Installation Guide

Feature Release 1 and Service Pack 3 for Citrix MetaFrame for Windows

Version 1.8

Citrix Systems, Inc.

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Introduction

Welcome to Feature Release 1 and Service Pack 3 for MetaFrame 1.8 for Windows NT 4.0, Terminal Server Edition and Windows 2000 Servers. Service Pack 3 provides fixes for known issues in MetaFrame 1.8. Feature Release 1 provides enhancements for MetaFrame 1.8. Feature Release 1 is enabled by installing and activating the Feature Release 1 license. Contact your Citrix software distributor for purchasing information about Feature Release 1.

This document includes the following sections:

- Installing Service Pack 3
- Installing the Feature Release 1 license
- Features included in Feature Release 1
- Configuration and usage instructions
- Fixes included in Service Pack 3

Installing Service Pack 3

This section contains information about downloading and installing Service Pack 3. You can download Service Pack 3 from the Citrix Web site at http://support.citrix.com/ftpserve.htm.

Note If you are running Microsoft Windows NT 4.0 Server, Terminal Server Edition, you need Windows Service Pack 4 or higher for SpeedScreen latency reduction.

➢ **To download the service pack**

1. Using your Web browser, connect to http://citrix.com/support. Click the **Software Updates** tab.
2. Select either **MetaFrame 1.8 for Microsoft Windows 2000** or **MetaFrame 1.8 for Windows NT Terminal Server** from the drop-down list and then click **GO!**
3. Select the appropriate language. Service Pack 3 is available in English, French, German, Spanish, and Japanese.
4. Select Service Pack 3 and download the files you require.
5. When the download completes, locate the downloaded executable file using Windows Explorer and double-click on the file to extract the service pack installation files.
6. Make a note of where the files will be extracted to and then click **Unzip**.
7. Change to the folder where the files were extracted and run **autorun.exe**.
8. Follow the instructions below for installing the service pack or the updated ICA Clients from the service pack CD-ROM beginning with Step 2.

Warning During installation, you are given the option of enabling and configuring the Citrix XML Service. Read the Citrix XML Service section of this document completely before installing Service Pack 3 to ensure you correctly deploy the XML Service.

➢ **To install from the service pack CD-ROM**

1. Insert the MetaFrame 1.8 Service Pack 3 CD-ROM in the CD-ROM drive. If your CD-ROM drive supports Autorun, the service pack installation splash screen automatically appears.

   If the splash screen does not automatically appear, from the **Start** menu, click **Run** and type ***d*:\autorun.exe**, where *d* is the letter of your CD-ROM drive.
2. Click **MF1.8 SP3 for NT4.0 TSE** to install Service Pack 3 on Windows NT 4.0 Server, Terminal Server Edition.

   -or-

   Click **MF1.8 SP3 for Windows 2000** to install Service Pack 3 on Windows 2000 Server.
3. Follow the directions on-screen to complete the installation.

➢ **To install the updated ICA Clients from the service pack CD-ROM**

This procedure updates the ICA Client in the Client Update Database and the ICA Client disk creator database.

1. Insert the MetaFrame 1.8 Service Pack 3 CD-ROM in the CD-ROM drive. If your CD-ROM drive supports Autorun, the service pack installation splash screen automatically appears.

   If the splash screen does not automatically appear, from the **Start** menu, click **Run** and type ***d*:\autorun.exe**, where *d* is the letter of your CD-ROM drive.
2. Click **Client Pack Setup**.
3. Follow the directions on-screen to complete the installation.

➢ **To uninstall the service pack**

1. Double-click **Add/Remove Programs** in the Control Panel folder.
2. Select **Citrix MetaFrame 1.8 Service Pack 3**.
3. Click **Add/Remove**. Follow the on-screen directions to uninstall the software.

Installing the Feature Release 1 License

Feature Release 1 is enabled by installing and activating the Feature Release 1 license.

➢ **To add the Feature Release 1 license**

1. Click the **Start** button. Point to **Programs**. Point to **MetaFrame Tools (Common)**. Click **Citrix Licensing**. The Citrix Licensing utility appears, displaying all licenses currently installed on your MetaFrame server.
2. On the **License** menu, click **Add**. The **Enter License Serial Number** dialog box appears.
3. Type the serial number exactly as it appears on the serial number sticker attached to your Feature Release 1 media pack. Click **OK**. If you enter the serial number incorrectly, an error message appears.
4. A message box containing important information about your license appears, including the grace period before activation is required. Read the information in this box carefully and click **OK** when done.
5. The license number, which is the serial number with an 8-character code appended to make it unique to this server, now appears in the license list.

➢ **To activate your Feature Release 1 license**

1. Log on to your MetaFrame server as an administrator.
2. From the **Start** menu, point to **Programs**, point to **MetaFrame Tools (Common)**, and then click **Citrix Licensing**. Citrix Licensing displays the license numbers for the base server license and any additional services licenses. These are the license numbers you must provide to Citrix to get activation codes.
3. From the **Start** menu, point to **Programs**, point to **MetaFrame Tools (Common)**, and then click **Activation Wizard**. The **Citrix Activation Wizard** dialog box appears.
4. Use the Activation Wizard to connect to the Citrix Activation System. When the **Citrix Activation System** dialog box appears, follow the directions to register your license. Record your activation code exactly as it appears and exit.
5. Switch to Citrix Licensing by pressing ALT+TAB.
6. Select the license you are activating from the list of displayed licenses and then select **Activate Licenses** from the **License** menu. The **Activate License** dialog box appears.
7. Enter your activation code from Step 4 above and click **OK**.

URL to Use for Software Activation

Instead of the Activation Wizard, you can get an activation code from the Citrix Internet Activation URL. Use your Web browser to connect to: http://www.citrix.com/activate.

Features Included in Feature Release 1

See the *ICA Client Administrator's Guides* to see which features are supported by a particular ICA Client.

- **RC5 128-bit Encryption** - Feature Release 1 includes all of the functionality previously included in the 128-bit North American version of Citrix SecureICA Services. Version 6.01 of the ICA Client includes native support for 40-bit, 56-bit, and 128-bit RC5 encryption.
- **NFuse 1.5 support** - Service Pack 3 installs an updated version of the Citrix XML Service, previously called Citrix NFuse Services and installed as part of the NFuse for MetaFrame component. See the *NFuse 1.5 Administrator's Guide* for a list of new features included in NFuse 1.5.

- **Save ICA session starting position** - Version 6.01 of the ICA Client saves the position of ICA session windows between sessions. The window for new connections is displayed in the same location where the previous connection was running.
- **Multi-monitor support** - Version 6.01 of the ICA Win32 Client supports the multi-monitor features of Microsoft Windows 98 and Windows 2000 clients. It also supports the virtual desktop feature provided by some graphics cards for Windows 95 and Windows NT 4.0.
- **Panning and scaling** - Version 6.01 of the ICA Client supports panning and scaling ICA session windows. If the ICA session is larger than the client computer's desktop, you can pan the ICA session window around the full session desktop. Scaling allows you to view more of the ICA session at one time without panning by shrinking the perceived size of the ICA session. See the *ICA Client Administrator's Guides* for instructions about using this feature on a particular ICA Client.
- **Pass-through authentication** - This feature provides the ability to optionally pass the user's local desktop password to the MetaFrame server, eliminating the need for multiple system and application authentications.
- **TCP based ICA browsing** - Version 6.01 of the ICA Client can communicate with the updated Citrix XML Service to enumerate servers and published applications without using the UDP protocol.
- **ICA priority packet tagging** - Enables the prioritization of ICA virtual channels by third-party Quality of Service hardware.
- **Greater ICA session size** - Version 6.01 of the ICA Client supports a maximum session size of 4524 by 3393 pixels. Without the Feature Release license, the maximum size is 1280 by 1024. See "Thinwire 2 Configuration" below for a list of different possible session size and color depth combinations.
- **Greater ICA session color depth** - Version 6.01 of the ICA Client supports high color (16 bit) and true color (24 bit) color depths for ICA sessions. Without the Feature Release license, the maximum color depth is 256 colors. See "Thinwire 2 Configuration" below for a list of different possible session size and color depth combinations.
- **Citrix SSL Relay** - The Citrix SSL Relay secures communications between an NFuse-enabled Web server and your MetaFrame server farm.
- **SpeedScreen Latency Reduction** - Version 6.01 of the ICA Client supports instant mouse click feedback and local text echo. These features greatly increase the perceived performance of ICA sessions over high latency connections. This feature is not available for the Japanese version of MetaFrame.

Configuration and Usage Instructions

The following sections contain configuration and usage instructions for the enhancements in Feature Release 1. To enable these features before configuration, you must install and activate the Feature Release 1 license.

Multi-Monitor Limitations

- To run seamless ICA sessions on a multi-monitor system, the primary monitor must be the left-most and top-most monitor. If you attempt to run a seamless connection on a multi-monitor system with another configuration, the session reverts to running full-screen spanning the virtual desktop.
- The color depth of ICA sessions is limited by the lowest color depth of any display. For example, on a dual-monitor system if one graphics card is configured to display 256 colors and the other graphics card is configured to display 24-bit color, ICA session color depth is limited to 256 colors, no matter on which monitor the session is displayed.
- When seamless ICA sessions are maximized, they are maximized to the primary monitor instead of the current monitor. When using graphics card drivers that create a virtual desktop, sessions are maximized to fill the virtual desktop.
- Pop-up message boxes, dialog boxes, and windows displayed by seamless applications may appear centered to the primary monitor instead of the current monitor. When using graphics card drivers that create a virtual desktop, these elements are centered relative to the center of the virtual desktop.
- Non-seamless ICA sessions are not multi-monitor aware. Pop-up message boxes, dialog boxes, and windows appear centered in the session window regardless of how the ICA session window is displayed across multiple monitors.

Citrix XML Service

The Service Pack 3 installation gives you the option to enable and configure the Citrix XML Service. The Citrix XML Service provides published application data to ICA Clients using the TCP+HTTP network protocol and to NFuse-enabled Web servers. To support NFuse, the XML Service must be installed on all MetaFrame servers to which clients connect.

By default, the Citrix XML Service runs on TCP port 80, the port typically used for Web servers. If you have a Web server running on your MetaFrame server, you must select another port for the Citrix XML Service and then configure your NFuse-enabled Web servers, the Citrix SSL Relay, and all ICA Clients to connect to the XML Service on the new port.

See "Citrix SSL Relay" below for instructions about configuring the Citrix SSL Relay. See the *NFuse Administrator's Guide* for instructions about configuring the NFuse Web server component. See the ICA Client application help for instructions about configuring ICA Clients.

➢ **To change the XML Service port number**

1. Use the Services icon in the Control Panel to stop the Citrix XML Service. On Windows 2000 servers, this icon is in the Administrative Tools folder within the Control Panel folder.

   Important If your Citrix server is running Windows 2000, you must close the **Services** window after stopping the service.

2. At a command prompt, type **ctxxmlss /u** to unload the Citrix XML Service from memory.
3. Type **ctxxmlss /r*nn***, where *nn* is the number of the port you want to use. For example, **ctxxmlss /r88** forces the Citrix XML Service to use TCP/IP port 88.
4. Restart the Citrix XML Service in the Control Panel.

Citrix SSL Relay

The Citrix SSL Relay secures communications between an NFuse-enabled Web server and your MetaFrame server farm. The data sent from the NFuse-enabled Web server to the SSL Relay is decrypted and then redirected to the Citrix XML Service. By default, the Citrix SSL Relay service listens on TCP port 443, the standard port for the SSL protocol. You can configure the SSL Relay to listen on any TCP port, but you must ensure that the port is open on any firewalls between the NFuse-enabled Web servers and the MetaFrame server running the SSL Relay.

To configure the SSL Relay, you must complete the following steps:

1. Obtain a server certificate.
2. Change the SSL Relay port number, if necessary.
3. Install a server certificate.
4. Select the ciphersuites to allow. See the application help for the SSL Relay Configuration tool for instructions.
5. Change the target address or port, or add additional addresses for redundancy. See the application help for the SSL Relay Configuration tool for instructions.

Obtaining a Server Certificate

Your organization's security expert should have a procedure for obtaining server certificates. A separate server certificate is needed for each MetaFrame server on which you install and run the Citrix SSL Relay. Instructions for generating server certificates using a number of different Web server products are on the VeriSign Web site at http://www.verisign.com. The SSL Relay requires certificates to be in Personal Electronic Mail (PEM) format. If your certificate is in Microsoft Internet Information Server Version 4 or 5 format, you can use the Citrix **keytopem** utility to convert it to PEM format.

Citrix NFuse Version 1.5 includes native support for the following certificate authorities (CAs):

- VeriSign, Inc., http://www.versign.com
- Baltimore Technologies, http://www.baltimore.com

To use a different CA, you must install a root certificate for the CA on your NFuse server. See the NFuse documentation for instructions about installing the root certificate on your NFuse server.

Changing the SSL Relay to Listen on a Different Port

The Citrix SSL Relay uses TCP port 443, the standard port for SSL connections. Most firewalls open this port by default. You can optionally configure the SSL Relay to use another port. Be sure that the port you choose is open on any firewalls between the NFuse-enabled Web servers and the MetaFrame server running the SSL Relay.

Important Microsoft Internet Information Server, Version 5.0, which is installed by default on Windows 2000 Servers, allocates port 443 for SSL connections. When running MetaFrame on Windows 2000 Servers, you must either configure IIS to use a different port or configure the SSL Relay to run on a different port. Running any Web server on a MetaFrame server is not recommended.

➢ **To change the SSL port for Internet Information Server Version 5.0**

1. Run Internet Services Manager.
2. Click the plus sign next to the Web site in the left pane.
3. Right-click **Default Web Site** and then select **Properties**. The **Default Web Site Properties** dialog box appears.
4. Select the **Directory Security** tab.
5. Click **Server Certificate**. The Welcome to the Web Server Certificate Wizard appears.
6. Follow the instructions in the Wizard to import your SSL certificate from a Key Manager backup file.

   Note Your certificate must be in Internet Information Server Key Manager format.

7. When your server certificate is installed, switch to the **Web Site** tab of the **Default Web Site Properties** dialog box.
8. Change the **SSL Port** number to something other than 443.
9. Click **OK** to close the **Default Web Site Properties** dialog box.

➢ **To change the SSL Relay port number**

1. Run the Citrix SSL Relay tool.
2. Switch to the **Connection** tab.
3. Type the new port number in the **Relay Listening Port** box.
4. Click **OK**.
5. See the NFuse documentation for instructions about reconfiguring NFuse-enabled Web servers with the new port number.

Installing a Server Certificate

➢ **To convert a Microsoft Internet Information Server Key Storage File or personal information exchange (.pfx) protocol file to PEM format**

At the command prompt, type

%SystemRoot%\sslrelay\keytopem *input-file output-file*

where:

input-file is the server certificate

output-file is the name to use for the new PEM-formatted certificate file

Citrix recommends that you use .pem as the extension for the output file.

➢ **To install a PEM-formatted server certificate**

1. Copy the file to the \certs subdirectory of the keystore directory (%SystemRoot%\sslrelay\keystore, by default).
2. On the taskbar, click the **Start** button and then click **Programs**.
3. Click **MetaFrame Tools (Common)** and then click **Citrix SSL Relay Configuration Tool**.
4. On the **Relay Credentials** tab, select your server certificate from the **Server Certificate** list.
5. Enter the password for the certificate in the **Password** box.
6. Click **OK** to save your changes and close the Citrix SSL Relay Configuration tool.

Updated Program Neighborhood Service

Service Pack 3 installs a new version of the Program Neighborhood Service. If you publish an application on a MetaFrame server with Service Pack 3 installed, you can edit only the application properties on the same server or another MetaFrame server with Service Pack 3 installed. On MetaFrame servers without Service Pack 3 installed, the application settings are read-only and the increased session size and color depth settings are reported incorrectly.

Versions of ICA Clients prior to 6.01 may display application properties incorrectly. Applications configured for window sizes larger than 1280 by 1024 display 1280 by 1024 as the window size. Applications configured for a color depth greater than 256 colors display 256 colors as the color depth.

Versions of MetaFrame prior to Service Pack 2 display no notification to the user if an unsupported session size or color depth is requested. The updated Program Neighborhood Service included in Service Pack 3 notifies the user and explains why the desired session size or color depth is not possible. This notification can be disabled using the twconfig command-line utility, explained below.

Thinwire 2 Configuration

Service Pack 3 includes a new version of the Thinwire protocol for displaying ICA session graphics. Service Pack 3 includes a command-line utility for tuning global Thinwire 2 settings.

Syntax

```
twconfig /query
twconfig [/discard:on|off] [supercache:on|off]
         [/maxmem:nnn] [/degrade:res|color] [/notify:on|off]
twconfig /reset
twconfig /?
```

Options

/**query**
Query current settings.

/**discard**:on|off
Discard redundant graphics operations.

/**supercache**:on|off
Use alternate bitmap caching method.

/**maxmem**:*nnn*
Maximum memory (in bytes) to use for each session's graphics (between 153600 and 7680000).

/**degrade**:res|color
When the **maxmem** limit is reached, degrade session size first or degrade color depth first.

/**notify**:on|off
If on, users are alerted when **maxmem** limit is reached.

/**reset**
Reset all values to defaults.

/**?**
Displays the syntax for the utility and information about the utility's options.

Remarks

Setting the **discard** option to on is most effective on low-bandwidth connections. The MetaFrame server recognizes when multiple updates for the same area of the screen are queued to be sent to the ICA Client, and then sends only the final update. Setting this option to off uses more bandwidth but increases perceived performance.

Within the **maxmem** limit, a number of different possible session size and color depth combinations are available. These values are determined using the following formula: $height \times width \times depth \leq maxmem$ **,** where the *height* and *width* are measured in pixels and *depth* is the color depth in bytes according to the following table:

Color depth	Bytes
16 million colors (24-bit) AKA True Color	3
65,000 colors (16-bit) AKA High Color	2
256 colors (8-bit)	1
16 colors (4-bit)	.5

The following is a list of the maximum session sizes with a 4 by 3 aspect ratio for each color depth at the default **maxmem** value of 5760000 (height by width by color depth):

- 1600 by 1200 by 24-bit color
- 1956 by 1467 by 16-bit color
- 2768 by 2076 by 256 colors
- 3916 by 2937 by 16 colors

SpeedScreen Latency Reduction

SpeedScreen latency reduction settings can be configured on a per-client, per-server, and per-application basis. See the *ICA Client Administrator's Guides* to see if this feature is supported by a particular ICA Client. It is not available for the Japanese version of MetaFrame. By default, instant mouse click feedback is enabled and local text echo is disabled for all applications. Enable local text echo on an application-by-application basis, because only programs that use standard Windows APIs for displaying text work correctly. Test all aspects of an application with local text echo in a non-production environment before enabling text echo for your users. With SpeedScreen Latency Reduction Manager, you can also configure local text echo settings for individual input fields within an application. See the application help for the SpeedScreen Latency Reduction Manager utility and the ICA Win32 Client for more configuration information.

Important Microsoft Windows NT Service Pack 4 or higher must be installed on the MetaFrame server for SpeedScreen latency reduction features to work.

Client Update Database

Because Version 6.01 of the ICA Client includes native support for all previous encryption levels, the ICA Client Update Database was modified to allow one client image to be used to update multiple client models. Version 6.01 of the ICA Client will upgrade previous versions of the ICA Client with Basic, 40-bit, 56-bit, and 128-bit RC5 encryption.

If Version 6.01 of the ICA Client is added to the client update database on a MetaFrame server without Service Pack 2 or greater, only the Basic encryption model of the ICA Client is updated. To force the client update database to update other models (encryption levels) of the ICA Client, copy the basic model directory to the directories for the other models according to the following table. These directories are located in the client update database directory, which is %SystemRoot%\Ica\Clientdb by default.

ICA Client	Basic Encryption	RC5 Encryption
Win32 English	00010003	00010043, 00010083, 000100C3
Win16 English	00010002	00010042, 00010082, 000100C2
Win32 French	00010103	00010143, 00010183, 000101C3
Win16 French	00010102	00010142, 00010182, 000101C2
Win32 German	00010203	00010243, 00010283, 000102C3
Win16 German	00010202	00010242, 00010282, 000102C2
Win32 Spanish	00010303	00010343, 00010383, 000103C3
Win16 Spanish	00010302	00010342, 00010382, 000103C2
Win32 Japanese	00010403	00010443, 00010483, 000104C3
Win16 Japanese	00010402	00010442, 00010482, 000104C2

Fixes Included in Service Pack 3

This service pack includes all hotfixes that were previously released as separate patches and hotfixes, as well as any new fixes that were not previously released. Service Pack 3 includes all hotfixes included in Service Packs 1 and 2. It is not necessary to install Service Pack 1 or 2 before installing Service Pack 3.

Note Although Service Pack 3 also contains MetaFrame 1.8 Feature Release 1, a Feature Release 1 license is necessary to use the features in the feature release.

Note Many hotfix releases are cumulative; that is, they include fixes contained in prior hotfix releases. Issues addressed by hotfixes are listed here once, under the number of the hotfix in which they were first resolved.

These fixes are included in all language versions of Service Pack 3 unless otherwise noted. Numbered hotfixes use the designation M*x*, where *x* indicates English, French, German, Japanese, and Spanish language versions.

Hotfixes for MetaFrame 1.8 for Windows 2000 Servers

Hotfix M*x*182W001

1. Logging out from a local console session on the MetaFrame server on which the SSL Relay service was running caused the SSL Relay service to stop.
2. ICA KeepAlive functionality was not supported for Windows 2000. This hotfix adds a new "ICA KeepAlive" feature so the MetaFrame server can recognize broken sessions and take appropriate action. When the ICA KeepAlive expires, the server disconnects or resets the broken session based on the setting "On broken or timed-out connection...," which is configurable for the user or ICA connection. Two registry values control the ICA KeepAlive feature. Both values can be manually added to the registry key:

   HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Citrix

   Warning Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Use Registry Editor at your own risk.

   IcaEnableKeepAlive: REG_DWORD: 0 or 1
   When this value is 0, ICA KeepAlives are disabled. When this value is set to 1, ICA KeepAlives are enabled. The IcaEnableKeepAlive is set to 1 by this hotfix installation.

   IcaKeepAliveInterval: REG_DWORD: <number in seconds>
   If the IcaEnableKeepAlive value is 1, this value controls the frequency at which ICA KeepAlives are sent to the client. This IcaKeepAlive Interval is set to 60 seconds by this hotfix installation. Sixty seconds is also the default interval if this value is not defined but IcaEnableKeepAlive is set to 1.
3. There was an error in the HTML file that is created by Published Application Manager. The href tag for the Netscape plug-in link was incorrectly entered as <ahref> instead of <a href>.
4. When using Visual FoxPro and browsing a table, users had to triple-click on a Memo field to view it.
5. When using Excel 2000 in an ICA session on Windows 2000/MetaFrame 1.8, the session would Dr. Watson, hang, or exit when:
   - Triple-clicking on a cell
   - Double-clicking on a cell twice
   - Clicking multiple times on different cells

6. QSERVER <server> /LOAD always reported zero for the LoadMemory parameter.
7. This hotfix adds new APIs to Wfapi.dll. These new APIs are used by SNMP.

Hotfix M*x*182W002

1. Chinese/Korean server names and application names did not display properly in various tools and utilities (such as qserver) when running MetaFrame for Windows 2000 with Service Pack 2 on a Korean or Chinese Windows 2000 Server.
2. QSERVER <server> /LOAD always reported zero for the LoadMemory parameter.

Hotfix M*x*182W003

1. For Japanese servers only:

   Corrects the problem where the user's profile settings for the IME tool bar were not used when logging into a published application. This sometimes caused the Japanese IME tool bar to start in the default position instead of the last position. Customizations to the IME tool bar that are stored in the user's profile sometimes failed.
2. Fixes the problem where some environment variables were missing when using the Pass-through client to launch seamless applications.
3. Provides a workaround for some applications that use varying class names in their window instance to use exception window class names. In the case of AutoCad2000i, the main window's class name changes in every instance; for example:

   Afx:400000:8:10008:0:10537

   Afx:400000:8:10008:0:10539

   Afx:400000:8:10008:0:10541
4. Session sharing sometimes failed if applications were published for group membership and the Active Directory service was used.
5. The Winlogon box in seamless mode was cropped and misaligned to the upper left in an ICA session on some lower end model servers.

Hotfix M*x*182W004

1. The Redirector had problems tracking transmit and receive queue sizes for redirected client serial ports. Writes forwarded to the client must not exceed the size of the client's transmit queue.

   A related change to the ICA Win32 Client, which prevents the DTR/DTS signals from being inadvertently reset, is also required to make the scanner's upload/download software function properly. This change is incorporated into the version of the ICA Win32 Client supplied in this service pack.
2. The ICA Win32 Client API calls, GetVolumeInformation and WNetGetResourceInformation, returned incorrect information when run against an ICA Client drive.

Hotfix M*x*182W005

1. Installing MetaFrame 1.8 SP2/FR1 broke UNIX Integration Services auto-logon, the “-exec <command>” option, and the “-lang <keyboard language>” option.
2. During boot up, Termsrv.exe sometimes crashed when trying to clean up autocreated printers after an abnormal or remote session shut down.

Hotfix M*x*182W006

The broken bar (¦) and solid bar (|) symbols were mismapped in the UK keyboard layout for UNICODE clients. This affected the ICA UNIX and Java Clients.

Hotfix M*x*182W007

Microsoft ADPCM audio files (for example: Start.wav used by the Internet Explorer Web browser) when played on an ICA connection set to low quality audio sometimes caused 100% CPU usage per processor per ICA connection and could spike the system's non-paged pool memory. Symptoms ranged from poor performance to multiple TCP and ICA connection errors.

Hotfix M*x*182W008

1. The Web-embedded Win32 Client “session reuse” mechanism was broken (regression from Service Pack 1) without a workaround.
2. Published application command line support could not handle double quote characters in the command line.
3. Published application extended command line support from the ICA Win32 Client 6.01 or later has been retrofitted to the FR1 server to allow full support for the ICA Client Object. This required adding ICA Control Channel support.

4. Corrects the problem where IME buttons were disabled during published application sessions.

   Also corrects the problem where the IME toolbar icon did not appear when it was configured to be located on the taskbar status area (system tray).

5. Detection of mouse double clicks can be performed either on the server or with most Citrix Clients. However, Windows 2000 incorrectly processed client-detected double clicks, which led to application crashes and/or sometimes necessitating additional mouse clicks. This fix disables client-detected double clicks.

   Warning Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Use Registry Editor at your own risk.

   If you want to re-enable client-detected double clicks after installing this fix, make a registry entry at:

   KEY: HKLM\SYSTEM\CurrentControlSet\Control\Citrix

   VALUE: wsxicaAllowClientDoubleClick

   TYPE: REG_DWORD

   If the above registry entry is present and has a non-zero value, client-detected double clicks are enabled. The flag is checked each time a new ICA connection is made.

6. LBAdmin sometimes failed to see both servers in an AS400 when each MetaFrame server had two network interface cards (NICs). This hotfix allows you to disable a NIC for the ibrowser only.

   Replace %systemroot%\system32\ibrowser.exe

   Reboot the computer

   Add the following key to the registry:

   HKLM\SYSTEM\CurrentControlSet\Services\ICABrowser\Parameters\DisabledTcpAddress:REG_SZ:255.255.255.255

   where 255.255.255.255 is the address of the interface to be disabled. This can also be used to “hide” subnets from the browser. The NIC is disabled for the ibrowser and anyone who depends on Brapi.dll.

7. After installing Service Pack 2, a MetaFrame 1.8 server could be integrated into any farm. This problem is solved with the Appcfg.exe file included in this hotfix.
8. Corrects the following printing-related problems:

   Client printers were not being reliably created with the information in the Printer Comment field. Non-fatal errors encountered during printer creation and initialization left the printer connection created but not fully initialized, resulting in orphaned client printers that had to be removed manually.

   Print properties were not restored from the user profiles for autocreated client printers.

   The Windows spooler sometimes crashed when multiple logons simultaneously created, queried, initialized, or deleted client printers. Printer permissions and properties were sometimes corrupted during heavy usage.
9. Usernames of 20 or more characters in length caused a process exception when they logged off.

Hotfix M*x*182W009

1. Corrects the problem where Citrix Server Administration displayed client cache size information as zero (0).
2. Citrix Server Administration sometimes crashed with an access violation after adding certain Microsoft hotfixes.

Hotfix M*x*182W010

The period (.) key did not work on UNIX Clients configured with an Italian keyboard layout.

Hotfix M*x*182W012

The number of COM ports created by Cdmsvc.exe was raised to 9 by changes in MetaFrame 1.8 Service Pack 1. This value was hard coded. This change caused a custom configuration to fail when the modem redirection software would not work with a COM port higher than COM9.

The default remains nine, but you can modify it by defining the following registry key:

Warning Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Use Registry Editor at your own risk.

HKLM\SYSTEM\CurrentControlSet\Services\CdmService\Parameters

Add “DefaultComPorts” as a REG_DWORD value in the range from 0 to 99.

After setting this value, you must manually remove the already defined COM port keys from the key:

HKLM\HARDWARE\DEVICEMAP\SERIALCOMM

Reboot your system.

Hotfix M*x*182W013

Program Neighborhood icons did not refresh when the password was changed.

Hotfix Mx182W014

NFuse 1.5 did not recognize an alternate address when the address was entered using the following syntax:

altaddr ... [/set adapteraddress alternateaddress]

Hotfix M*x*182W015

1. Corrects the problem where domain local groups could not be enumerated when using Published Application Manager on a MetaFrame 1.8/Windows 2000 system.
2. Published Application Manager did not enumerate users and groups when the first domain controller to come on line was not available.
3. When trying to publish an application for a group of users, Published Application Manager disappeared. No error message was received and the group was not added.

Hotfix M*x*182W016

The “<>|” key combination on a German keyboard did not work on UNIX Clients that were configured with a German keyboard layout.

Hotfixes for MetaFrame 1.8 for Windows NT 4.0 Servers, Terminal Server Edition

Hotfix M*x*182T001

1. This hotfix adds new APIs to Wfapi.dll. These new APIs are used by SNMP.
2. The Euro symbol key (AltGr+e) did not work correctly on Linux Clients configured with German or Swiss German keyboard layouts.
3. The DOS Client sometimes experienced display corruption when switching a console application to full screen text mode.
4. Some Visual Basic applications, when published in seamless mode, showed the wrong icon on the taskbar.
5. The Shadow Taskbar Login dialog box supported user names up to 15 characters in length. Users with names longer than 15 characters received an error message when attempting to log on.
6. MFADMIN was slow to display the initial list of servers and data on individual servers on systems where the IPX protocol was installed but all ICA browsers were configured not to participate in IPX networking.
7. The size of an allocated buffer was increased in Cdm.sys to accommodate a backslash (\) being appended to the network path name.
8. Logging out from a local console session on the MetaFrame server on which the SSL Relay service was running caused the SSL Relay service to stop.
9. There was an error in the HTML file that is created by Published Application Manager. The href tag for the Netscape plug-in link was incorrectly entered as <ahref> instead of <a href>.
10. Installing MetaFrame 1.8 SP2/FR1 broke UNIX Integration Services auto-logon, the “-exec <command>” option, and the “-lang <keyboard language>” option.
11. Additional exception flags are implemented to work around various seamless problems.

    Type 4: These windows are to be regarded as IME-related windows with several configuration flags. The registry entries have 4 values as follows:

    Type:DWORD

    ClassName:REG_MULTISZ

    IMEFlag:DWORD

    IMEOwnerDepth:DWORD

Class exceptions for MS-IME are hard coded, but third-party vendor IMEs can specify this flag to fix their problems. Here is the setting for MS-IME98 that is needed if they are not hard coded.

ClassName,	Type,	IMEFlag,	IMEOwnerDepth
MSIMECaret,	4,	3,	0
msime98cnv,	4,	3,	0
msime98mode,	4,	5,	3
msime98cand,	4,	1,	3
msime98ToolTip,	4,	1,	4

Type 8: This is used when applications using non-visible windows and the seamless engine fail to create them. This may result in the application background being visible. The registry entries have 2 values as follows:

Type:DWORD

ClassName:REG_MULTISZ

Type 16: These windows are not to be checked in terms of their size and location. An example of this is a zero byte window that needs to be created by the seamless engine. The registry entries have 2 values as follows:

Type:DWORD

ClassName:REG_SZ

Type 32: This exception is to maintain the parent-child relationship. The symptoms can result in additional items in the taskbar. The HostOwner for these windows is to be taken by the GW_OWNER flag instead of the GWL_HWNDPARENT flag. The registry entries have 2 values as follows:

Type:DWORD

ClassName:REG_MULTISZ

For example, for Visual Basic applications add the following registry entries (Types 16 and 32):

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Citrix\wfshell\TWI\ThunderRT6FormDC]

“ClassName”=”ThunderRT6FormDC”

“Type”=dword:00000030

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Citrix\wfshell\TWI\ThunderRT6Main]

“ClassName”=”ThunderRT6Main”

“Type”=dword:00000030

Hotfix M*x*182T002

1. The Redirector had problems tracking transmit and receive queue sizes for redirected client serial ports. This issue was found in tests with a Symbol Technologies hand-held scanner device. A related fix is in the ICA Win32 Client, Build 931 and above.
2. Citrix Server Administration sometimes crashed with an access violation after adding certain Microsoft hotfixes.
3. Fixes the issue with COM port mapping and applications failing to send data to the client COM port. This sometimes caused applications employing MSCOMM32.OCX for serial port control to report I/O errors.
4. Corrects the problem that occurred during Win32 API calls. GetVolumeInformation and WNetGetResourceInformation returned incorrect information when run against an ICA Client drive.
5. Japanese only: Corrects the problem where the user's profile settings for the IME tool bar were not used when logging into a published application. This sometimes caused the Japanese IME tool bar to start in the default position instead of the last position. Customizations to the IME tool bar that are stored in the user's profile sometimes failed.

Hotfix M*x*182T003

The number of COM ports created by Cdmsvc.exe was raised to 9 by changes in MetaFrame 1.8 Service Pack 1. This value was hard coded. This change caused a custom configuration to fail when the modem redirection software would not work with a COM port higher than COM9.

The default remains nine, but you can modify it by defining the following registry key:

Warning Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Use Registry Editor at your own risk.

HKLM\SYSTEM\CurrentControlSet\Services\CdmService\Parameters

Add “DefaultComPorts” as a REG_DWORD value in the range from 0 to 99.

After setting this value, you must manually remove the already defined COM port keys from the key:

HKLM\HARDWARE\DEVICEMAP\SERIALCOMM

Reboot your system.

Hotfix M*x*182T004

Some Japanese UNICODE keyboard mapping files mapped to incorrect characters. This sometimes caused problems when using a 101 keyboard with the Japanese ICA UNIX Client for the Solaris/SPARC platform. To enable this fix, you must select the 101 keyboard settings from the keyboard type section. Add the following entry to the [KeyboardType] section of the Config/Module.ini file:

101 Keyboard (Japanese)=0x000c0007

When this entry is added, you can select the 101 entry from the client's GUI.

Hotfix M*x*182T005

Diacritic dead keys did not work on ICA UNIX Clients (Linux platform) configured with Portuguese keyboard layouts.

Hotfix M*x*182T006

The paper size was not maintained for autocreated network printers.

Hotfix M*x*182T007

1. Corrects the problem where IME buttons were disabled during published application sessions.

   Also corrects the problem where the IME toolbar icon did not appear when it was configured to be located on the taskbar status area (system tray).
2. When the New Logons setting in Citrix Server Administration was disabled, the change was not apparent in instances where Citrix Server Administration was already running. You can now press Refresh to view the change.
3. After installing Service Pack 2, a MetaFrame 1.8 server could be integrated into any farm. This problem is solved with the Appcfg.exe file included in this hotfix.
4. Corrects the following printing-related problems:

   Client printers were not being reliably created with the information in the Printer Comment field. Non-fatal errors encountered during printer creation and initialization left the printer connection created but not fully initialized, resulting in orphaned client printers that had to be removed manually.

Print properties were not restored from the user profiles for autocreated client printers.

The Windows spooler sometimes crashed when multiple logons simultaneously created, queried, initialized, or deleted client printers. Printer permissions and properties were sometimes corrupted during heavy usage.

5. Usernames of 20 or more characters in length caused a process exception when they logged off.
6. The Web-embedded Win32 Client "session reuse" mechanism was broken (regression from Service Pack 1) without a workaround.
7. Published application command line support could not handle double quote characters in the command line.
8. Published application extended command line support from ICA Win32 Client 6.01 or later has been retrofitted to FR1 server to allow full support for the ICA Client Object. This required adding ICA Control Channel support.

Hotfix M*x*182T008

The period (.) key did not work on UNIX Clients configured with an Italian keyboard layout.

Hotfix M*x*182T009

LBAdmin sometimes failed to see both servers in an AS400 when each MetaFrame server had two network interface cards (NICs). This hotfix allows you to disable a NIC for the ibrowser only.

- Replace %systemroot%\system32\ibrowser.exe
- Reboot the computer
- Add the following key to the registry:

  HKLM\SYSTEM\CurrentControlSet\Services\ICABrowser\Parameters\DisabledTcpAddress:REG_SZ:255.255.255.255

  where 255.255.255.255 is the address of the interface to be disabled. This can also be used to "hide" subnets from the browser. The NIC is disabled for the ibrowser and anyone who depends on Brapi.dll.

Hotfix M*x*182T010

Connecting from an ICA Client with a UNICODE keyboard to a MetaFrame server with a virus scanner sometimes caused the session to lock, resulting in a downed server.

Hotfix M*x*182T011

Program Neighborhood icons did not refresh when the password was changed.

Hotfix M*x*182T012

Running ACT! 2000 in seamless mode caused the server to blue screen when accessing the Groups function ([View] - [Groups]).

Other Fixes in Service Pack 3

MetaFrame 1.8 for Windows 2000 Servers

1. When accessing a mapped client drive, users were unable to change Japanese file names that contained double byte, full width, alphabet characters.
2. When accessing a mapped client drive, users sometimes experienced long delays when attempting to delete a file whose name included 0x5c as a trailing byte.
3. Usernames were limited to 14 characters when connecting with NFuse 1.5 and NFuse Ticketing was implemented.
4. An incorrect error code was returned by the WFShadowSession call.
5. After installing Service Pack 2, Termsrv.exe and Ibrowser.exe sometimes hung on high resolution, color depth displays.
6. The server blue screened during PowerPoint presentations.
7. Published applications using environment variables in the command line or working directory path sometimes did not work properly during session sharing.
8. Autocreated client printers did not inherit the “keep printed jobs” attribute if the DWORD value “fNotInheritKeepPrintedJobs” was set to 1 in the following registry key:

   HKLM\SYSTEM\CurrentControlSet\Citrix\ClientPrinterProperties

   If the registry key or the DWORD value were not present or the DWORD value was not 1, autocreated client printers inherited the “keep printed jobs” attribute. If the administrator did not delete the print job manually after disconnect, the job resumed printing at reconnection time.

   For autocreated client printers that did not have the “keep printed jobs” attribute and the registry key was present with a DWORD value of “fPurgeAnyWay” set to 1, the printing job was deleted at logoff. The client mapped printer was also deleted from the server.

If the registry key was not present, did not have a DWORD value of "fPurgeAnyWay," or the value was not 1, the print job was not deleted. The client printer was not deleted from the server. The print job resumed printing when the user reconnected.

If the autocreated client printers had the "keep printed jobs" attribute, even if the registry key was present and the DWORD value "fPurgeAnyWay was set to 1, the print jobs were not deleted. The client printer was not deleted from the server. The print job resumed printing when the user reconnected.

9. Termsrv trapped during logon/logoff stress testing.
10. Adds support for the Citrix Application Publishing SDK.

MetaFrame 1.8 for Windows NT 4.0 Servers, Terminal Server Edition

1. Corrects the problem where IME buttons were disabled in published application sessions.
2. When the IME toolbar was configured to be on the taskbar sys tray icon, the icon did not appear in the client sys tray.
3. When using the shadow taskbar in a seamless window, other seamless applications (when minimized) did not appear on the local operating system taskbar. The fix to the flag in the following registry key corrects the problem:

   HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Citrix \wfshell\TW1

   SeamlessFlags: 0x40
4. An incorrect error code was returned by the WFShadowSession call.
5. After installing Service Pack 2, Termsrv.exe and Ibrowser.exe sometimes hung on high resolution, color depth displays.
6. The server blue screened during PowerPoint presentations.
7. Usernames were limited to 14 characters when connecting with NFuse 1.5 and NFuse Ticketing was implemented.
8. When generating an ICA file, UDP browsing was used, even if the user specified an HTTP browser in Published Application Manager.
9. Published applications using environment variables in the command line or working directory path sometimes did not work properly.
10. Termsrv trapped when launching multiple ICA sessions from either a single or multiple client devices.
11. Termsrv trapped during logon/logoff stress testing.
12. Adds support for the Citrix Application Publishing SDK.

Citrix ICA Win32 Client

1. During launch, a seamless window did not come to the forefront if the Citrix ICA Client was running in the background.
2. The pass-through client failed for user 11 if ten users had the Program Neighborhood logon screen. The 11th user got a desktop session instead of the Program Neighborhood credentials dialog box.
3. Pass-through authentication was passing the wrong credentials to the ICA Client. Intermittently, the user credentials that are used by the locally installed SMS_Package_Command_Manager service were passed to the client instead of the credentials with which the user logged into the domain.

4. TCP+HTTP browsing failed with the Microsoft ISA caching proxy.
5. All local printers with similar names were autocreated even if the connection was set to create only the main client printer.
6. With some custom applications, if a modal subwindow was minimized while running in seamless mode, the minimized window sometimes lost the functionality of certain buttons; that is, the maximize and minimize window buttons.
7. NFuse clients sometimes did not reconnect to a disconnected session if another MetaFrame server in the farm had a lower load level.
8. The scrolling function of the wheel mouse did not function on Windows 95 in an ICA session.
9. The F1 key on the client device malfunctioned after the Ctrl+F1 hotkey combination was pressed. The F1 key displayed the Windows security popup instead of the application help window.
10. Multiple sessions were opened if multiple seamless window applications were started in rapid succession and the MetaFrame server had custom logon scripts that took longer than 20 seconds to complete. To extend the timeout value, enter the following information in Appsrv.ini under the [WFClient] section:

    SucConnTimout = *xx*

    where *xx* is the time in seconds.
11. "Add shortcut to desktop" failed for Windows 3.51 Workstation clients.
12. When running the ICA Win32 Client on Windows NT 3.51, Wfcrun32.exe did not automatically exit when the user logged off, or when a disconnect or reset occurred.
13. Screen corruption was seen with certain custom applications when run through a second ICA session. Corruption appeared in the form of black and gray boxes on the screen.
14. Icons were upside down in sessions when users upgraded from client build 779 to newer clients.
15. Single sign on did not function with the pass-through client on Windows 2000.
16. The middle submenu window disappeared (or was partially cut off) in the Internet Explorer Context menu in seamless mode. This problem occurred mainly with the Japanese ICA Win32 Client.
17. Client COM port parity errors were incorrectly generated by the ICA Win32 Client on Windows 95.

Citrix Macintosh Client

1. The Mac OS 9.1 displays did not work.
2. NFuse connections did not work with SecureICA.
3. Saving files to a client drive in Word 2000 did not work.
4. Intermittent crashes occurred when using the Office Assistant.
5. Corrects crashes that occurred when selecting an area in Star Office.

Fixes From Service Pack 2

MetaFrame 1.8 for Windows 2000 Servers

Hotfix M*x*181W001

1. A memory leak occurred each time a client connected to Pnsvc.exe.
2. Program Neighborhood Service crashed because of a faulty registry entry.
3. Servers in a server farm were not aware of other servers in the farm after reboots or connection failures.
4. If a server published more than 100 applications, applications were sometimes lost during refresh.

Hotfix M*x*181W002

For session IDs greater than ten, the seamless window manager (Seammgr.exe) would not run, causing session sharing to fail.

Hotfix M*x*181W003

Pass user SID out of WFEnumerateProcess() API.

Hotfix M*x*181W004

The shadow task bar did not function when the ICAPortNumber was changed. This hotfix adds the ability to change the default port number of the shadow task bar. To change the default port number, right click the shadow task bar and choose Properties.

Hotfix M*x*181W005

1. The administrator was unable to add a migration license from a MetaFrame 1.0 base license to a MetaFrame 1.8 server after Service Pack 1 was applied.
2. User License Packs could not be added to a MetaFrame 1.8 for Windows 2000 system after Service Pack 1 was applied.

Hotfix M*x*181W006

1. If the client Module.ini file was misconfigured by setting the WindowSize parameter to a value greater than the MaxWindowSize parameter, client drive mapping could cause a blue screen.
2. Files with long filenames (12 or more characters) could not be seen on the client network from 16-bit applications.
3. Files with long filenames on the client's local drive were not accessible until browsing the client's system root.

Hotfix M*x*181W007

CurTm's were displayed in logoff type in the auditlog. This caused incorrect logon/logoff and connect times to be written.

Hotfix M*x*181W008

The RunOnce key was inoperable with published applications. Applications listed under the RunOnce key did not launch when a session was initiated through a published application.

Hotfix M*x*181W009

When the Microsoft RDP and Citrix ICA Clients were installed on the same client computer, each would use a separate Microsoft Windows 2000 Client Access License.

Hotfix M*x*181W010

Throughput of bytes received via a redirected client serial port was poor, especially if the server application issued reads with small read buffer sizes.

NOTE: For this fix to be complete, you must also use ICA Clients more recent than build 4.21.779.

Hotfix MJ181W011

Could not launch published applications with names containing certain double-byte Katakana characters, double-byte symbols, or Kanji characters. This fix applies only to the Japanese platform.

Hotfix M*x*181W012

Files and folders on client drives were inaccessible if the path length was longer than 110 characters.

MetaFrame 1.8 for Windows NT 4.0 Server, Terminal Server Edition

Hotfix M*x*181T001

1. A memory leak occurred each time a client connected to Pnsvc.exe.
2. If a server published more than 100 applications, some applications could be lost during refresh.

Hotfix M*x*181T002

1. Asynchronous dialbacks occasionally failed to connect back to the client.
2. ICA dialback could not be prolonged. The server called back the client before the client was able to set up its modem for answer mode. To make the server delay before calling the client back:

   A. Navigate to registry key **HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Terminal Server\Wds\icawd\Tds\async**

   B. Add the value to the above registry key: `CallbackDelay: REG_DWORD: {num}` where {num} is the dialback delay in seconds. A reasonable value for the dialback delay is five seconds.

Hotfix M*x*181T003

1. Files with long file names (12 or more characters) on client's local drives were not accessible in ICA sessions until browsing the client's system root.
2. Throughput of bytes received via redirected client serial port was poor, especially if the server application chose to issue reads with small read buffer sizes.

   NOTE: For this fix to be complete, you must also use ICA Clients more recent than build 4.21.779.

Hotfix M*x*181T004

1. The configuration data of published applications was corrupted if there were a large number (more than 400) of published applications in a server farm.
2. Enumerating published applications was slow for large numbers of published applications.

Hotfix Mx181T005

1. When running a seamless published application, the published application lost focus when the IME bar was clicked. This fix applies only to the Japanese platform.
2. Published applications in seamless mode did not get focus when using ALT+TAB, when selecting them on the taskbar, or when clicking on the title bar.

Hotfix M*x*181T006

Microsoft Word file locations were incorrect. This issue occurred when Microsoft Office was installed on a MetaFrame server with remapped drives and the Office Application Compatibility Script was run assigning the RootDrive letter to a remapped drive letter. When a new user logged on, the Word file locations for User Templates, AutoRecovery, and Startup were set to the original drive rather than the mapped drive.

Hotfix M*x*181T007

The server generates a Stop 0A error during a disconnect.

Hotfix M*x*181T008

Vdtw30.dll was causing memory corruption, resulting in various types of blue screen traps. Typically this was a blue screen stop 50 in Win32k.sys.

Hotfix M*x*181T009

1. A memory leak occurred each time a client connected to Pnsvc.exe.
2. If a server published more than 100 applications, applications were sometimes lost during refresh.
3. The Program Neighborhood client used as a pass-through client was not totally multiuser. If the Logon dialog box was accessed by two or more users at a time, the dialog box was visible only to one user until that user was authenticated. Only when that user was authenticated did the dialog box become visible to the next user.

Hotfix M*x*181T010

1. Changes to MetaFrame 1.8 Service Pack 1 could lead to corruption of printer queue permissions.
2. Changes to Service Pack 5 for Windows NT 4.0, Terminal Server Edition, could lead to corruption of printer queue permissions.

Hotfix M*x*181T011

MS-ADPCM audio files played on an ICA connection set to low quality audio caused CPU usage to jump to 100%. When this occurred, new users were unable to connect to the Terminal Server Edition/MetaFrame server. This issue was most prevalent when the start navigation sound setting on Internet Explorer 5 was configured to Start.wav.

Hotfix M*x*181T012

1. Files and folders on client drives were inaccessible if the path length was longer than 110 characters.
2. Attempting to copy or print to an ICA redirected COM port sometimes took three minutes to complete.

Hotfix M*x*181T013

Citrix Server Administration did not show the correct date of hotfix installation.

Other Fixes in Service Pack 2

- The COM+ Catalog did not get updated if the Drive Remapping option was used during MetaFrame installation. To update the COM+ Catalog, perform the following steps (assuming your original drive was C: and your new drive was M: - if that is not the case, substitute the correct drive letters for C: and M:). This fix applies only to MetaFrame for Windows 2000 Servers.
  1. Log off all users and then log in as Administrator on the console.
  2. At the command prompt, map your old drive to your new drive by typing
     ```
     subst C: M:/
     ```
  3. At the command prompt, update your COM+ Catalog by typing
     ```
     drvremap /drive:M /remap /com
     ```
  4. At the command prompt, unmap your old drive by typing
     ```
     subst C: /d
     ```
  5. Reboot your system
- Termsrv.exe caused a Dr Watson in Regappex.dll. This fix applies to both MetaFrame for Windows NT, Terminal Server Edition and MetaFrame for Windows 2000 Servers.
- The server appeared to hang for approximately two minutes after a session with an open redirected serial port was reset. This fix applies to both MetaFrame for Windows NT, Terminal Server Edition and MetaFrame for Windows 2000 Servers.

- Session time did not show up in the Auditlog utility for English and Japanese. At a command prompt, type **ctxaudit /on** and then reboot to start auditing to the event log. The auditing of Windows logons and logoffs does not need to be enabled. Use **ctxaudit /list** and **ctxaudit /time** to format the logon/logoff information that is now in the event log. This fix applies to both MetaFrame for Windows NT, Terminal Server Edition and MetaFrame for Windows 2000 Servers.
- Diacritic keys did not work correctly on ICA UNIX/Linux Clients configured with Spanish, German, French, Swiss (German), or Slovenian keyboard layouts. This fix applies to both MetaFrame for Windows NT, Terminal Server Edition and MetaFrame for Windows 2000 Servers.
- Circumflex key did not work correctly on the ICA AIX Client configured for the French keyboard layout. This fix applies to both MetaFrame for Windows NT, Terminal Server Edition and MetaFrame for Windows 2000 Servers.
- The Citrix Connection Configuration utility did not allow adding a new connection if an async multiport card was installed. When selecting a new connection, the utility exited without error and never displayed the **New Connection** dialog box. This fix applies to both MetaFrame for Windows NT, Terminal Server Edition and MetaFrame for Windows 2000 Servers.
- Document defaults were not restored properly when a user logged on to a MetaFrame server.

Fixes From Service Pack 1

Service Pack 2 includes all of the following fixes from Service Pack 1 for Windows NT 4.0 Server, Terminal Server Edition. It is not necessary to install Service Pack 1 before installing Service Pack 2.

In addition to the issues that are resolved by hotfixes incorporated in Service Pack 1 (listed below), Service Pack 1 also resolves a variety of issues regarding Program Neighborhood. Service Pack 1 provides significantly enhanced Program Neighborhood service stability by incorporating all of the current fixes to Program Neighborhood.

Hotfix M*x*180001

Added support for Citrix Installation Management Services. This hotfix adds the following registry key:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control \Citrix\Installer

Value: SupportedVersion

Data: REG_SZ: 1.001

This registry value indicates that the necessary hotfix files are installed to support Citrix Installation Management Services.

Hotfix M*x*180002

When enumerating trusted domains in Published Application Manager, garbage characters were displayed at the end of the domain names. This prevented applications for these domains from being published.

Hotfix M*x*180004

The Windows Terminal Server TCP keep-alive settings had no effect for broken ICA sessions. This hotfix adds a new “ICA keep-alive” feature so the MetaFrame server can recognize broken sessions and take appropriate action. When the ICA keep-alive expires, the server either disconnects or resets the broken session based on the setting “On broken or timed-out connection...”, which is configurable for the user or ICA connection. Two registry values control the ICA keep-alive feature. Both values can be manually added to the registry key:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Citrix

The ICA keep-alive values are:

IcaEnableKeepAlive: REG_DWORD: 0 or 1

When this value is 0, ICA keep-alives are disabled. When this value is set to 1, ICA keep-alives are enabled. The IcaEnableKeepAlive is set to 1 by this hotfix installation.

IcaKeepAliveInterval: REG_DWORD: <number in seconds>

If the IcaEnableKeepAlive value is 1, this value controls the frequency at which ICA keep-alives are sent to the client. This IcaKeepAliveInterval is set to 60 seconds by this hotfix installation. Sixty seconds is also the default interval if this value is not defined but IcaEnableKeepAlive is set to 1.

The time that elapses between an ICA broken client connection and the MetaFrame server disconnect (or reset) event may be longer than the IcaKeepAliveInterval. For instance, suppose the IcaKeepAliveInterval is set to 15 seconds. A client's ICA WAN connection is dropped at 12:00:00. The server may not put the session into a disconnected (or reset) state until sometime after 12:00:15, although the session will usually disconnect (or reset) within approximately IcaKeepAliveInterval +2 minutes. This is because the Windows NT 4.0, Terminal Server Edition TCP/IP stack retransmits the ICA keep alive packet a number of times at increasing intervals before timing out. When the TCP/IP stack finishes its retransmissions, the session is disconnected (or reset). The TCP/IP retransmission is controlled by the Windows Terminal Server TcpMaxDataRetransmissions registry value. See Microsoft Knowledgebase Articles Q120642 and Q170359 for more information.

Hotfix M*x*180005

1. Fixed problems with publishing audio only files.
2. Citrix Server Administration crashed under heavy stress.

Hotfix M*x*180006

In AutoCAD R14, when drawing a selection box from right to left, many lines were inside the box that should not be there.

Hotfix M*x*180007

The %SystemRoot%\Jet*.tmp files were not deleted when the system shut down because the Terminal Server Licensing service did not receive notification of a system shutdown.

The Service Control Manager sends the SERVICE_CONTROL_SHUTDOWN event synchronously to all services one at a time when a system shutdown begins. A service receives the event only when all services that received the event ahead of it have finished processing the event. If the previous service does not process the event, the following services never receive the event. The system can shut down before a service receives the event, which means a service cannot execute code in its SERVICE_CONTROL_SHUTDOWN event handler. With this hotfix, the ICA Browser service and the Client Network service have been changed to use the CTRL_SHUTDOWN_EVENT event (which is an asynchronous handler) instead of the SERVICE_CONTROL_SHUTDOWN event. This allows other services to execute their SERVICE_CONTROL_SHUTDOWN event handler.

This change does not guarantee that the %SystemRoot%\Jet*.tmp files will be deleted during reboot. Even on a base Windows NT Terminal Server installation, it is possible that this problem could still occur even if MetaFrame is not installed because other installed services could have the same issue that the MetaFrame services had prior to this hotfix.

To delete the old Jet*.tmp files, after installing the Service Pack and rebooting the server, do the following:

At a command prompt, type **DEL %SYSTEMROOT%\JET*.TMP**.

Some files will display the message “The process cannot access the file because it is being used by another process.” This message can be ignored; these files are currently in use and will be deleted when the system is rebooted.

Hotfix M*x*180008

1. The Citrix Server Administration utility did not properly display more than ten add-on licenses.
2. In Citrix Server Administration, disconnected user information was not displayed unless the information was manually refreshed.
3. Updated Published Application Manager help files.

Hotfix M*x*180009

1. DOS client printers print garbage if they are taken offline and placed back online while they are printing.
2. Communications applications such as HyperTerminal would hang when used over a client COM port.
3. Client drive mapping could cause a blue screen.
4. The client COM port was slow when using the TCP/IP protocol stack.
5. The 16-bit client failed to maintain the status of the COM port and failed to detect modem status.

Hotfix M*x*180010

1. The Rumba light pen lost its position after reconnecting to a disconnected session.
2. Certain actions that should have produced graphical feedback would not update the client until another action caused a graphics update. This problem was reproduced by clicking certain Microsoft Excel check boxes.
3. Users were unable to correctly point and select with their pointing device in an ICA session. If a program redefined a mouse pointer to the maximum size (32 x 32 pixels) and placed the hot spot on the lower and/or right border, the clipping was incorrect. All coordinates that were placed on the lower and/or right border were set to 0. Our region is 32x32 pixels containing the mouse pointer sprite. If the hot spot was on the border or outside the range of 0-31, it was clipped incorrectly by performing a logical AND with 31 (5 bits field).

   This issue was reproducible using SAP Front End Server for Windows NT Version 3.1G Beta Release Build 483.
4. From ICA connections, text in Microsoft Outlook was corrupted. Scrolling through the message cleared the problem.

   To enable the Outlook fix, run the following command in a command window at each server on which you want to have the Outlook fix functionality:

   Keysync ICAThinwireFlags /Enable:4

   If you want to disable Outlook functionality, run the following command in a command window at each server on which you want to disable the Outlook functionality:

   Keysync ICAThinwireFlags /Disable:4

   NOTE: The server must be rebooted for either change to take effect.
5. After applying Hotfix M*x*180006, Visio Professional 5 did not work properly.
6. This hotfix contains the code for a more advanced caching technique, called SuperCache. This can result in a large improvement in usability and performance over a slow connection or for applications that tend to redisplay a large area of the screen in response to small localized changes. Example applications that will show a large caching improvement over a slow connection are Microsoft Internet Explorer (IE) and Visual FoxPro. The improvement in IE can be easily seen by comparing the behavior when using the backward and forward buttons. However, because this is a radical change, the new behavior is not enabled by default.

   When SuperCache is enabled, large bitmaps are displayed in a number of columns in left to right order, instead of top to bottom order. This is readily apparent when running a client over a slow line. If this characteristic behavior is not observed, the SuperCache functionality has not been activated.

To enable SuperCache, you need to run the following command at a command prompt at each server on which you want to have SuperCache functionality:

Keysync ICAThinwireFlags /Enable:2

If you want to disable SuperCache functionality, run the following command at a command prompt at each server on which you want to disable the SuperCache functionality:

Keysync ICAThinwireFlags /Disable:2

NOTE: The server must be rebooted for either change to take effect.

Hotfix M*x*180011

1. In Citrix Server Administration, clicking on the Help button in any dialog box returned a message stating that the subject did not exist.
2. The load parameters for all protocols did not show under “Servers” under the Published Applications screen in Citrix Server Administration.

Hotfix M*x*180012

1. Fixed multiple client printer issues:
   A. When a user had more than one client printer defined on his/her desktop and launched an anonymous application session, the defined client printers were created on the server side. If the same user changed his/her client default printer on his/her desktop without terminating the first anonymous application session and launched a second anonymous application session from the same desktop, the default printer was incorrect.
   B. If a user had two separate, concurrent anonymous sessions open on a given server and logged off one session, it was possible that a different user from another client could access the first user’s autocreated client printers. This occurred only when the second user happened to use the same anonymous logon name as the first user.

      For example, suppose the first user was concurrently logged in as “Anon000” and “Anon001.” Both user accounts would have access to the client’s autocreated printers. If the “Anon001” session was logged off, the security on the client autocreated printers was not updated to reflect the fact that “Anon001” no longer had access to the printers. When a second user happened to log on with the “Anon001” account, the second user had access to the first client’s autocreated printers.
   C. If a user launched more than one anonymous application session from the same client, the client default printer(s) was not created for the second session.

2. If the system administrator selected the **Prompt for Password** check box in the Advanced Connection Settings from the Citrix Connection Configuration utility, any anonymous published application prompted for password.

Hotfix M*x*180013

Sessions would intermittently hang or disconnect due to a clipboard contention problem.

Hotfix M*x*180014

The shadow task bar did not work with SecureICA. Trying to shadow a session resulted in the following message:

"You do not have the proper encryption level to access this session."

Hotfix M*x*180015

Adds support for Citrix Resource Management Services Version 1.0a.

Hotfix M*x*180016

Enables SuperCache functionality for 16-color client sessions.

Hotfix M*x*180017

When a new user who requires a password change on initial logon connected to a server farm, she or he was connected to a desktop instead of receiving the password change prompt.

Hotfix M*x*180018

1. If a user changed his NetWare password and password synchronization was turned on, the user was unable to log on with the new password. This hotfix fixes the synchronization.
2. The Win32 Client crashed with Hotfix M*x*180004 installed. It may also have caused a Dr. Watson in Termsrv.exe.

Hotfix M*x*180019

Resolves the issue where normal users (non-administrators) could not enumerate licenses installed on a server. Citrix Installation Management Services requires users to be able to enumerate licenses to connect to the published installation scripts. This affects Citrix Installation Management Services only.

Hotfix M*x*180020

1. Fixed the issue where Cdm.sys could cause a blue screen with a misconfigured client or a zero length write.
2. If one DOS printer had an error, all other printers stopped printing.
3. Fixes the issue where file corruption could occur when writing to a client drive.

Hotfix M*x*180021

If a 16-color client used a cursor with a color depth of one (but not a monochrome cursor), the server eventually crashed because the size of the bitmap was computed incorrectly. In certain cases, the size of a rectangle was computed incorrectly. If the rectangle was at the end of a page, the server sometimes crashed.

Hotfix M*x*180022

This hotfix corrects the problem where Citrix Server Administration and Load Balancing Administration would hang when enumerating trusted domain(s).

Hotfix M*x*180023

1. Fixes the issue where a down-revved Solaris client (or possibly other UNIX clients) whose browser packet data field was byte swapping could cause the ICA browser service to crash.
2. The ICA browser returned bad load-balancing data while checking the registry.
3. Occasionally, query server (qserver) wouldn't show one or more servers on a remote subnet.
4. If the RDP connections number is specified other than unlimited, published applications would not accept more connections than the number specified for RDP.
5. Users connected to a published desktop application could not change their wallpaper, even if they had the appropriate rights.
6. Occasionally, simultaneous disconnections of shadowing sessions disconnected the shadowee.
7. The server could trap with a blue screen in Wdica.sys when using non-English and non-Windows clients.
8. Adds support to send code page (language specifier) information to clients.

Hotfix M*x*180024

The shadow taskbar caused a Dr. Watson.

Hotfix M*x*180025

1. The Win16 Client trapped when pasting a large bitmap into applications such as WordPad or Word 97.
2. Multiple logins to a Sybase SQL Published Application caused some client application logins to flicker and disconnect.

Hotfix M*x*180028

CSRSS (client-server runtime subsystem) did not terminate when a client logged off after being shadowed.

Hotfix M*x*180029

After applying Hotfix M*x*180013 or M*x*180025, if a large amount of data was copied from the local client to the client session, the following error occurred: "There is not enough memory or disk space to complete the operation."

Hotfix M*x*180030

Corrects the issue where Citrix Server Administration crashed if Service Pack 4 with 128-bit encryption (for TSE) was installed.

Hotfix M*x*180031

1. The shadow taskbar could not be used to shadow when a TCP connection was configured to run only published applications.
2. After installing SP4 and/or SP5 for TSE, permissions on autocreated client printers were incorrect, causing the inability to manipulate print jobs.

Hotfix M*x*180032

1. Microsoft's Mup.sys caused the server to trap when opening any file on the client drive.
2. The client caused the server to trap in cdm!CdmCanonicalizeFilename.
3. HyperTerminal caused the server to trap when the Hypertrm.exe process was manually killed during logoff.

Hotfix M*x*180033

1. A MetaFrame server with a zero-user base-license failed to acquire licenses from the license pool.
2. Enhancement to allow command line parameters to be passed to published applications from the client side.
3. ICA session crashed if the user had a command prompt open in full screen mode and performed long scrolling such as typing dir in a large directory.
4. UNICODE clients (for example, the 3.0 Solaris UNIX Client) sometimes caused a shift key to remain in the down position. For example, if the Right Shift key and the ?/ key were pressed and then released, the Right Shift key did not release and any text typed after that was in uppercase.

Hotfix M*x*180034

1. With Hotfix M*x*180019 installed, server icons disappeared in Citrix Server Administrator if they were clicked on by users without administrative rights.
2. If "Hide from ICA Client's server list" was checked on the ICA Browser tab in Citrix Server Administration, Application Configuration failed and displayed the following message:

   "Failed to query the local server's capabilities because the ICA browser is not responding. Published Application Manager cannot continue without this information and will now exit."

Hotfix M*x*180036

Termsrv.exe generated a Dr. Watson in Regappex.dll.

Hotfix M*x*180037

1. ICA sessions using the Java Client prior to 4.11 would freeze shortly after the session was started.
2. Enhancement to allow clients to set the attribute "Always spool RAW datatype." This is available only to Win32 clients.

Hotfix M*x*180038

1. Disabling LPT port mapping in Citrix Connection Center Configuration did not work.
2. Icons in Program Neighborhood Managed Farm disappeared and a Dr. Watson was generated in Pnsvc.exe when the farm was reset.