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# Using MetaFrame XP for Windows, Feature Release 1 with Novell Directory Services

Citrix Systems, Inc.

October 2001



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Version History		
October 1, 2001	Mike Wilson, Ashish Gujarathi, Margaret Pucci	Version 1.0

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# Overview

With Feature Release 1, Citrix® MetaFrame XP™ for Windows® 1.0 supports NDS® (Novell Directory Services®) authentication to MetaFrame XP servers, published applications, and published content. This document explains how to use NDS with Feature Release 1 for MetaFrame XP, NFuse™ 1.6, and the ICA® Win32® Client (Version 6.20).

This document assumes familiarity with NDS and related Novell products. See the Novell Web site at <http://www.novell.com> for more information about the Novell products referred to in this document.

Before you implement the procedures outlined in this book, read and be familiar with the concepts found in the *Administrator's Guide for MetaFrame XP for Windows, Feature Release 1*, the *NFuse Administrator's Guide*, and the *Administrator's Guides* for the ICA Clients you plan to deploy. This document supplements the information in those guides.

The documentation included with MetaFrame XP, Feature Release 1 is available in the **Doc** directory on the MetaFrame XP Feature Release 1 CD-ROM. Documentation for ICA Client software is available on the ICA Client CD-ROM.

## Introduction to Feature Release 1 for MetaFrame XP

Feature Release 1 for MetaFrame XP for Windows includes the following new features and enhancements to MetaFrame XP functionality:

- **Auto Client Reconnect.** With this feature, the ICA Win32 Client automatically reconnects to a session when it detects a dropped connection (when network problems outside of MetaFrame XP occur). Users can continue to work without reconnecting manually, re-entering credentials, and restarting applications. The ICA Java™ Client in embedded mode supports basic automatic reconnection without credential caching (users must re-enter their credentials to reconnect).
- **Content Publishing.** This feature lets you publish document files, media files, Web URLs, and any other type of file from any network location. Icons for published content appear in Program Neighborhood®, on the user's desktop, and in NFuse. Users can double-click published content icons to access content in the same way they access published applications.
- **Connection control.** This feature lets you set a limit on the number of connections that each user can have simultaneously in the server farm. You can also limit the number of concurrent connections to specified published applications, and you can prevent users from launching more than one instance of the same published application.
- **CPU Prioritization.** You can use the CPU prioritization feature to assign each published application in the server farm a priority level for CPU access. This feature can be used to ensure that CPU-intensive applications in the server farm do not degrade performance of other applications. You can give a higher CPU priority to mission-critical published applications and a lower CPU priority to less-important applications.
- **Universal Print Driver.** The new Citrix Universal Print Driver is included with Feature Release 1. This driver can be installed in the server farm and used as the driver for all printers that client users print to in the server farm. The Universal Print Driver eliminates the need to install many separate printer drivers for diverse printing environments.
- **NDS Support.** Support for (NDS) Novell Directory Services allows users in Novell® network environments to log on using their NDS credentials to access applications and content published in MetaFrame XP server farms.

- **SSL Encryption.** This feature enables use of the SSL (Secure Sockets Layer) protocol to secure communication between ICA Clients that support SSL and MetaFrame XP servers. SSL provides server authentication, encryption of the data stream, and message integrity checks. After configuring the Citrix SSL Relay, you can specify the use of SSL when you publish applications.
- **Citrix Web Console.** You can install the new Citrix Web Console on MetaFrame XP servers that have Internet Information Server 5.0 or later installed. You can then monitor MetaFrame XP server farms from any workstation with a supported Web browser. The Citrix Web Console lets you view information about the server farm, published applications, servers, and active sessions, and lets you reset, disconnect, and shadow ICA sessions and send messages to users.
- **MetaFrame XPe components.** Feature Release 1 includes enhancements to Citrix Resource Manager, Citrix Installation Manager, and Citrix Network Manager, which are part of MetaFrame XPe.

For feature descriptions and configuration information, refer to the documentation in the **Doc** directory of the Feature Release 1-Service Pack 1 CD-ROM.

- **ICA session monitoring.** New performance counters for ICA data let you use the Windows Performance Monitor to monitor ICA communication, including bandwidth and compression for sessions, servers, and individual virtual channels, and latency in ICA sessions. Performance monitoring can provide valuable information about utilization of network bandwidth and help determine if a bottleneck exists.
- **Citrix Management Console improvements.** More detailed information about servers and licensing now appears in Citrix Management Console. For example, the Licensing Summary tab now shows the name of feature releases that you install, the number of servers set up to use feature releases, and the feature release licenses that are installed in the server farm.

For information about all new options in Citrix Management Console, see the console's online help.

- **Extended Parameter Passing.** With Feature Release 1, you can associate a file type on a client device with an application published on a Citrix server. When a user double-clicks a local file, the ICA Client passes the file path as a parameter to the Citrix server. The Citrix server retrieves the file and opens it with the associated application in an ICA session.
- **Citrix Program Neighborhood Agent.** The Citrix Program Neighborhood Agent lets you leverage Citrix NFuse to deliver published applications directly to users' desktops, so users can access links to published applications with or without a Web browser. With the Program Neighborhood Agent, links to NFuse-enabled published applications appear in the Start menu, on the Windows desktop, or in the Windows System Tray. Remote applications are integrated into the desktop and appear to the user as local applications.

## MetaFrame XP, Feature Release 1 Features Supporting NDS

When you enable NDS support in Feature Release 1 for MetaFrame XP, you can take advantage of the following features to manage NDS users in your MetaFrame XP server farm. NDS support is not available when a server farm operates in mixed mode for interoperability with MetaFrame 1.8.

**Application/Content Publishing.** You can publish applications and content for NDS users, groups, and container objects.

**Program Neighborhood/Program Neighborhood Agent.** NDS users running the ICA Win32 Program Neighborhood Client or Program Neighborhood Agent can log on to published applications and content using their NDS credentials.

**NFuse 1.6.** NFuse 1.6 includes authentication support for NDS users. NFuse 1.6 also allows *Contextless* authentication.

**Citrix Administrators.** You can assign Citrix administrator privileges to NDS users, groups, and container objects, allowing NDS users to use the Citrix Management Console to monitor and manage a farm.

**Printer Management.** You can automatically create Microsoft Windows network printers for NDS users.

**Connection Control.** You can limit the number of connections that each NDS user can have simultaneously in the farm. You can also limit the number of concurrent connections to specified published applications and prevent NDS users from launching more than one instance of the same published application.

**Pass-Through Authentication.** NDS users running the ICA Win32 Client can use pass-through authentication to transmit their desktop credentials to the server. This eliminates the need for multiple system and application authentications.

**Domains Not Required.** You can configure your MetaFrame XP servers in a workgroup, eliminating the need for Windows NT or Windows 2000 domain structures. The workgroup cannot have the same name as a Windows NT or Windows 2000 domain.

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**Important:** Prior to Feature Release 1, MetaFrame XP 1.0 offered limited support for NDS users through the BUILTIN group. In MetaFrame XP, you select the BUILTIN group to specify dynamic local users managed by Novell's ZENworks® for Desktops when you publish applications and assign users to network printers.

While use of the BUILTIN group is supported in Feature Release 1 for MetaFrame XP for backward compatibility, enabling NDS support in Feature Release 1 is highly recommended. Feature Release 1 allows tighter integration between MetaFrame XP and NDS trees and allows NDS users to take advantage of more features.

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## **NDS Features not Supported in MetaFrame XP, Feature Release 1**

**Multiple NDS Trees.** Although MetaFrame XP server farms can access only one NDS tree, multiple NDS trees can be supported using Novell DirXML™.

**NDS Printer Management.** Although MetaFrame XP does not support auto-creating NDS printers, Novell ZENworks for Desktops does support this.

**Citrix Web Console.** The Citrix Web Console does not support NDS users.

# Implementing NDS Support in MetaFrame XP

You can now use MetaFrame XP to publish applications, desktops, and content for users managed by NDS or Directory Services in Windows 2000 and Windows NT®. However, using MetaFrame XP in a network environment that employs multiple directory services requires careful planning.

Read the following sections carefully before installing MetaFrame XP and Feature Release 1 in an NDS environment.

## Planning your Deployment of MetaFrame XP for NDS Support

Using MetaFrame XP, Feature Release 1 in an NDS environment requires that you carry out the following tasks in the order they are listed. Each task is explained in detail in this document.

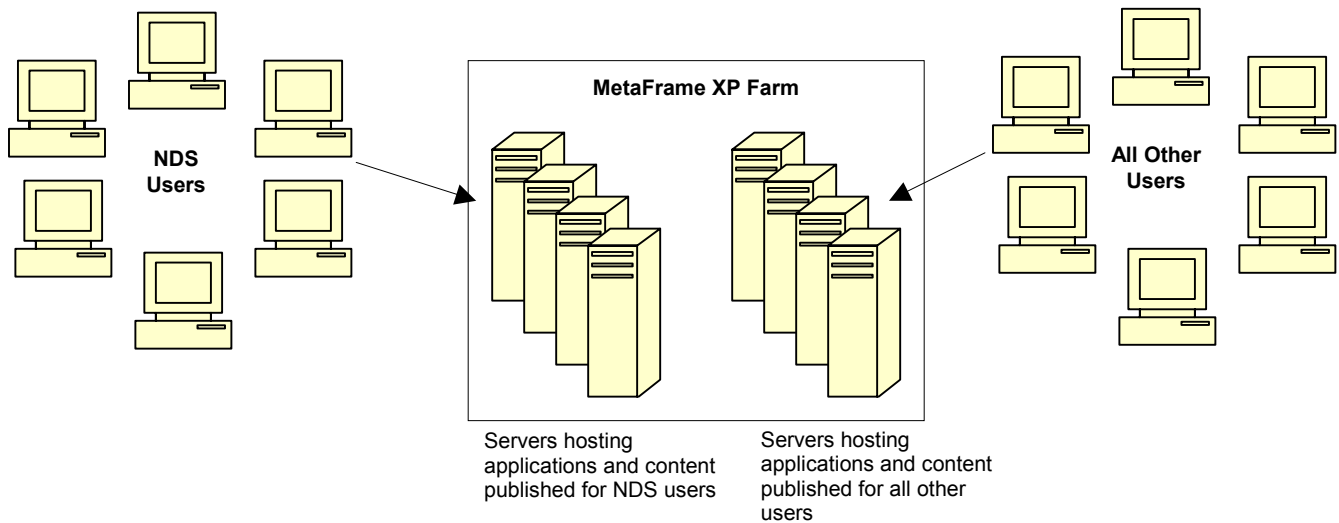
1. Decide which servers will host applications and content published for NDS users when MetaFrame XP is installed.
2. Install the Novell Client™ for Windows NT/2000, Version 4.8 on those servers.
3. Install MetaFrame XP and Feature Release 1.
  - a. Activate the required MetaFrame XP and Feature Release 1 licenses.
  - b. Set the MetaFrame XP server feature release level to Feature Release 1.
4. Enable the Dynamic Local User policy in ZENworks for Desktops (required for MetaFrame XP support).
5. Enable NDS support in the MetaFrame XP server farm.
  - a. Assign Citrix administrator privileges to NDS objects.
  - b. Log on to the Citrix Management Console with NDS credentials.
  - c. Publish applications, desktops, or content for NDS users on MetaFrame XP Feature Release 1 servers to which *only* NDS users will connect.
6. If you are using NFuse 1.6, enable NDS support in NFuse.
7. Instruct end users how to connect to published applications and content using their NDS credentials. If you are deploying the ICA Win32 Program Neighborhood Agent, enable NDS support in the Program Neighborhood Agent.

The sections that follow walk you through the procedures required to use MetaFrame XP in an NDS environment.

## Farm Layout and System Requirements

Using MetaFrame XP in a network environment that employs multiple directory services requires careful planning. While your MetaFrame XP server farm can contain servers that are in Windows NT or Windows 2000 domains and servers enabled for NDS, MetaFrame XP servers running the Novell Client should be members of a workgroup, and not members of a Windows NT or Windows 2000 domain. The Dynamic Local User feature of Novell ZENworks for Desktops, required for MetaFrame XP NDS support, must be used in this configuration.

To implement MetaFrame XP in an NDS environment, you must designate application servers to host applications and content published only for NDS users. These servers must run Version 4.8 of the Novell Client for Windows NT/2000 and MetaFrame XP, Feature Release 1. The following figure illustrates the required layout of a MetaFrame XP server farm supporting NDS.



The following software must be installed for MetaFrame XP to successfully access NDS:

### On Novell Servers:

- Novell ZENworks for Desktops 3 with Service Pack 1 and post hotfixes
- NDS eDirectory™ 8.5 for Windows or for Novell NetWare® 5 with support pack 6 and higher, or for Novell NetWare® 5.1 with support pack 2 or higher

### On MetaFrame XP for Windows Servers:

- Novell Client for Windows NT/2000, Version 4.8 with Service Pack 3
- MetaFrame XP for Windows, Version 1.0
- Feature Release 1 for MetaFrame XP

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**Important:** IP (Internet Protocol) is the only supported protocol for MetaFrame XP, NDS, and ZENworks for Desktops to correctly interact.

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## Installing Required Software

Ideally, you install the Novell Client and related service packs on a server before you install MetaFrame XP. If the server is already running MetaFrame XP, see “Installing the Novell Client on a Server *with* MetaFrame XP” on page 7.

### Installing the Novell Client on a Server Without MetaFrame XP

If you have not yet installed MetaFrame XP, complete the following tasks prior to installation.

1. Install and configure the Novell Client for Windows NT/2000, Version 4.8 and apply the latest service pack.

When you run the Novell Client setup program, choose **Custom Installation Type**. Select the IP protocol only. Select the IPX protocol only if it is required for ICA Client-to-MetaFrame server communication.

**Note:** All multiprocessor servers must have Service Pack 3 for the Novell Client installed for NDS support in MetaFrame XP Feature Release 1.

2. Restart the server.
3. Verify that you can log on to NDS.

If you cannot log on to NDS, you may need to add a Directory Agent (DA) location to the Novell Client. A DA is needed when the Novell server is part of a different subnet. If you do not have a DA, make sure the Novell server and the MetaFrame server are part of the same subnet.

4. To optimize logon and browsing response times, change the order of the network providers on the **Provider Order** tab of the **Advanced Settings** dialog box in your server operating system. Follow these steps to access the **Provider Order** tab:
  - a. Right-click the My Network Places icon on the server's desktop.
  - b. Choose **Properties** from the short-cut menu that appears. The **Network and Dial-up Connections** window appears.
  - c. Choose **Advanced Settings** on the **Advanced** menu. The **Advanced Settings** dialog box appears.
  - d. On the **Provider Order** tab, adjust the order of the network providers so that Microsoft Windows Network is above Netware Services.
  - e. Click **OK** to close the **Advanced Settings** dialog box.
5. To optimize logon time, add the Windows fonts directory located in %systemroot% to the system path environment variable.
6. To suppress a MetaFrame XP setup program error message informing you that the FileSysChange parameter is invalid, complete the following steps:
  - a. Open the System.ini file located in %systemroot%.

- b. In the [386Enh] section of System.ini, set the following value:

FileSysChange=off

- c. Save and close System.ini.

The appearance of this error message causes unattended setup of MetaFrame XP to fail. Make sure the FileSysChange parameter is set to off before running unattended setup.

7. Verify that the Print Spooler service is running on the server. The Print Spooler service must be running in order for the Citrix IMA (Independent Management Architecture) service to start when MetaFrame XP is installed
8. Install MetaFrame XP and Feature Release 1. Be sure to activate the appropriate licenses and set the feature release level of the server to Feature Release 1. See the *MetaFrame XP for Windows, Feature Release 1 Administrator's Guide* and *Advanced Concepts for MetaFrame XP, Feature Release 1* for more information.

If MetaFrame XP 1.0 fails to install, complete the following steps:

1. Uninstall the Novell Client from the server.
2. Install MetaFrame XP, following the instructions in the section "Installing the Novell Client on a Server *with* MetaFrame XP."

You are now ready to configure NDS and ZENworks for Desktops settings for MetaFrame XP support and enable NDS support in your MetaFrame XP server farm.

### Installing the Novell Client on a Server *with* MetaFrame XP

If MetaFrame XP is already installed on the server before you install the Novell Client, you must change the Windows registry on the server before *and* after you install the Novell Client.

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**Warning:** You must use the Registry Editor to modify Windows registry settings. Using the Registry Editor incorrectly can cause serious problems that may result in the need to reinstall the operating system. Citrix makes no guarantee that problems resulting from incorrect use of the Registry Editor can be solved.

Be sure to back up the registry before you edit it. If you are running Windows NT, update your Emergency Repair Disk.

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If MetaFrame XP is already installed on the server, complete the following tasks.

1. Run **regedt32**.
2. Edit the registry key  
HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon
3. Double-click the GinaDLL entry located in the right-hand pane. In the **String Editor** window that pops up, replace the value Ctxgina.dll with the value Msgina.dll.
4. Install and configure the Novell Client for Windows NT/2000, Version 4.8 and apply the latest service pack.

When you run the Novell Client setup program, choose **Custom Installation Type**. Select the IP protocol only. Deselect the IPX protocol if it is selected, unless it is required for ICA Client-to-MetaFrame server communication.

**Note:** All multiprocessor servers must have Service Pack 3 for the Novell Client installed to use MetaFrame XP Feature Release 1 with NDS.

5. Do not reboot when prompted by the Novell Client setup program.
6. Edit the registry entry for GinaDLL as in Step 2. In the **String Editor** window that appears, replace the value Msgina.dll with the value Ctxgina.dll.
7. With the key path for Winlogin still selected, choose **Add Value** on the **Edit** menu.
8. Type CTXGINADLL in the **Add Value** dialog box. The data type is REG\_SZ.
9. Enter nwgina.dll in the **String Editor** window to assign this value to the new CTXGINADLL entry.

**Note:** Steps 1-9 are required to ensure that CTXGINA is installed on the MetaFrame XP 1.0, Feature Release 1 server. CTXGINA is required for logging on automatically with a user name that exceeds 20 characters.

On MetaFrame XP servers, Ctxgina.dll is loaded by Winlogon.exe to process the auto-logon information transmitted by ICA clients. Ctxgina.dll can process auto-logon credentials in excess of 20 characters. For example, if Ctxgina.dll is not loaded, auto-logon user names greater than 20 characters are truncated to 20 characters by Termsrv.exe. When Ctxgina.dll acquires the user's auto-logon credentials, they are passed in their entirety to the installed gina dll file to complete the authentication process. In most cases the installed gina is Msgina.dll. When the Novell Client is installed the gina is Nwgina.dll.

10. Restart the server.
11. To optimize logon and browsing response times, change the order of the network providers on the **Provider Order** tab of the **Advanced Settings** dialog box in your server operating system. Follow these steps to access the **Provider Order** tab:
  - a. Right-click the My Network Places icon on the server's desktop.
  - b. Choose **Properties** from the short-cut menu that appears. The **Network and Dial-up Connections** window appears.
  - c. Choose **Advanced Settings** on the **Advanced** menu. The **Advanced Settings** dialog box appears.
  - d. On the **Provider Order** tab, adjust the order of the network providers so that Microsoft Windows Network is above Netware Services.
  - e. Click **OK** to close the **Advanced Settings** dialog box.
12. To optimize logon time, add the Windows fonts directory located in %systemroot% to the system path environment variable.

You are now ready to configure ZENworks for Desktops settings to enable NDS support in MetaFrame XP.

## Configuring ZENworks for Desktops Settings for MetaFrame XP Support

The Dynamic Local User policy in ZENworks for Desktops must be enabled to use MetaFrame XP with NDS.

When a Novell Client is running on a Windows NT or Windows 2000 server, users are normally required to enter separate credentials to log on to Windows and NDS. Enabling the Dynamic Local User policy in ZENworks for Desktops eliminates this need.

The following section explains how to configure the Container Package and User Package in ZENworks for Desktops to eliminate the need to specify two sets of credentials when connecting to a MetaFrame XP server.

Configure the Container Package to specify which users (by container) should have the Dynamic Local User policy applied to them. Configure the User Package to specify how the Dynamic Local User policy is applied to those users.

**Note:** These settings are configured on the Novell server.

## Configuring the ZENworks for Desktops Container Package

The Container Package searches for policies located within the tree and then applies them to users who are associated with a particular container. Follow the example below to create a Container Package that searches only the local container for policies applied to users within that container. This sample configuration is useful for small companies.

Perform the following steps for containers that hold user objects that require the Dynamic Local User policy.

1. Select a container that holds user objects.
2. On the **New Object** menu, choose **Policy Package > Container Package**.
3. Choose **Define Additional Properties** and click **Finish**.
4. On the **Policies** tab, enable the search policy.
5. In the **Search policies up to** field, choose **Object Container** to search only the container the search policy resides in.

The other choices are:

**Root (default)** – Searches the local container and any container in the direct path to the root of the tree. This is not recommended for medium to large trees.

**Partition** – Searches the Local Container and any container up to the root of the partition. This method works well for large environments – but you need to locate the partition boundaries.

**Selected Container** – Searches the container between the current container and the root of the tree that you select.

6. Leave the search level at the default setting of 0.
7. Click **Apply**, then **Close**.
8. Click the **Associations** tab.
9. Choose **Add** and browse to the container that holds the Container Package you just created.
10. Click **OK**, then **Close**.

## Configuring the ZENworks for Desktops User Package

The User Package in ZENworks for Desktops enables Dynamic Local User functionality for users who are associated with that particular package. Follow the example below to create a User Package that enables the Dynamic Local User functionality.

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**Important:** If the Search Policy Package, the User Policy Package, and the user are not located in the same container, the policy will not be applied to the user.

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1. Choose the Organizational Unit that holds the Container Policy from above.
2. On the **New Object** menu, choose **Policy Package > Container Package**.
3. Near the end of the wizard, choose **Define Additional Properties** and then click **Finish**.
4. Choose **WinNT-2000** on the **Policies** tab.
5. Choose **Enable Dynamic Local User** and then choose **Properties**.
6. Choose **Dynamic Local User** at the top of the page.
7. Choose **Manage Existing NT Account** (if any). This changes the password and other items to match for a seamless integration.

**Note:** Novell recommends that you create a separate Dynamic Local User policy for users who have the user name Administrator if the local administrator account has not been renamed.

8. Choose **Use Netware Credential**. This creates a local Microsoft user who has the same name and password as the NDS user. If this is not enabled, the Dynamic Local User feature creates a random user name and password, resulting in a loss of MetaFrame XP functionality.
9. Do not enable **Volatile User** unless you have very large profiles and want to conserve disk space.
10. On the **Not Member of** tab choose **User > Add**. This adds the user group to the policy and gives its members the proper rights to log on and run applications on the MetaFrame server.
11. Click **Apply** and then **OK** two times to finish the policy.

## Enabling NDS Support in the MetaFrame XP Farm

By default, a MetaFrame XP farm supports only Microsoft Windows users. Follow the steps below to specify the preferred NDS tree for the farm. Feature Release 1 for MetaFrame XP supports only one NDS tree per farm.

1. Log on to the Feature Release 1 Citrix Management Console to connect to a MetaFrame XP, Feature Release 1 server configured for NDS support.
2. Right-click the farm node in the left pane of the console and choose **Properties**.
3. Click the **MetaFrame Settings** tab in the **Properties** dialog box.
4. Specify the tree name in the **NDS Preferred Tree** field and then click **OK**. To disable NDS support for the farm, erase the value in the **NDS Preferred Tree** field and then click **OK**.

## Assigning Citrix Administrator Privileges to NDS Objects

Follow the steps below to assign Citrix administrator privileges to objects in an NDS tree such as country, organization, organization unit, group, user, or alias.

1. Log on to the Feature Release 1 Citrix Management Console.
2. Right-click the Citrix Administrators node in the left-hand pane and choose **Add Citrix Administrator** from the menu that appears.
3. In the **Add Citrix Administrator** dialog box, open the NDS tree. Objects in the NDS tree represent container and leaf objects.
4. When prompted to log on to the tree, enter the distinguished name and password of an NDS user.
5. Select the **Show Users** option to display user and alias objects in this hierarchy.
6. Double-click to open container objects. Select the objects to be granted Citrix administrator privileges. Add at least one NDS user account that has read and write privileges.

**Note:** While it is possible to grant a Citrix administrator access to a context, users within the context or in contexts that are children of the granted context will also be Citrix administrators. This is not recommended because of the difficulty in managing permissions granted to contexts.

7. Click **Add**. Choose read-only or read-write privileges.
8. Click **OK** to close the **Add Citrix Administrator** dialog box.

## Logging on to the Citrix Management Console Using NDS Credentials

Follow the steps below to log on to the Citrix Management Console using NDS credentials to administer a MetaFrame XP farm.

1. Launch the Feature Release 1 Citrix Management Console.
2. Enter a distinguished name in the **User Name** field. A fully distinguished name starts with a period and has a period between each object name up to the root of the tree.  
  
For example, user JoeX, within two container objects (the Admin organization unit within the PNQ organization) would enter .JoeX.Admin.PNQ in the **User Name** field.
3. Enter a password in the **Password** field.
4. Enter the NDS tree name in the **Domain** field.
5. Click **OK**.

## Publishing Applications for NDS Users

Follow the steps below to publish applications on MetaFrame servers configured for NDS support. Only NDS users can connect to the applications you publish on these servers.

1. Log on to the Feature Release 1 Citrix Management Console using NDS credentials.
2. From the **Actions** menu, choose **New > Published Application**.
3. Follow the instructions in the Published Application wizard. Click **Help** to obtain detailed help for each step.

4. In the **Specify What to Publish** dialog box, type the UNC (universal naming convention) path to the application you want to publish in the **Command Line** field.

For example, the NDS tree MYNDSTREE contains organization object MYORG, which contains NetWare volume NW50\_SYS. The executable path on NW50\_SYS is \APPS\OFFICE\WINWORD.EXE. The full UNC path to Winword.exe is \\MYNDSTREE\MYORG\NW50\_SYS\APPS\OFFICE\WINWORD.EXE.

You can leave the **Working Directory** field blank.

5. Because the application publishing wizard cannot access the application's icon, default MetaFrame XP icons appear in the **Program Neighborhood Settings** dialog box. To use the application's icon, you can copy the icon file (ending with an .ico extension) or the entire executable to a MetaFrame server that is not running the Novell Client. Click the **Change Icon** button to browse for the icon or executable on this other MetaFrame server.
6. In the **Specify Servers** dialog box be sure to select *only* those servers running the Novell Client (Version 4.8).
7. In the **Specify Users** dialog box, select the NDS tree from the list. This enumerates the objects in the tree. Double-click container objects to open them. Choose the **Show Users** option to view users and alias objects in the current container. Select the desired object and click **Add**.

You can also manually enter NDS user names. Choose **Add List of Names** and enter one or more NDS account names separated by semi-colon (;). Each account name must be entered in the fully distinguished name format prefixed by an NDS tree name and a slash (\). For example, enter CitrixNDSTree\joeX.admin.pnq;CitrixNDSTree\mary.test.pnq.

Click on **Check Names** to validate the account names or click **OK** if you are done adding accounts.

Double-click to open container or leaf objects until the object to be granted access is displayed. Select the object and click **Add**.

8. Click **Finish** to close the wizard.

## Configuring Printer Autocreation in NDS

Use Citrix Management Console to choose Windows NT or Windows 2000 Active Directory print queues and assign them to NDS objects for autocreation. Permissions to the print queue must be granted to the Dynamic Local User created when the NDS user logs on to a server. This may require enabling the guest account on the print server. See the Microsoft online knowledge base article Q271901 for information about enabling the guest account.

MetaFrame XP does not support autocreating NDS printers. See Novell's documentation for autocreating NDS printers (NDPS and non-NDPS) in ZENworks for Desktops.

## Enabling NDS Support in NFuse 1.6

Complete the following tasks to configure Citrix NFuse 1.6 for NDS support.

1. Open the NFuse.conf file located in the %systemroot%\java\trustlib directory on the NFuse Web server.
2. Edit the following parameters:

Set the LoginType to NDS.

Set the NDSTreeName to the name of the preferred NDS tree for the MetaFrame XP Feature Release 1 farm.

If the optional parameter SearchContextList is not set, the NFuse "Contextless" authentication feature searches the entire tree to locate a user. This may take a long time in a tree that has a lot of objects. SearchContextList can be used to reduce the time required for Contextless authentication. Set this parameter to a comma-delimited list of contexts from the NDS tree. The NFuse Contextless authentication feature searches only these contexts to locate the user instead of the entire tree.

**Note:** The Novell Client must be running on the NFuse Web server to allow Contextless authentication.

3. Restart the IIS Admin Service for the changes to take effect.

## NDS Support in the ICA Win32 Client

When users launch ICA Win32 Client software, they can log on and be authenticated using their NDS credentials. Supported NDS credentials are user name (or distinguished name), password, directory tree, and context.

NDS support is integrated into the following:

- **Program Neighborhood and Program Neighborhood Agent** – If NDS is enabled in the MetaFrame XP farm, NDS users enter their credentials on an NDS tab on the ICA Client logon screen. If users have the Novell Client (Version 4.8) installed, they can browse the NDS tree to choose their context. See “Enabling NDS Support in the ICA Program Neighborhood Agent” in the following section to configure the Program Neighborhood Agent for NDS support.
- **Pass-Through Authentication** – If users have the Novell Client (Version 4.8) installed, their credentials can be passed to the MetaFrame XP server, eliminating the need for multiple system and application authentications. To enable pass-through authentication, set the “Use Netware Credentials” value in Novell ZENworks for Desktops dynamic local user policy package to On.
- **Custom ICA Connections** – When users run the Add New ICA Connection wizard, they must enter a distinguished name in the **User Name** field and a password in the **Password** field. Leave the **Domain** field blank.

To use NDS logon information with earlier versions of ICA Win32 Clients, enter the NDS tree name in the **Domain** field and a distinguished name in the **User Name** field on the ICA Win32 Client logon screen.

## Configuring Default Contexts for Users

Configuring default contexts for users eliminates the need for users to know their context when they log on. There are two possible ways to configure default contexts on ICA Client devices.

- **Enable single sign-on in the ICA Client.** If the ICA Client device is running the Novell Client, enable single sign-on in the ICA Client. If single sign-on is enabled in the ICA Client, the user name context and password are passed from the Novell Client to the MetaFrame server.
- **Edit the Windows registry on the client machine.** Create a script using regini that modifies the registry entry HKEY CURRENT USER\Software\Citrix\CtxLogon with the correct context of the user. Edit the value RecentContexts to specify context(s). Each context must appear on a new line.

## Enabling NDS Support in the ICA Program Neighborhood Agent

Complete the following tasks to allow NDS users to log on to the ICA Win32 Program Neighborhood Agent.

1. Open the Config.xml file located in the InetPub\Citrix\PNAgent directory on the NFuse Web server.
2. Edit the following parameters:
  - Set Logon/SupportNDS to true.
  - Set Logon/NDS\_Settings/DefaultTree to the name of the preferred NDS tree for the MetaFrame XP Feature Release 1 farm.
3. Restart the IIS Admin Service on the NFuse Web server for the changes to take effect.
4. Restart the Program Neighborhood Agent.

# Appendix A: Troubleshooting and Known Issues

This section lists troubleshooting tips and known issues that can occur when using MetaFrame XP Feature Release 1 in an NDS environment.

## Unable to Log On to Session

If you are unable to log on or to assign rights to published applications using NDS credentials, try the following troubleshooting tips to correct the problem:

- Verify that NDS is enabled for the farm.
- Verify that you are using a valid user name, password, context, and tree name when logging on.
- Verify that the Novell Client is configured correctly for your network.
- Verify that the Novell Workstation Manager service is pointing to the correct tree. In the Network Adapter in Windows 2000 check the Novell Workstation Manager properties.
- Verify that Dynamic Local User policies in ZENworks for Desktops are being applied.
- Make a desktop connection to the server without using any auto-logon features.

If **Anon0000** is displayed in the user name field of the Novell logon dialog box when you attempt to log on to an application published for anonymous connections, verify that NDS is enabled in the farm.

## Dynamic Local User Policies Not Being Applied

If dynamic local user policies are not being applied on some MetaFrame XP servers check the Novell Workstation Manager component of the Novell Client. To check the Novell Workstation Manager component in Windows 2000, complete the following tasks:

1. Right-click the My Network Places icon on your server's desktop and select **Properties**.
2. In the **Network and Dial-up Connections** window, right-click **Local area Connection** and select **Properties**.
3. Select **Novell Workstation Manager** from the components list and click the **Properties** button.
4. Verify the following settings:
  - a. Workstation Manager is enabled
  - b. The tree name is set to the tree that has the policies applied
  - c. All other options have the default settings applied

**Note:** If you set the dynamic local user policy in NDS to delete users after they log out (Volatile User option) and the volatile user accounts are not being deleted make sure the **Enable Volatile User Caching** option is disabled.

## Long NDS Distinguished Names

When NDS distinguished names are longer than 20 characters, the Novell Workstation Manager may not create a dynamic local user account. Absence of a dynamic local user account prevents end-users running the Program Neighborhood Client or the Program Neighborhood Agent from logging on. This situation also prevents users from logging on through NFuse. In addition, the Novell Client does not support NDS distinguished names that are longer than 48 characters.

This problem is evident when the Novell Workstation Manager is under stress. This is an open issue with Novell. See Novell case number 2633549.

You can work around this issue by creating aliases for all users and placing the aliases in a container. Verify that the total number of characters in the user name and context does not exceed 20. With this setup, users need to remember only one context, such as .BobR.alias. See “Creating Aliases” below for more information.

Users running Program Neighborhood and the Program Neighborhood Agent log on as the users in the alias container.

If you are using NFuse, specify the alias container as the first context in the SearchContextList parameter. If this optional parameter is not set, the NFuse "Contextless" authentication feature searches the entire tree to locate a user. This may take a long time in a tree that has a lot of objects. The SearchContextList parameter can be used to reduce the time required for Contextless authentication. Set this parameter to a comma-delimited list of contexts from the NDS tree. The NFuse Contextless authentication feature searches only these contexts to locate the user and not the entire tree.

## Roaming and Local Profiles May Fail on Terminal Services

ZENworks for Desktops 3 does not distinguish between users with the same user name. If two users from different contexts have the same user name and they both log on to the same server, the profile will be incorrect.

When the second user logs on he will either get the profile of the first user who logged on, or he will be informed that the roaming profile cannot be downloaded and get the profile that already exists on the server.

If the first user is still logged on when the second user logs on, the dynamic local user function verifies that there is already a user with that user name in the local SAM database and then changes the password on the local machine. The dynamic local user function tries to download the roaming profile to the same directory as the first user. Because this profile is already in use by the first user, this action fails. The second user logs on with the local copy of the profile already stored on the computer (the first user's profile). When the second user logs off, the dynamic local user function updates the roaming profile with the current profile (the first user's profile).

To avoid this situation, be sure to use unique names in the tree. If your tree already includes users with the same user name, you can work around this situation by creating aliases. See “Creating Aliases” below.

## Creating Aliases

- You can create aliases to address a number of problems that may arise in a large NDS environment. When users log on they are given the rights of the object that the alias object points to. However, the alias object is used for dynamic local user creation on the local server.

When creating aliases, follow these guidelines:

- The alias objects are close to the root of the tree

- The alias object name does not exceed 20 characters
- The distinguished name of the object does not exceed 48 characters.
- Alias names are unique within the tree

The Lyncx™ tool from Centralis® can be used to automate the process of creating aliases for large trees. See the Centralis Web site at <http://www.centralis.co.uk> for more information.

## Log On Failure After Uninstalling Novell Client

Logging on to a MetaFrame XP server can fail if you uninstall the Novell Client from the server after MetaFrame XP is installed. Uninstalling the Novell Client can remove the setting for the logon interface (GINA) from the registry. You may need to add the proper settings to the registry after removing the Novell Client.

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**Warning:** You must use the Registry Editor to modify Windows registry settings. Using the Registry Editor incorrectly can cause serious problems that may result in the need to reinstall the operating system. Citrix makes no guarantee that problems resulting from incorrect use of the Registry Editor can be solved.

Be sure to back up the registry before you edit it. If you are running Windows NT, update your Emergency Repair Disk.

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The following registry key contains the GINA values:

HK\_LOCAL\_MACHINE\Software\Microsoft\Windows NT\CurrentVersion\Winlogon

The registry values for the default MetaFrame logon screen (without the Novell Client) are:

GinaDLL      Data: Ctxgina.dll

CtxGinaDLL    Data: Msgina.dll

## NDS Preferred Tree and Farm Authentication

If you designate an NDS preferred tree but none of the servers have been set to MetaFrame XP Feature Release 1, MetaFrame XP prompts the user for NDS credentials but does not accept them. To correct the problem, set the feature release level to Feature Release 1 on at least one sever in the farm, remove the NDS tree name in the NDS Preferred Tree field (**Farm Properties > MetaFrame Settings**), and then reset the Feature Release level to "NONE."

## NDS Credentials and Session Sharing

The "session sharing" feature is not currently supported for ICA Win32 Client custom ICA connections that are configured for NDS user credentials. To use the session sharing feature for custom ICA connections in Program Neighborhood, do not specify user credentials on the **Login Information** tab in the **Properties** dialog box.

## Novell and Windows Authentication

If you connect by dial-up ICA to a MetaFrame XP Feature Release 1 server that has the Novell Client installed, the server returns the Microsoft logon dialog box instead of the Novell logon dialog box. This occurs because the "Use Default NT Authentication" option (under Advanced Connection Settings in Citrix Connection Configuration) is

selected by default on Windows 2000 servers. If you want to use Novell authentication on a server under these circumstances, deselect the "Use Default NT Authentication" option.

If a Windows 2000 server without Service Pack 2 is set up to use the default Windows NT authentication (under Advanced Connection Settings in Citrix Connection Configuration) and you installed a third-party authentication software such as the Novell Client, the third-party logon dialog box appears instead of the default Windows logon dialog box. Installing Service Pack 2 for Windows 2000 resolves the problem.

## Failure to List Domains After Server Removal

If some servers have Feature Release 1 installed and some do not, and you remove a server from the farm by using the Remove Server from Farm command, domains can fail to appear in Citrix Management Console when you try to select users for published applications, Citrix administrators, or allocation of network printers.

This issue occurs only if all of the following are true:

- NDS is enabled in the server farm
- The server you remove is the only server that has Feature Release 1 and the Novell Intranetware Client installed
- You use the Remove Server from Farm command with Citrix Management Console connected to a MetaFrame XP server that does not have Feature Release 1 installed

To avoid this issue, always uninstall MetaFrame XP to remove a server from the server farm; do not try to remove the server using the Remove Server from Farm command.

If you must use the Remove Server from Farm command to remove a server that has Feature Release 1 installed, be sure to connect the Citrix Management Console to a server that has Feature Release 1 installed.

If domains fail to appear in the Citrix Management Console because of this issue, delete the text in the NDS Preferred Tree field in the **Properties** dialog box for the server farm. Removing the NDS preferred tree name disables NDS in the server farm and restores regular domain enumeration.

## Organizing Published Applications for NDS Users

It may be helpful to set up groups in NDS and associate a published application or applications with them.

For example, you can create an NDS group called Default\_User\_Apps for business and office applications. Add this group when you specify which users have access to those published applications. When you add new users to this group, they are granted rights to the applications.

You can create a separate group for specialty applications that are not distributed to a wide audience. For example, create a group in NDS called Accounting\_Program and then publish an application called Accounting\_Program in MetaFrame XP Feature Release 1. In MetaFrame specify the NDS group Accounting\_Program to the published application called Accounting\_Program. When you need to assign new users to the accounting application, simply add them to the group called Accounting\_Program in NDS.



## **Novell Logon Display**

The first time a user logs on to a server that is running MetaFrame XP and the Novell Client on Microsoft NT, Terminal Server Edition (TSE) the logon dialog box exhibits graphical anomalies, including labels extending off the tabs. The problem results from a Windows display issue with all color depth and display size settings. The Microsoft RDP Client is also affected.

The problem does not occur on Windows 2000 systems and it does not affect ICA sessions the next time a user logs on.

## **Miscellaneous**

The Novell Client does not set the APPDATA and SESSIONNAME environment variables.

You cannot browse the entire network or network neighborhood if the server is in a workgroup and the Novell Client is installed.



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