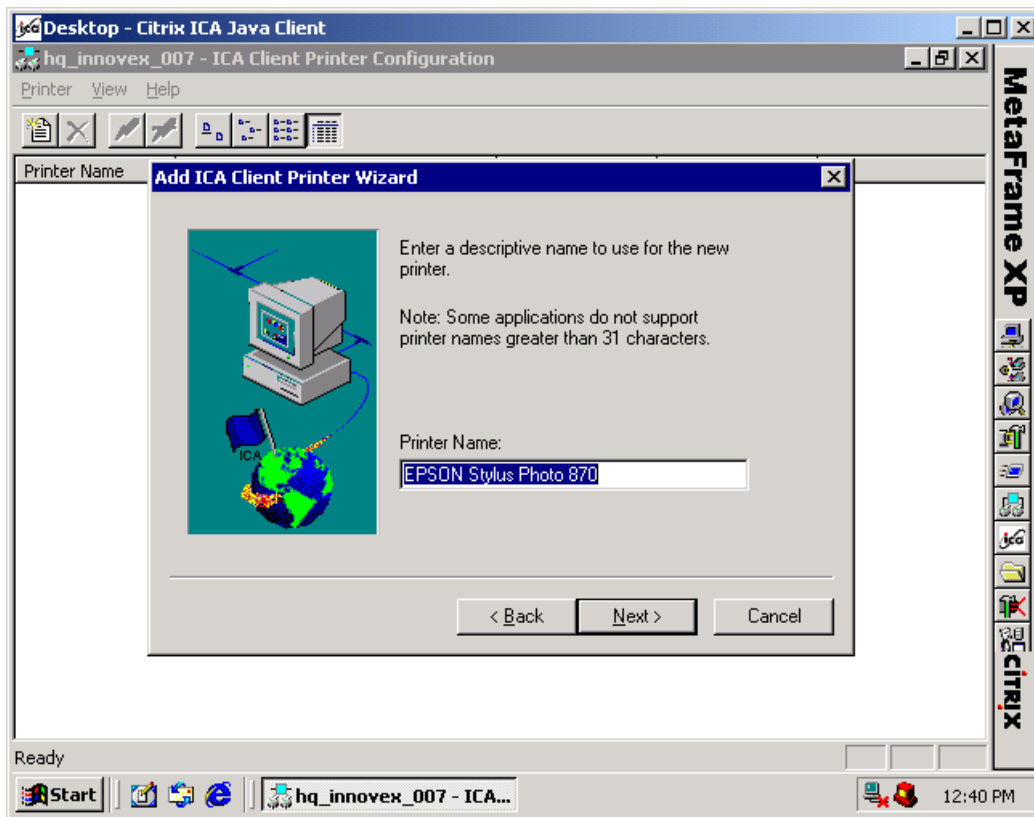
3. From the menu bar, go to Printer → New. As shown below, the Add ICA Client Printer wizard will start.



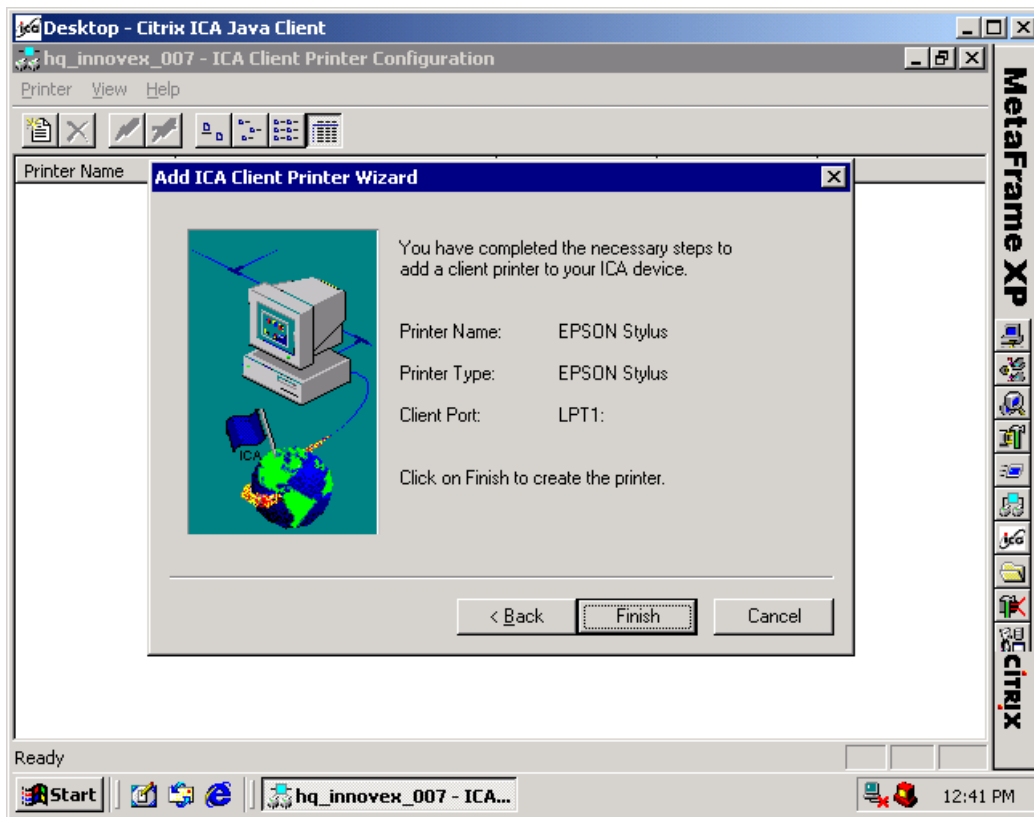
4. From the list of printers currently attached to the client device, select the one that you would like to configure. Click Next. The window shown below will open.



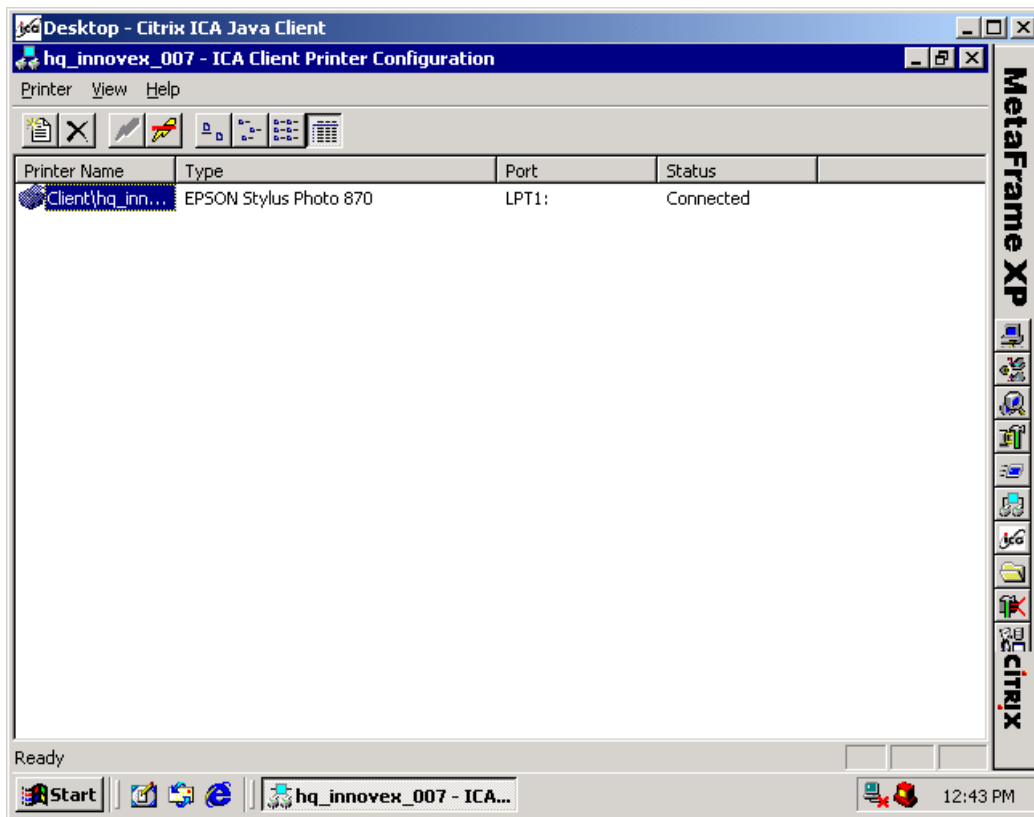
5. Select the printer port. Click Next. The window shown below will open.



6. Accept the default printer name or enter a new one. Click Next. The window shown below will open.



7. Click Finish to create the printer.
8. A message box will indicate that the printer has been successfully created. Click Yes to connect the printer. As shown below, the printer is now listed as connected.



The printer should now be available to use not only with the published desktop but also with any subsequent published application launched from the client device using the ICA Java client.

Other Printer Auto-Creation Considerations

The following are some considerations to keep in mind when configuring printer auto-creation using the ICA Java client:

- To auto-create a printer, the MetaFrame server must have the printer driver installed. If the driver is not installed, the printer is not auto-created. In this case, the system administrator must install the correct printer driver on the MetaFrame server.
- Attempting to auto-create a USB printer might result in the inability to connect to a printer through a terminal session. If this is the case, it is suggested that a parallel port or a USB-to-parallel converter be used with the client device.
- It is recommended that advanced features be disabled for any printer being used through a terminal session. These features may not function properly within a terminal services session. These can be disabled through a printer's properties.
- It is also recommended that any utilities other than the print driver itself not be installed on the MetaFrame server. These utilities are used to perform tasks such as monitoring ink levels on printers. These utilities might not run within a terminal services session and could result in application errors.

Appendix A: HTML Code Examples

This section provides two sets of HTML code that are used to initiate ICA sessions. Pn.htm is used to launch Program Neighborhood, whereas notepad.htm is used to launch Notepad as a published application. Each code set is compatible with both Netscape and Internet Explorer.

The code is provided as a reference and can be used as a means of testing drive mapping and printer auto-creation through the ICA Java client.

Pn.htm

Pn.htm is used to launch Program Neighborhood. Users can use Program Neighborhood not only to launch applications but also to set application configurations, such as drive mapping.

Note how the `com.citrix.pn.class` class file (section bolded) is used in the HTML code to start the ICA Java client in Program Neighborhood mode.

```
<html>
<head>
</head>
<table align="left" border="0" cellpadding="5" cellspacing="1" bgcolor="#D8D8D8" bordercolorlight="#FFFFFF"
bordercolordark="#D0D0D0">
  <tr align="left" valign="top">
    <td bgcolor="#FFFFFF">
      <applet
        code="com.citrix.pn"
        codebase="http://metaframe2/applet"
        archive="JICAEngN.jar
        align="CENTER"
        width="600"
        height="480"
        name="ICA java applet"
        alt="Running ICA java applet">
        <param name="CABINETS" value="JICAEngM.cab">
        <param name="ADDRESS" value="metaframe2">
        <param name="BORDER" value="ON">
        <param name="BORDERWIDTH" value="6">
        <param name="START" value="AUTO">
        <param name="DOMAIN" value="MF-SIEBEL">
        <param name="CLIENTAUDIO" value="OFF">
      </applet>
```

```

        </td>
    </tr>
</table>
</body>
</html>

```

Notepad.htm

Notepad.htm is used to launch the Notepad application on the specified MetaFrame server. By updating the INITIALPROGRAM parameter, the HTML code can also be used to launch other application (section bolded). For example, the parameter value can be set to "#word" to launch the Microsoft Word published application. The HTML code also includes parameters to enable the auto-creation of a predetermined printer (section bolded).

```

<html>
<head>
</head>
<table align="left" border="0" cellpadding="5" cellspacing="1" bgcolor="#D8D8D8" bordercolorlight="#FFFFFF"
bordercolordark="#D0D0D0">
    <tr align="left" valign="top">
        <td bgcolor="#FFFFFF">
            <applet
                code="com.citrix.JICA.class"
                codebase="http://metaframe2/applet"
                archive="JICAEngN.jar"
                align="CENTER"
                width="600"
                height="480"
                name="ICA java applet"
                alt="Running ICA java applet">
                <param name="CABINETS" value="JICAEngM.cab">
                <param name="ADDRESS" value="metaframe2">
                <param name="INITIALPROGRAM" value="#notepad">
                <param name="BORDER" value="ON">
                <param name="BORDERWIDTH" value="6">
                <param name="START" value="AUTO">
                <param name="DOMAIN" value="MF-SIEBEL">
                <param name="CLIENTAUDIO" value="OFF">
                <param name="user.localclientprinters" value="office">
                <param name="user.office.port" value="LPT1:">
            </applet>
        </td>
    </tr>
</table>

```

```
<param name="user.office.driver" value="HP OfficeJet Series 700">  
<PARAM name="user.office.comment" value="WFCDefault">  
</applet>  
    </td>  
</tr>  
</table>  
</body>  
</html>
```

Appendix B: Appsrv.ini Parameters

The appsrv.ini file contains user settings that define application servers and other preferences. An example of an appsrv.ini file is shown below:

```
[WFClient]
TcpBrowserAddress=10.198.1.129
PNDefault=Citrix1
PersistentCacheSize=10485760
Hotkey8Char=minus
KeyboardType=(Default)
Hotkey10Shift=Ctrl
Hotkey4Char=F1
Hotkey7Shift=Alt
Hotkey4Shift=Ctrl
DriveReadAccessK=1
Hotkey9Char=F3
DriveEnabledK=no
Hotkey5Char=F2
DriveWriteAccessK=1
Hotkey9Shift=Ctrl
PersistentCachePath=C:\WINNT\Java\Citrix\Cache
Hotkey6Shift=Alt
Hotkey6Char=F2
PersistentCacheMinBitmap=2057
Hotkey2Char=F3
DrivePathK=
Hotkey10Char=F4
Hotkey7Char=plus
KeyboardLayout=(Server Default)
Hotkey8Shift=Alt
Hotkey5Shift=Ctrl
Hotkey2Shift=Shift
DriveReadAccessJ=1
DriveEnabledJ=no
DriveWriteAccessJ=1
DrivePathJ=
```

```

DriveWriteAccessZ=0
DriveWriteAccessY=0
DrivePathZ=c:
DrivePathY=d:
DriveEnabledZ=yes
DriveEnabledY=yes
DriveReadAccessZ=0
DriveReadAccessY=0

[HP OfficeJet Series 700]
Port=LPT1:
Driver=HP OfficeJet Series 700
Fields=0
Comment=

[LocalClientPrinters]
HP OfficeJet Series 700=

```

As shown, this file is used to store the following information:

- Keyboard layout and type
- Bitmap cache configurations
- Hotkeys
- Drive mappings (section bolded)
- Auto-created printers (section bolded)

For additional information regarding appsrv.ini parameters refer to the [“Appsrv.ini Parameters Deciphered”](#) Citrix knowledge base article.

The settings in the appsrv.ini can be reproduced in the HTML code for the ICA Java client by using the proper syntax. In HTML, the syntax is:

```
<param name=metasection.section.key value=va>
```

Use the following four parameters:

- *Metasection* is the name of one of the sections in the appsrv.ini file.
- *Section* is the name of a section in the appsrv.ini file. Sections are denoted by [] symbols in the appsrv.ini file. For example, the excerpted appsrv.ini file above contains three sections: [WFClient], [HP OfficeJet Series 700], [LocalClientPrinters].
- *Key* is the basic unit of sections. For example, the [WFClient] section of the appsrv.ini file above contains the keys TcpBrowserAddress, PNDefault, and PersistentCacheSize.

To recreate the PNDefault key in the HTML code, specify:

```
<param name="user.wfclient.pndefault" value="citrix1">
```



Parameters set in other INI files, such as module.ini and wfclient.ini, can be set in the same manner. Refer to [Citrix ICA Java Client Administrator's Guide](#) for additional information.

NOTE: Although client drive information is saved in the appsrv.ini file, client drive mapping cannot be configured through HTML code because doing so violates the Java security model.

The appsrv.ini file can be found in one of two directories, depending upon the browser being used. Configurations that are set using one browser, such as Internet Explorer, will not necessarily be available for another browser, such as Netscape. To remedy this issue, you can perform the same steps listed in the **Program Neighborhood** and **ICA Client Printer Configuration Utility** sections using the other browser. You can also copy the appsrv.ini file from location on the client device to another so that it is available for both browsers.

Browser	Appsrv.ini File Location
Internet Explorer	%systemroot%\java\citrix
Netscape	%systemdrive%\documents and settings\%username%\citrix

If an appsrv.ini file is already present in the respective directory on the client device, then it can either be appended with the new drive mapping information or replaced with the newer version.

Appendix C: PN Configuration

This section explains how to hide the icons for Application Set Manager, Custom ICA Connections, Find New Application Set, and Add ICA Connection in Program Neighborhood. It also shows how to the save password option and option to drag an application icon to the local desktop.

Update the HTML code used to launch Program Neighborhood to include the following parameters:

```
<param name="user.wfclient.ApplicationSetManagerIconOff" value="true">
<param name="user.wfclient.CustomConnectionsIconOff" value="true">
<param name="user.wfclient.FindNewApplicationSetIconOff" value="true">
<param name="user.wfclient.AddICAIconOff" value="true">
<param name="user.wfclient.DragoutOff" value="true">
<param name="user.wfclient.NoSavePwordOption" value="true"
```



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