

Administrator's Guide

Installation Manager™

for MetaFrame XP™ with Feature Release 3

Citrix Systems, Inc.

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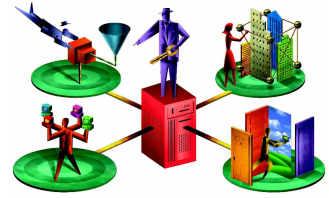
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Welcome



Welcome to Installation Manager for MetaFrame XP with Feature Release 3. Installation Manager is the Application Packaging and Delivery feature of MetaFrame XP that lets you easily install application *packages* on the servers in your MetaFrame XP server farm from a central location.

Installation Manager Documentation

The MetaFrame XP documentation set includes electronic manuals and online application help for Installation Manager.

On a MetaFrame XP server, the Installation Manager documentation is located in the Documentation folder. You can display the contents of this folder in Program Files\Citrix\Documentation on your local drive.

The following Installation Manager documentation is included with MetaFrame XP:

- This manual, *Installation Manager for MetaFrame XP Administrator's Guide*, provides conceptual information and basic procedures for system administrators who install and uninstall Installation Manager, create packages, and install packages on target servers. To get the most out of this manual, review the table of contents to familiarize yourself with the topics included in this book.
- Online help for the Management Console for MetaFrame XP and for Packager provide detailed steps about how to use Installation Manager. You can access the online help from the Help menu in the Management Console or in Packager's main window. See the online help for specific tasks.

Note Packager and its online help are available in English and Japanese only.

- The `Installation_Manager_Readme.txt` file contains last minute updates, corrections to the documentation, and a list of known problems. This file is in the \Docs directory of the MetaFrame XP Server CD-ROM.
- A supplementary manual, *Citrix Installation Manager Application Compatibility Guide*, provides useful information about specific compatibility issues that occur if you package, install, or uninstall applications using Installation Manager. This guide is available on the Citrix Web site at <http://www.citrix.com/support> in Product Documentation.

MetaFrame XP documentation is available in the following locations:

- In the \Docs directory of your MetaFrame XP Server CD-ROM.
- Installed in the Documentation folder of your MetaFrame XP server, `<drive>:\Program Files\Citrix\Documentation`.
- On the Citrix Web site at <http://www.citrix.com/support/> (select Product Documentation). You can check the Product Documentation area of the Web site at any time for the latest updates to Citrix technical manuals. Any updates to the manuals published after the release of this product will be posted there.

Using PDF Documentation

To access the documentation that is provided in PDF files, use Adobe Acrobat Reader 4 or later. Acrobat Reader lets you view, search, and print the documentation.

You can download Acrobat Reader for free from the Adobe System Web site at <http://www.adobe.com/>. The self-extracting file includes installation instructions.

Documentation Conventions

Citrix documentation uses the following typographic conventions for menus, commands, keyboard keys, and items in the program interface:

Convention	Meaning
Boldface	Commands, names of interface items such as text boxes and option buttons, and user input.
<i>Italics</i>	Placeholders for information or parameters that you provide. For example, <i>filename</i> in a procedure means you type the actual name of a file. Italics also are used for new terms and the titles of books.
UPPERCASE	Keyboard keys, such as CTRL for the Control key and F2 for the function key that is labeled F2.
Monospace	Text displayed in a text file.
%SystemRoot%	The Windows system directory, which can be WTSRV, WINNT, WINDOWS, or other name specified when Windows is installed.
{ braces }	A series of items, one of which is required in command statements. For example, { yes no } means you must type yes or no . Do not type the braces themselves.
[brackets]	Optional items in command statements. For example, [ping] means that you can type /ping with the command. Do not type the brackets themselves.
(vertical bar)	A separator between items in braces or brackets in command statements. For example, { /hold /release /delete } means you type /hold or /release or /delete .
... (ellipsis)	You can repeat the previous item or items in command statements. For example, /route:devicename[...] means you can type additional <i>devicenames</i> separated by commas.
▶	Step-by-step procedural instructions

Citrix on the World Wide Web

The Citrix Web site, at <http://www.citrix.com/>, offers a variety of information and services for Citrix customers and Citrix MetaFrame users. From the Citrix home page, you can access Citrix online Technical Support Services and other information designed to assist MetaFrame XP administrators, including the following:

Citrix Documentation Library. The library, which contains the latest documentation for all Citrix products, is at <http://www.citrix.com/support/> (select Product Documentation). You can download updated editions of the documentation that ships with Citrix products, as well as supplemental documentation that is available only on the Web site.

Citrix ICA Clients. Downloadable Citrix ICA Clients (at <http://www.citrix.com/download>).

Support Options. Program information about Citrix Preferred Support Services options is available in the Support area of the Citrix Web site at <http://www.citrix.com/support>.

Software Downloads. An FTP server provides access to the latest service packs, hotfixes, utilities, and product literature for download.

Online Knowledgebase. An online Solution Knowledge Base contains an extensive collection of application notes, technical articles, troubleshooting tips, and white papers.

Discussion Forums. The interactive online Solution Forums provide outlets for discussion of technical issues with other Citrix MetaFrame users.

FAQs. Frequently Asked Questions (FAQ) pages provide answers to common technical and troubleshooting questions.

Education. Information about programs and courseware for Citrix training and certifications is available at <http://www.citrix.com/training/>.

Contact Information. The Citrix Web site provides contact information for Citrix offices, including the worldwide headquarters and headquarters from Europe, Asia Pacific, and Japan operations.

Developer Network. The Citrix Developer Network (CDN) is at <http://www.citrix.com/cdn/>. This open enrollment membership program provides access to developer tool kits, technical information, and test programs for software and hardware vendors, system integrators, ICA licensees, and corporate IT developers who incorporate Citrix computing solutions into their products.

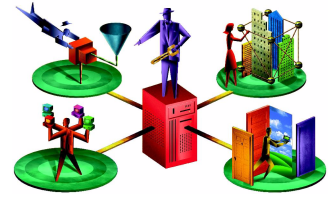
SDKs. The Citrix Server Software Development Kit (SDK) is available for free from <http://www.citrix.com/cdn/>. Most of the operations that you can perform through Citrix GUI tools can be scripted by using the Citrix Server SDK. The SDK also lets programmers customize most aspects of MetaFrame XP.

Providing Feedback About this Guide

We strive to provide accurate, clear, complete, and usable documentation for Citrix products. If you have any comments, corrections, or suggestions for improving our documentation, we want to hear from you.

You can send e-mail to the documentation authors at documentation@citrix.com. Please include the product name, version number, and the title of the document in your message.

Introduction to Installation Manager



Installation Manager is a powerful feature in MetaFrame XPe that facilitates the rapid installation of applications and other software components.

Installation Manager lets you install applications and other software components to any or all available servers in your farm—attended or unattended—using any MetaFrame XP server on the network regardless of physical location, network connection type, or hardware setup.

This chapter covers the following topics:

- Why you should install Installation Manager
- An overview of package deployment

Why You Should Install Installation Manager

Imagine the administrative burden of installing Microsoft Office 2000 on 200 servers by sitting in front of each server and manually installing every piece of the software. The thought is daunting. It can take weeks to complete the task only to find that you have to begin the cycle again. Six months later, you have to upgrade these servers with the latest service packs or software patches. Installing the files can become an endless task.

Installation Manager lets you install an application package, such as Microsoft Office 2000, *from* one server *to* all the servers in a domain or in a farm. Use Installation Manager to deploy applications, files, service packs, or software patches on the servers in your farm.

Installation Manager provides the following advantages:

Install and publish applications quickly and conveniently. Installation Manager includes enhancements to published applications. These enhancements give the application publishing feature the ability to push application installations to servers and publish those applications when scheduled. Further, unpublishing an application does not uninstall the package in which the application resides.

Create or change an ADF package. Installation Manager allows you to create packages as *ADF files* (a package format) or change existing *ADF packages* (a package type) to include updated files.

Install applications, service packs, patches, and upgrades. Installation Manager installs applications, service packs, patches, or upgrades to existing applications. In addition, you can replace a corrupted application.

Install existing packages. You can add to and install ADF or MSI packages built by other software products from Installation Manager.

Customize packages. ADF packages are fully customizable. A set of Packager commands lets you change an ADF file at the command prompt.

Schedule packages. You can schedule package installations on *target servers* in farms or change the order of the packages you install.

View package information. You can view the contents of a package, schedule the package to install or uninstall, or view the status of the package. The Management Console tree view displays the current status and other information about the package.

Manage packages. You can manage package installations and uninstallations in the farm or across domains. You can schedule new application installations for any time, such as when farm usage is low or when a new application becomes available.

Install an application remotely without installation rewrites. Installation Manager includes its own monitoring utility that lets you replay any application installation without modifying the install program in the application. Packager frees you of any dependency on application vendors to package their applications in a way that is not compatible with Installation Manager.

Save time. You can save a significant amount of time installing packages on servers in the farm from a central location, using the Management Console.

Restart servers automatically. You can automate server restarts immediately after an application installs on the target server, making the application and the server ready for use.

Run the same software in Citrix ICA Client sessions. All Citrix MetaFrame users in the farm or across farms can be assured that they are running the same version of an application. Running the same application version resolves application compatibility problems if multiple users access the same files.

Make internationalization easier with UNICODE compatibility. Installation Manager is UNICODE compatible, solving problems with internationalization.

Add compatibility scripts in ADF packages. You can add an application *compatibility script* to any ADF package as you create your package.

Add transform files in MSI packages. You can add a *transform* file to any MSI package.

Replace damaged applications. You can replace a damaged application quickly on all affected servers by uninstalling the package and installing a new packaged application, or forcing the reinstallation of the package.

Note If you uninstall a program on a server locally without the use of Installation Manager, the program may still appear to be installed in the Management Console.

Overview of Package Deployment

You can use Installation Manager to install a number of different software types: applications, service packs, upgrades, application suites, patches, or other files as *packages*. A package can include combinations of these software components. For example, the package can include an application and a patch file or an application and other related files. You can combine several related packages into a *package group*, such as packages that include various types of accounting applications or packages created specifically for a department or workgroup. Combining packages makes them easier to categorize and faster to locate.

To deploy a package to MetaFrame XP servers, you need to:

1. First select the servers on which you want to install the application. These are known as the *target servers*.
2. Decide the package format you want to use. Installation Manager supports three package format types: *ADF*, *MSI*, and *MSP*.

- You can create an ADF package using Packager in Installation Manager. ADF packages work well for silent (unattended) installations, application recordings, or other files that do not require a *recording*. A recording contains an application's installation routine for replay on target servers.

An ADF package can include a new application, the upgrade to an existing application already installed on your target servers, or other files that your Citrix MetaFrame users require. The ADF file has a *.wfs* extension.

Some applications, such as Microsoft Project 98, require that a *compatibility script* be added to the package for successful installation on target servers. Packager can add a compatibility script prior to the build process.

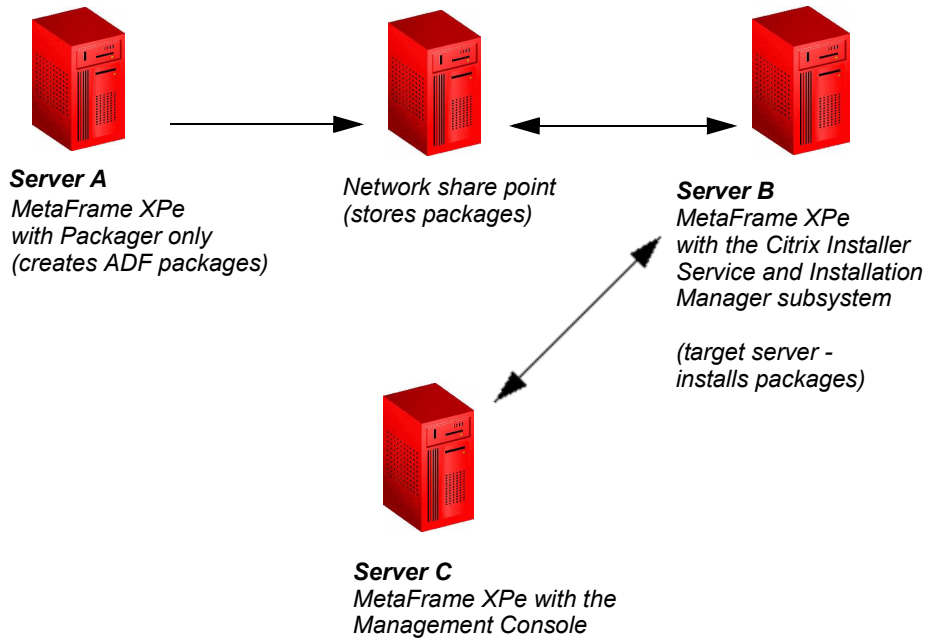
- An MSI package is created by a software manufacturer or by using a software packaging product that builds MSI packages. MSI packages work well for application suites such as MetaFrame XPe where several components are included in the package.

MSI packages sometimes use *transform* database files. Transform files act like filters that you apply to MSI packages. These files modify instructions about how a package is installed; for example, to enable an application to run on Terminal Services.

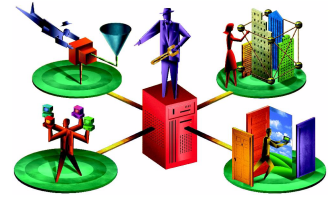
Note You cannot edit MSI packages or transform files using Packager. Use a packaging product that can edit these file types.

- An MSP package is created by a software manufacturer or by using a software packaging product that builds MSP packages. These are typically used to patch or update application installations that use the Windows Installer service for packaging.
3. Install the correct Installation Manager components. You need to:
 - Install the Installation Service on each target server. This is installed automatically when you install MetaFrame XP.
 - Install Packager on the server you want to use to create the package (if you want to create ADF packages).
 - Install the Management Console on the MetaFrame servers you are going to use to manage the installations.
 4. Obtain or create the package.
 5. Add the package to MetaFrame XP and schedule when you want to install and publish the application.

The following illustration shows a simple farm configuration with Installation Manager components.



Installing Installation Manager



This chapter explains how to install and upgrade Installation Manager. This chapter covers the following topics:

- Requirements
- Preparing to install the product
- Installing Installation Manager components
- Using Installation Manager in the Management Console
- Granting administrators access to Installation Manager
- Uninstalling Installation Manager

Requirements

To package applications and run Installation Manager, you need to assign servers for the following tasks:

To:	You need:
Create packages in ADF format (if required)	A server to run Packager.
Manage Installation Manager packages from the Management Console	A MetaFrame XPe server with the Management Console installed for package management. This is known as a <i>package management server</i> .
Store the packages waiting to be installed	A file server that functions as storage on a network share point for ADF and MSI packages. This is known as the <i>network share point server</i> .
Install the packages on the MetaFrame servers	MetaFrame XPe and Installation Manager installed on each <i>target server</i> .

Requirements for MetaFrame XPe Servers

The requirements for MetaFrame XP and the Management Console for MetaFrame XP are listed in the *MetaFrame XP Server Administrator's Guide*.

Requirements for the Packaging Server

To create ADF packages, Citrix recommends that you install MetaFrame XPe and Packager on a separate system dedicated to packaging only. Where possible, run Packager in an environment that closely approximates the environment of the target servers.

If you build ADF packages on a separate server, it is not necessary to install Packager on more than one server in the farm.

Note With MetaFrame XP with Feature Release 2 or later, you cannot package or deploy applications using Windows NT Server 4.0 Terminal Services Edition.

Packager requires over 4933KB of disk space, in addition to the Windows operating system requirements and the disk space required to package any applications, service packs, and other files. During packaging, all of the component files are copied to a package source directory. As much disk space used for the component files is needed for the package source files. For example, if you package an application that totals 10MB, you need an additional 10MB of disk space for the package source files.

The server used as the packaging environment must include:

- A partition on the hard drive dedicated only to packaging applications. The partition must be at least 500MB and must not contain any files or data other than those required by Installation Manager.
- A Windows operating system installed on the partition. This operating system must be a fresh installation of Windows 2000 Server.

Important This installation cannot be an existing installation of Windows 2000 Server. Use this installation exclusively for the purpose of packaging applications and not for any other work-related tasks.

- Packager installed on the same partition. This software is included on the MetaFrame XP Server CD-ROM.

Set up your rights in Windows so that you can install the packages on your target servers successfully. See the Windows documentation for information about setting up these rights.

Before you create and build packages in Packager:

- Create a Windows network share point to serve as a repository for your packages.
- Create a Windows domain account that has a minimum of Read and Write access rights to the network share point. See "Planning Your Installation" on page 20 for more information. If you record an installation that requires administrator rights, you need those rights before you can begin the packaging process.
- Create a network account in the Management Console to add your package to the Installation Manager database, making the package ready to schedule the installation. See "Granting Access to MetaFrame Administrators" on page 23 for more information.

Requirements for the Network Share Point Server

Your file server must:

- Have adequate free disk space to hold all of the packaged applications and other software components (such as service packs or upgrades) that you plan to install. The disk space required for each application is almost the same as that recommended by the software manufacturer (some additional disk space is required for registry entries, dlls, .ini files, and so on, during and after the build process).
For example, an application that requires 40MB of disk space for a local installation requires just over 40MB of free space on the file server.
- Support Universal Naming Convention (UNC) share points.
- Be accessible to all servers using Installation Manager to install applications. If you publish applications from packages, you must have Read and Write access to this file server.

Important Read and Write permissions must be set at the network share point to allow you to copy packages to that share point and retrieve them for deployment on the target servers. The user accounts for adding and retrieving packages must have local administrative rights. See the Windows documentation for more information.

Requirements for the Target Servers

To install applications on the target servers in your network, the servers must have MetaFrame XPe and the Installer Service installed.

Planning Your Installation

Carefully plan which component you want to install on the servers that will use Installation Manager.

For example, if you have five servers in your farm, you can install:

- Packager on a MetaFrame XP server for packaging
- The Management Console and Installation Manager on a MetaFrame XPe server for package management
- The Installer Service and the Installation Manager subsystem on three MetaFrame XP target servers

Setting up your environment for application installation includes these general tasks:

- Install MetaFrame XPe, the current feature release, the current Management Console for MetaFrame XP, and the necessary Installation Manager components on the servers in your farm.
- Install the Citrix Installer Service on target servers that will receive packages.
- Set up a domain account. A Windows 2000 Server domain account must be set up as the Installation Manager administrator account. Configure this account on the Management Console.
- If you install an *unattended program* on the Management Console and the program requires local administrator rights, the Installation Manager network account must have the same rights. Applications generally do not require the user to have administrator rights.
- The network account will also be used by the Installer to deploy packages; you must verify which applications will and will not require administrator rights. To set up the rights, use the following options in Windows 2000 Server: from the **Start** menu, click **Programs > Administrative Tools > Computer Management**.
- To install MSI or MSP packages, you can add and schedule the package in the Management Console. No setup is required other than placing the packages on a network share point.

- To create ADF packages, set up the packaging server for building ADF packages by installing Packager on a MetaFrame XPe server in your farm. If you create ADF packages from an installation recording, this server must be a *clean* server. A clean server does not contain any applications that the target servers do not have. All applications you want to add to the package must be installed during the packaging session. The recording process does not add any files to the ADF packages that were on the server before the recording process began.

Note Only one recording is allowed for each package you create.

For example, if the file Mfc42.dll (required by an application that you want to package) is on the clean server before packaging begins, Mfc42.dll is not added to the package. The application runs correctly if Mfc42.dll exists on the target server before you install the package. If Mfc42.dll is not on the target server, the application will not run after it is installed.

- Make sure the Packager server operating system and its environment matches the environment of the MetaFrame XP servers on which you install your applications.

Installing Installation Manager Components

Use the following procedure to install or upgrade Installation Manager. You need to follow this procedure for each server in your farm.

Note This setup procedure focuses primarily on Installation Manager installation; the general MetaFrame XPe installation steps are not described in detail. See the *MetaFrame XP Server Administrator's Guide* for complete MetaFrame XPe installation instructions.

► To install Installation Manager on a server

1. Log all users off the server.
2. Close all applications on the server, including the Management Console.
3. Insert the MetaFrame XP Server CD-ROM in your CD-ROM drive:
 - If your CD-ROM drive supports *Autorun*, the MetaFrame installation splash screen appears.
 - If the splash screen does not display, click **Run** from the **Start** menu and type *d:\Autorun.exe*, where *d* is the letter of your CD-ROM drive.
4. Click the Install or update MetaFrame icon.

5. Click either the MetaFrame XP Feature Release 3 or MetaFrame XP Service Pack 3 icon. The installation wizard starts.
6. When MetaFrame XP Setup begins, a series of information pages and dialog boxes ask you to select options and configure MetaFrame XP. Click **Next** to continue after you complete each entry. If you want to return to a previous page to make changes, click **Back**. If you click **Cancel**, Setup stops without finishing.
7. When the Component Selection page appears, click Installation Manager and select the component you want to install. Click **OK**.
8. At the prompt, click **Restart** to restart the server.

Using the Management Console to Manage Packages

The Management Console with Installation Manager can manage ADF, MSI, or MSP packages. Authenticated administrators can use the Management Console to:

- Grant access to domain administrators
- Change user rights
- Configure network share user accounts
- Create server or package groups
- Add packages to the Installation Manager database
- Schedule or edit package scheduling for installation on target servers
- Install packages on target servers
- Monitor installation status
- Uninstall packages from target servers

Starting the Management Console

▶ To use the Management Console

1. From the **Start** menu, choose **Programs > Citrix > Management Console**.
2. When the Management Console starts, a dialog box asks you to log on to the farm. Type or choose the MetaFrame XP server name, user name, password, and domain. Click **OK**.

▶ To view online help in the Management Console

From the **Help** menu, choose **Contents and Index**. You can press **F1** in the interface to access help if preferred.

Granting Access to MetaFrame Administrators

You can control the management of server farms by controlling access to the Management Console. The Management Console uses standard Windows user authentication. By default, all users who are included in the server's local Administrators group can log on to the server and use the Management Console to manage package installations to server farms.

To give a user authorization to manage target servers, add the user account to the local Administrators group. By default, members of the global Domain Administrators group are included in the local Administrators group on each server, so your domain administrators have access to the servers in the domain. You can change the users who have access by changing user and group accounts.

▶ To configure the domain account in the Management Console

Configure the Windows 2000 Server domain account as the Installation Manager administrator account.

1. Log on to the farm and start the Management Console.
2. At the top of the Management Console tree, click the farm name item.
3. Right-click **Installation Manager** and choose **Properties**.
4. Click the **Network Account** page.

Configure settings for the default network credentials.

See the Installation Manager online help for more information about setting up a network share point user account.

See the Windows documentation or online help for more information about user accounts and groups.

Uninstalling Installation Manager

You can uninstall Installation Manager by running the installation program for MetaFrame XPe, selecting **Install or update MetaFrame**, and modifying the installation to remove the components of Installation Manager. Alternatively, you can remove the entire installation of MetaFrame XPe.

Before you uninstall Installation Manager:

- Log off any currently connected Citrix ICA Clients and the Management Console, and exit all programs executing on the Windows server.
- If Installation Manager is still running on another server in the farm, the Installation Manager folder still appears in the Management Console even though it is empty. This does not cause any harm.

After you uninstall MetaFrame XPe and Installation Manager:

- If you plan to reinstall Installation Manager on the same server, restart your server first to remove any residual files left after the previous installation.
- After you uninstall Installation Manager, restart your server, otherwise, the imsss.dll component remains in a deleted state, and reinstallation is corrupted. Restarting your server removes the Installation Manager subsystem, making it ready for a new install.

Important The operating system for the Packager server must be a fresh installation with no changes made to it by any other applications. Packaging on a fresh operating system ensures that the recorded installation portion of Packager performs all of its possible configuration actions. You can then reproduce that installation on your target servers with varying configurations and previously installed applications and be assured that all necessary installation routines replay in the correct order.

Installation routines for different applications often repeat the same steps too, including writing and deleting common registry keys, modifying common initialization (.ini) files, and placing shared .dll files in common directories.

For example, if you install an application that copies a dll file to a system directory and later you install a second application that copies the same dll file to the same system directory, the second application recognizes that the dll file already exists and does not attempt to replace it (depending on the version of the .dll file).

To record an application installation accurately for reproduction on your target servers, you must package the application in an environment that runs the same operating system as your target servers.

How Packager Works

Packager is an application that monitors application installation routines. Packager monitors an application installation's changes on the packaging server, records the changes as installation commands in a script, and then packages all application files so you can deploy the package on target servers.

Projects and Packages

The first time you open Packager (see "Creating an ADF Package" on page 40), a Project wizard appears to guide you through the packaging process.

Before you create an ADF package, you must create a *project* to which you assign a project name. The project can include the recording of an application's installation by installing the application and collecting information about the application's environment, resources, and components. Packager analyzes the information and stores it in a recorder log file. Packager then uses the log file to create an ADF file and to copy the installed application files to a package folder.

After you create the project, you add components to the project—the application or other files, the ADF, and the ADF support files. Packager then builds these components into a package. When you create a package, you can choose to add the package to the Management Console and later install the package on the selected target servers. The project stays in Packager and can be edited any time (by adding or deleting files), unless you roll back Packager or delete the project.

The ADF File

Packager creates an ADF text file that contains information about the environment, resources, and files required to install and run an application on a server. The file name reflects the name of the target application with the extension .wfs (for example, Winword.wfs). The Installer Service uses the ADF file to recreate the installation on the target server.

ADF Parameters

The ADF parameters allow you to customize an ADF file at the command line. Using the ADF parameters you can:

- Install an application without using the product CD-ROM
- Repair a damaged application
- Remove or uninstall an application
- Describe the application and its requirements
- Inform the Installer Service how to access the application files

See the *Advanced packaging features* book in the online help in Packager for information about ADF creation, format, and syntax.

ADF Limitation

The ADF file has a limitation: the recording of an ADF file cannot always detect the intent of the install program when the registry keys change. To take advantage of the full intent of the application developer's logic, such as reference counts to the dll files, Citrix recommends that you use the **Add Unattended Program** option in Packager if Setup has a silent install option.

See the online help in Packager for information about the ADF file or an unattended program.

Using the Packager Window

This section describes the Packager main window and provides basic steps for creating a package. See the online help in Packager for more detailed information about how to create a package.

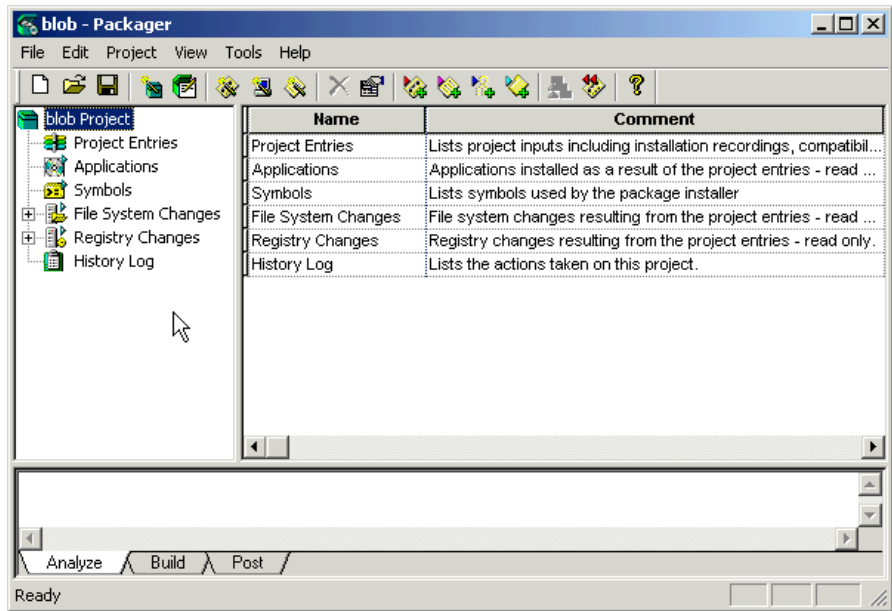
For most ADF packages, you will:

- Create a new project
- Record the application setup
- Add other necessary components to the project
- Build the package
- Copy the package to a network share point

► **To start Packager**

1. From the **Start** menu, click **Programs > Citrix > Installation Manager > Packager**.
2. Before you build a package, you must create a new project when you run Packager, either by selecting **Create a new project using project wizard** from Packager's **Project** dialog box or from the **File** menu of Packager if the wizard is not displayed.

When active, Packager displays a window with two panes.



- The left pane displays a list of the possible items in the project known as the Packager tree.
- The right pane displays detailed information in columns about the item selected in the left pane. When you add components to the project, the details appear in this pane. You can edit some of the items in the left pane, but not all of them.

Creating a Package

The following steps describe how to create a basic package. See the online help for more information.

▶ **To create a new project, do one of the following:**

- Use Packager's Project Wizard
- On the File menu, click **New Project**

▶ **To use the Project wizard**

The Project wizard guides you through the process of adding your package components, adding a compatibility script if needed, building the package, and saving your package to a network share point so it can be managed from the Management Console.

1. From the File menu, click **Project Wizard**.
2. On the first page of the wizard, select one of the following options and click **Next**.
 - **Package an Installation Recording**. This wizard records an application installation.
 - **Package an Unattended Program**. This wizard installs an application without user intervention, such as a service pack or patch.
 - **Package Selected Files**. This wizard packages other files, such as a service pack.
3. Click through the wizard screens and add each of your components.
4. Click **OK** to finish.

▶ **To create a package without using the Project wizard**

This procedure describes how to create a simple package manually. You must create a project before you build the package.

See the online help for detailed information about each step.

1. If the **Project** dialog box opens when you start Packager, click **Cancel** to close it.
2. To create a new project, from the **File** menu, choose **New Project** and click **OK**. Name the project and specify the name of the project file.

To open an existing project, from the **File** menu, choose **Open Project**.

Alternatively, in the **Project** dialog box, select the project to open and click **Open**.

3. From the **Project** menu, choose **Add Recording**.
When you start the installation of an application, Packager records the installation setup routine.
4. In the **Start Recording** dialog box, browse to the location of the application or choose the application.
5. (Optional) Click **Advanced** to customize your recording.
 - Include the events for the selected drive
 - Select the actions to include in the recording
6. Click **Start**.
The application installs and Packager records the installation.
7. Click **Done** when the recording finishes.
8. From the **Tools** menu, choose **Build Options**.
9. Browse or type the UNC path to the network share point where the package will be located.
10. Select **Add packages to the Installation Manager database** if you want this package to be available in the Management Console after you create rights on the network share point and set up a network account. Selecting this option saves a step later.
11. Type the name of the Default server and click **OK**. The Default server can be any server in the server farm.
12. From the **Project** menu, choose **Build Package**.
13. (Optional) Click the **Build** tab at the bottom of the main Packager window to view the results of the build.
14. Check the network share point to see if the package is there.

Example: Create an ADF Package

The general steps required to create an ADF package, add it to Installation Manager, and schedule it for installation on target servers are:

1. Make sure the Packager server is *clean*.
2. Start Packager.
3. Create a new project in Packager or use the Project wizard to guide you through Steps 3–5. See “Projects and Packages” on page 26 for information about projects.

Note Make sure you disable all sessions before you begin a recording.

4. Record the application setup. Only one recording is allowed for each package.
5. Build an ADF package and copy the package to a share point on the network.
6. Roll back the Packager server to its original state before the package was created.
7. Set up a user account in the Management Console with Read and Write permission to copy the package to a share point on the network.
8. Add the new package to the Installation Manager database using Packager or the Management Console.
9. Schedule a job to install the package on the target server.
10. View the result to determine if the installation was successful.

Creating ADF Packages of Legacy (Non-MSI) Applications

This method creates legacy application packages that you can install unattended. Legacy applications are generally applications not written for use on a multiuser system.

You can use the following options to build the components of your ADF package:

Add Recording. Record an application's installation.

Add Compatibility Script. Merge application compatibility scripts.

Add Unattended Program. Install legacy applications directly by launching silent or unattended installations (such as service packs).

Add Files. Add one or more files to a package.

The following procedure gives you a basic understanding of how to create various packages.

Important Make sure you use a *clean* Packager server before recording your installation.

► **To create packages for legacy applications**

1. Launch Packager.
2. From the **File** menu, choose **New Project** to create a new project for your package. Enter the project name and location.
3. (Optional.) To record the application's installation, from the **Project** menu, choose **Add Recording**. Browse to the application you want to record and add the application to the package.

Note The recording does not continue if a restart is required during an application installation unless your application supports an unattended installation. If you do not want your application to restart the server (which stops the recording process), choose **No** when the application prompts you to restart. If you do not have a choice to restart, press ALT+TAB at the recording progress dialog box, then click **Done** and save the project. Click **OK** at the request to restart.

4. To choose the package location, from the **Tools** menu, choose **Build Options**. Browse to the location to which you want to copy the package.

Tip You can select **Add packages to the Installation Manager database** to copy this package to a network share point. Make sure the share point has the proper rights and that you set up the network account in the Management Console before you proceed to copy the file. Otherwise, you will have to add the package in the Management Console.

5. To build the package, from the **Project** menu, choose **Build Package**.
6. To view the build output messages, from the **View** menu, choose **Output** at the bottom of the Packager window.

Creating ADF Packages that Include Other Files

This procedure explains how to add specific files for updates to legacy applications. An installation script is not needed in this procedure.

► **To create installation packages using one or more files**

1. Launch Packager.
2. From the **File** menu, choose **New Project** to create a new project for your package.
3. To add the files, from the **Project** menu, choose **Add Files**. Browse to and select the files you want to include in the package.
4. To choose the package location, from the **Tools** menu, choose **Build Options**. Browse to the location to where you want to copy the package.

Tip You can select **Add packages to the Installation Manager database** to copy this package to a network share point. Make sure that you set up the network account in the Management Console.

5. To build the package, from the **Project** menu, choose **Build Package**.
6. To view the build output messages, ensure that **View > Output** is checked. Any messages appear at the bottom of the main Packager window.

Creating ADF Packages of Applications that Include a Silent Install

This method allows you to install applications using the application vendor's defaults (called a *silent install*). Use this method when your input is not required to install the package.

► **To create installation packages using the defaults**

1. Launch Packager.
2. From the **File** menu, choose **New Project** to create a new project for your package.
3. Add the unattended program. From the **Project** menu, choose **Add Unattended Program**.
4. To choose the package location, from the **Tools** menu, choose **Build Options**. Browse to the location to where you want to copy the file.

Tip You can select **Add packages to the Installation Manager database** to copy this package to a network share point. Make sure that you set up the network account in the Management Console. If you add your package using this option, you do not have to add the package in the Management Console.

5. To build the package, from the **Project** menu, choose **Build Package**.
6. From the **View** menu, choose **Output** to view the history.

The left pane displays the project name and all data that you added to this project.

Adding Packages to the Installation Manager Database

This method allows you to schedule and install an ADF or MSI package on a target server from the Management Console.

Note Make sure that proper administrative rights are set up for your domain, that the user account is set up for the person who will be adding and installing the package on the target servers, and that file sharing is allowed for the package you add.

► To add the package

1. On the desktop, open the Management Console.
2. Log on to the server farm.
3. In the tree view, right-click **Installation Manager** and choose **Properties**.
4. Click the **Network Account** page.
 - In the **User Name** box, type the account name or click **Browse** to add the account name.
If you click **Browse**, in the Look in list, choose the domain name and choose an account name from the list.
 - In the **Password** box, type the password.
 - In the **Verify Password** box, type the same password again.
 - Click **OK**.
5. Click to expand the Installation Manager item in the tree view.
6. Click to expand **Packages** and the package group if applicable.

Note If you create a package group, you can view the packages and applications in each package by clicking the package group, and then the package.

7. Right-click **Packages** and choose **Add Package**.
 - In the **Package Name** box, enter a unique name for the package.
 - In the **File** box, enter the pathname of the package that you want to add or click **Browse** to locate the file. Look for the package with the .wfs or .msi extension.
 - Click **OK** twice. The package appears in the Packages or Package Groups item in the tree.
8. To install the package, right-click the package item and select **Install Package**.
9. Select the operating system platform on which to install the package.
10. Select a server on which to install the package and click **Add**.
11. Click **Next**.
12. To schedule the installation, specify the date and time to install the package in the **Schedule Details** dialog box.

Tip You can view the package and all of the servers that you selected for the package in Schedule Targets.

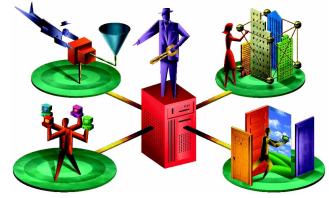
13. (Optional) You can force the target server to restart after the package installation by selecting **Force reboot after install**.
14. Click **Finish**.
15. To view the results, click the package in the tree and click the **Jobs** tab.

Restoring the Packager Server to its Original State

Use Packager to restore your operating system to its original state before you created your project and built your ADF package. Perform this task every time you create a new package.

- ▶ **To roll back your operating system to a clean state**
 1. Launch Packager.
 2. From the **Tools** menu, choose **Rollback**.
 3. Select the project that you want to roll back.
 4. Click **Rollback** to roll back the session or click **Delete** to remove the session permanently.
 5. Click **Yes**.
 6. Click **Close**.

Deploying Applications Using Installation Manager



This chapter gives you an overview for using Installation Manager to plan and deploy packaged applications on your target servers. See the online help in the Management Console and in Packager for detailed information about performing the tasks in this chapter.

This chapter covers the following topics:

- Creating an ADF package
- Setting up rights on the network and in the domain
- Copying the package to a network share point
- Adding the package to Installation Manager
- Scheduling the deployment
- Publishing the application

Installation Manager expedites application installations on target servers so that Citrix MetaFrame users can run the published applications they need and use the most current software versions available. Packaging an application or other software can be performed in your company or you can purchase pre-packaged applications from a software manufacturer such as Microsoft.

Creating an ADF Package

Use Packager to create an ADF package.

In general, the Packager installation setup program performs these tasks as it creates an ADF package:

- Adds, modifies, and deletes registry keys
- Adds and modifies initialization (.ini) files
- Creates desktop shortcuts
- Copies other program files such as executables and Dynamic Link Libraries (.dll files) to servers during application installations

Packager records all such tasks so that Installation Manager can reproduce the application installation by replaying the recorded tasks on your target servers. This process ensures that the installation is complete and accurate. Recording an installation routine is called *packaging* an application. Packager executes an application's setup program while running in the background.

When you package an application, Packager creates an *installation script* plus copies of the application files to install. The installation script is a text file that provides instructions to the Installer Service about how to install the application on the target servers. In this script, Packager uses a script language to record all of the installation tasks that the target servers can interpret and execute when replaying the installation.

Note This section does not give you step-by-step instructions about how to create an ADF package. Use the online help in Packager for specific details or see “Setting Up the Packaging Environment” on page 25.

Not all applications can be packaged. For example, you cannot package applications that require components or files to be downloaded from the Internet as part of the installation process. To determine if you can package an application, run the application's Setup.exe file in Packager. If the application does not record, the installation likely will fail when deployed.

Note Make sure the application that you are trying to package is not already packaged as an ADF or MSI file. If it is, do not package it again. Some MSI files may not be easy to identify in an application suite. For best results, search for a file with the .msi extension.

See the *Application Compatibility Guide* for a list of popular applications that were tested using Packager and in which issues were found.

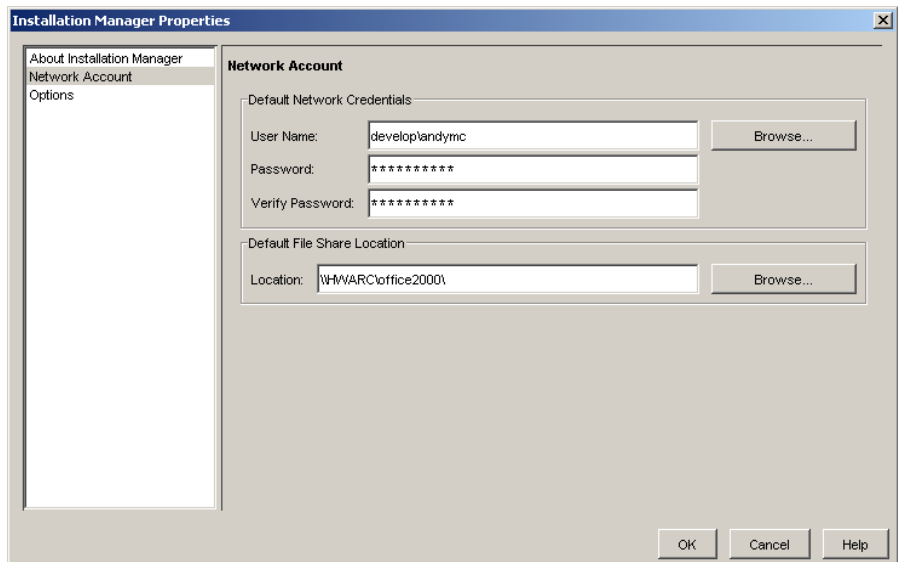
Setting Up Access to Copy, Retrieve, and Install Packages

After you create a package, you must copy the package to a network share point. Before you do that, you must set up rights by performing the following tasks:

Network Share Point Setup. Read and write permissions must be set at the network share point to allow you to copy packages to that share point and retrieve them for deployment on the target servers. The user accounts for adding and retrieving packages must have local administrative rights. See the Windows documentation for more information.

Domain Administrator Setup. You must be a MetaFrame or domain administrator to run Installation Manager. See the Windows documentation for more information.

Network Account Setup. You must set up a network account in the Management Console. Use the Installation Manager Properties page in the Management Console to set up this account before you begin copying packages. Otherwise, the first time you add a package to the Installation Manager database, a Network Account dialog box opens, allowing you to set up a network account.



The screenshot shows the "Installation Manager Properties" dialog box with the "Network Account" tab selected. The dialog has a left-hand navigation pane with three items: "About Installation Manager", "Network Account", and "Options". The "Network Account" section contains two main areas:

- Default Network Credentials:** This section includes three text input fields: "User Name" (containing "developandymc"), "Password" (containing "*****"), and "Verify Password" (containing "*****"). To the right of each field is a "Browse..." button.
- Default File Share Location:** This section includes a "Location" text input field (containing "W:\WARC\office2000\") and a "Browse..." button to its right.

At the bottom right of the dialog box are three buttons: "OK", "Cancel", and "Help".

See the online help in the Management Console for more information.

Copying a Package to a Network Share Point

You must copy an existing package to a network share point before you can add the package to Installation Manager in the Management Console and schedule the package for deployment on your target servers. Copying the package to a share point makes it accessible from the Management Console.

Copying MSI Packages

You can copy an MSI package manually to the network share point.

Note Microsoft recommends that MSI packages be installed on a share point using the following command at the command line: **msiexec /a <package name>**. This command string uncompresses the cabinet file (.cab) and allows you to set package properties such as the product ID. After entering the command, the software prompts you for the share point to the package.

Copying ADF packages

Installation Manager allows you to copy an ADF package to the network share point in two ways:

- Use the **Tools** menu. If you create an ADF package in Packager, **Build Option** allows you to copy the package to the network share point and add it to the Installation Manager database during package creation. Select the **Add package to the Installation Manager database** option and enter the path to a MetaFrame server.
- Copy the file manually.

Adding a Package to Installation Manager

You must add packages to the Installation Manager database before you can install them. You can use the **Add Package** option in the Management Console to add your package to the Installation Manager database or you can add an ADF package in Packager.

The Management Console. You can add ADF, MSI, or MSP packages using the **Add Package > Installation Manager** option in the Management Console. This option can be accessed from the **Actions** menu when the **Packages** node is selected in the Management Console, or by right-clicking on the **Packages** node.

See the help in the Management Console for more information.

Packager. You can also add an ADF package in Packager by selecting the **Add package to the Installation Manager database** option during the build process.

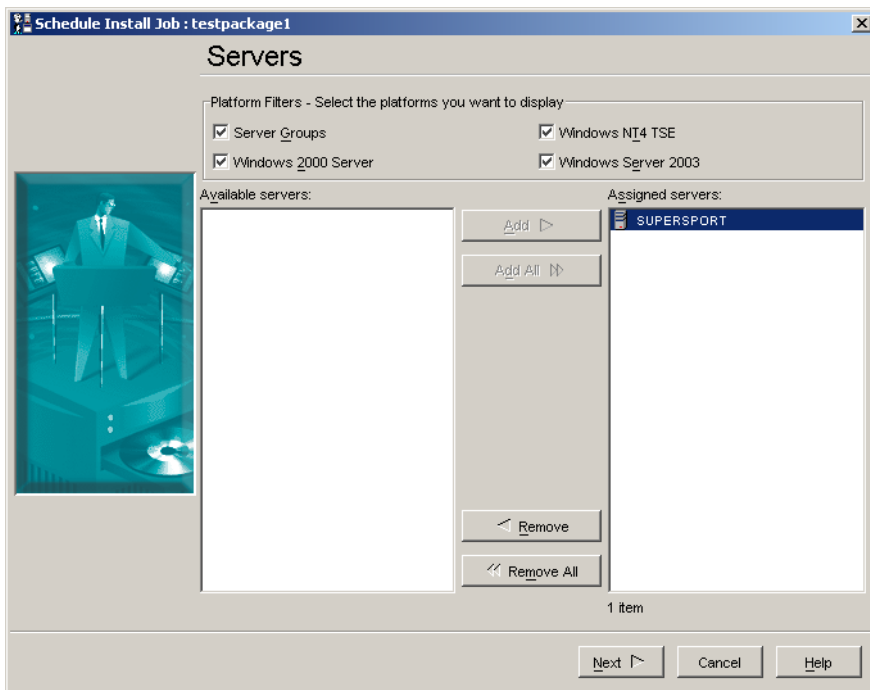
Scheduling a Package to Install

The Management Console and IMA allow management of MetaFrame XP servers and server farms from any location. Administrators with proper credentials can run the Management Console on any connected Windows 2000 Server or Windows Server 2003 (Windows NT Server 4.0 is not supported in MetaFrame XP Feature Release 2 or later).

With the Management Console installed, Installation Manager Setup installs the files necessary for IMA protocol communication on any supported workstation or server. The Management Console lets you set up network rights and add, install, and schedule packages for installation on your target servers. You can schedule an uninstall of an ADF or MSI package in the Management Console also. When you schedule a package, it becomes a *job*.

Installation Manager allows you to schedule a package installation in four ways using the Management Console:

Packages and Package Groups Item. Expand **Installation Manager** in the Management Console tree and right-click **Packages** in the Management Console tree or on the **Contents** tab to add a package or create a package group. Select a package or package group and choose **Install Package**. The **Schedule Install** dialog box appears.



Applications Item. Right-click **Applications** and choose **Publish Application**.

Drag and Drop. Drag and drop a package item onto a server or server group in the Management Console tree or on the **Contents** tab. The **Schedule Install** dialog appears.

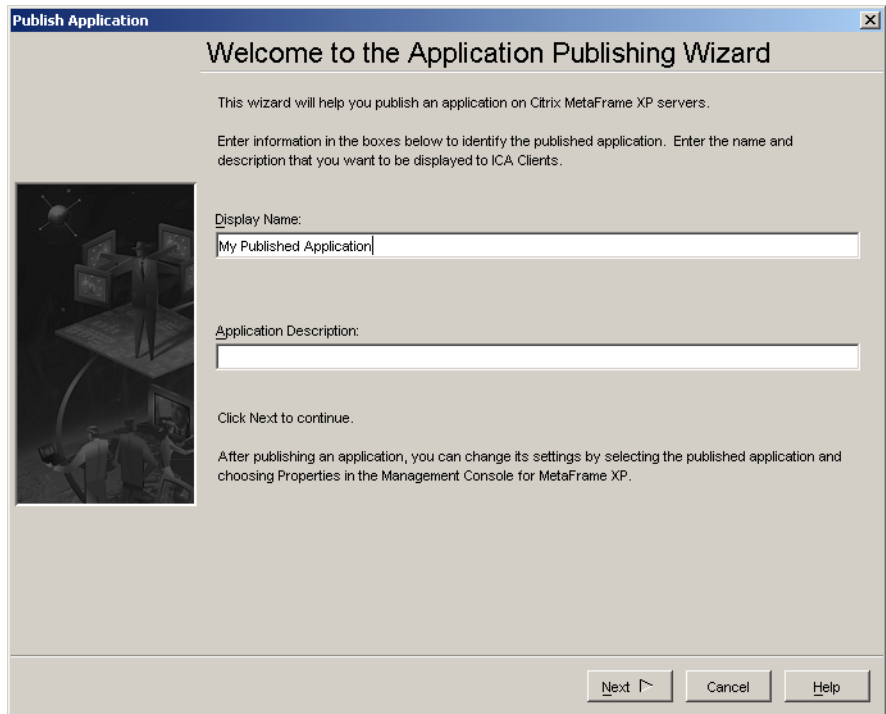
Server and Server Groups. Right-click a server or server group node in the Management Console tree or **Content** tab. Choose **Install Package**. The **Package Selection** panel appears.

See the help in the Management Console for information about scheduling a package installation.

Publishing a Packaged Application

Publishing applications is a major use of Installation Manager. The Application Publishing wizard lets you create connection items, called *published items* that point to specific applications on your servers.

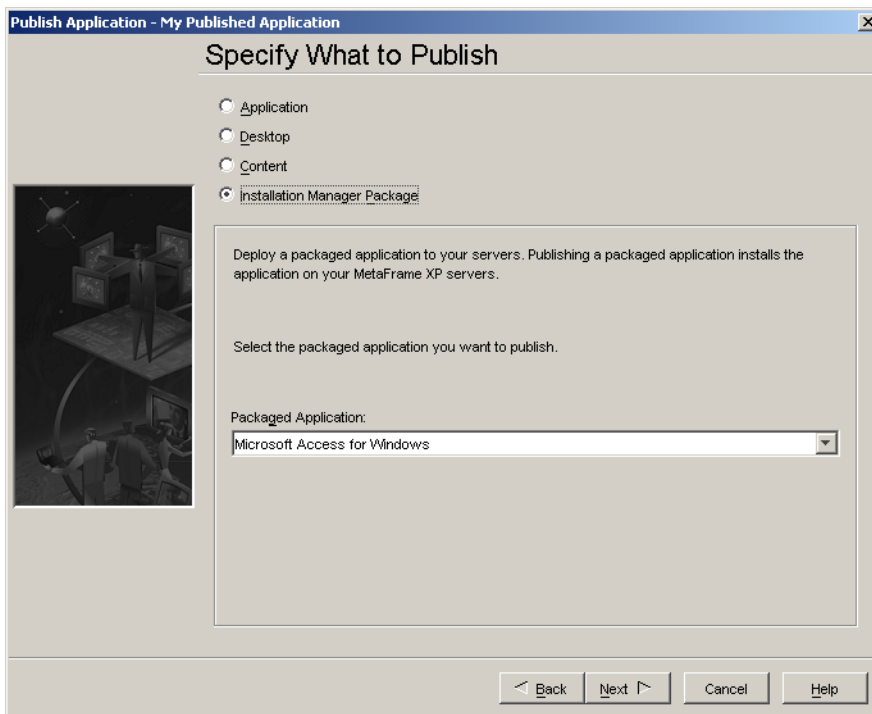
You can use the MetaFrame XP Application Publishing wizard to install and publish applications automatically on any server in the farm.



Using Application Publishing to Deploy Packages

When a Citrix MetaFrame user connects to a published application, the software initiates an ICA session containing the application specified during application publishing. To the Citrix MetaFrame user, a published application appears to be running locally. The user doesn't need to know the name or address of the MetaFrame server executing the application.

In Installation Manager, you can use the **Applications** item in the Management Console tree to install and publish a packaged application (after you add the package to the Installation Manager database). When you request to publish an application in Publish Application, you can select **Installation Manager Package**, then select the application to install on the selected target server in the same session.



The **Packaged Application** box lists all of the files in the package. You can select any one of the files to install the package.

Using Packages that Contain the Same Applications

Installation Manager uses *preferred packages*. Various packages on the network can and often do contain the same applications. MSI packages usually contain a suite of applications, such as Microsoft Office 2000. The packages may be different, for example, if you add a compatibility script or a transform file to the package during the package build process.

For example, you may want to install a specific application suite that includes Microsoft Word and Microsoft Excel and another package that contains Microsoft Word only. You can designate one of the packages as a preferred package in Installation Manager. When the user selects Microsoft Word, the application in the preferred package is started. The Installation Manager Package option in Application Publishing lets you install and publish the preferred package, or you can use the Installation Manager item in the Management Console tree.

Note The Installation Manager node cannot publish the application automatically after installation. Use **Applications** in the Management Console tree.

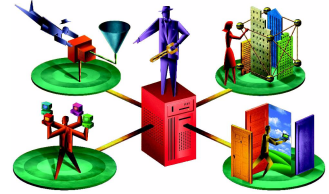
See the Installation Manager online help in the Management Console for more information about how to set up preferred packages.

Unpublishing an Application

Unpublishing an application installed with Installation Manager does not result in the application being uninstalled from the target server. Uninstalling the application or package from that server, however, both uninstalls and unpublishes the application. Use the Management Console to uninstall a packaged application installed using Installation Manager.

See the *MetaFrame XP Server Administrator's Guide* for more information about unpublishing an application.

Note If you uninstall a program on a target machine locally without the use of Installation Manager, the program may still appear to be installed in the Management Console.



Glossary

ADF file See *Application Deployment File*.

ADF package An installation package that includes the Installer Service script file and all of the support files necessary to complete an installation without user intervention. ADF packages are built using Packager.

application compatibility script A file containing commands and registry settings necessary for some applications to run in multisession environments such as Windows 2000 Server.

Application Deployment File A script file that describes steps used by the Installer Service to install applications in the Application Deployment File (ADF) package without user intervention. The format of the Installer Service script file interpreted and generated by Packager that contains installation information such as packaged files and directories plus registry settings.

application package An ADF or MSI package that includes the instructions and files to complete installation without user intervention.

Application Publishing wizard A tool that you use to publish applications and other items on MetaFrame servers.

attended machine A server with a logged-on user who can respond to system prompts.

Citrix ICA Client Citrix software that enables users to connect to MetaFrame servers from a variety of client devices.

ICA The acronym for Independent Computing Architecture. The architecture that Citrix uses to separate an application's logic from its user interface. With ICA, only the keystrokes, mouse clicks, and screen updates pass between the client and server on the network, while 100 percent of the application's logic executes on the server.

Independent Management Architecture (IMA) Citrix's server-to-server infrastructure that provides robust, secure, and scalable tools for managing any size server farm. Among other features, IMA enables centralized platform-independent management, an ODBC-compliant data store, and a suite of management products that plug into the Management Console.

- Installation Manager Subsystem** The software component that controls scheduling and initiates an installation on a target server.
- Installation Manager** A MetaFrame XPe feature type that allows administrators to install packaged applications on target servers from a single server running the Management Console. Installation Manager runs on IMA.
- installation script** An editable text file with a .wfs extension that describes the steps for the Installer Service to install an application in an ADF package without user intervention. In an installation script, Packager records all installation activities using a script language that the Installer Service can interpret and execute to reproduce the installation.
- Installer Service** A service that runs on a MetaFrame server using IMA. The Installer Service executes a request to install ADF or MSI packages without user intervention.
- job** A package that is scheduled for installation or uninstallation.
- Management Console** The extensible, platform-independent tool for administering MetaFrame servers and management products.
- MetaFrame administrator** A system administrator who is responsible for installing, configuring, and maintaining MetaFrame servers.
- mixed mode** The mode of operation in which MetaFrame XP and MetaFrame 1.8 servers are able to function together in the same farm. Not all MetaFrame XP features are available in mixed-mode operation.
- MSI package** An installation package based on Microsoft's Windows Installer Service. MetaFrame XP is an example of a suite that ships as an MSI package for installation on target servers.
- package** See *application package*.
- package group** A group of ADF or MSI packages used for easier application deployment on target servers.
- Packager** An application that monitors the changes that an application's installation makes on a server, records those changes as installation commands in an ADF file, and packages all the required support files for distribution on target servers.
- preferred package** A package that may contain the same application as another package, but one that must be used to deploy on specific target servers.
- project** A container to package components for an ADF package. A project includes the application and any other files added to the project in which the package can be built.
- published application** An application installed on a MetaFrame server or server farm that is configured for multiuser access from Citrix ICA Clients.
- record log file** A log file of file system and registry changes recorded during an application installation.

-
- recorder** A feature of Packager that records installation events.
- rollback** 1. An action that restores the file system and registry settings to the initial condition prior to recording an installation using Packager. 2. An action that restores the file system and registry to its initial state if an error occurs during the installation of an MSI package.
- server farm** A group of MetaFrame servers managed as a single entity, with some form of physical connection between servers and an IMA-based data store.
- server group** A group of servers used for easier application deployment on target servers.
- silent install** See *unattended install*.
- target server** The server on which ADF or MSI packages are installed by the Management Console and the Installer Service.
- transform file** A database that can modify an MSI database without changing the MSI file. For example, Microsoft Office cannot run in a Terminal Services environment without the addition of a transform file.
- unattended install** An installation type that does not require user intervention during application installations.
- unattended server** A server that does not require user intervention during application installations.

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