Installation Manager Administrator's Guide

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Installation Manager for Citrix® Presentation Server™

Citrix® Presentation Server™ 4.5,
Enterprise Edition for Windows®
Citrix Access Suite™

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Contents

Chapter 1 Introduction

Overview 5
About this Guide 6
Introducing Installation Manager 7
Installation Manager Features 7
What's New in This Release? 8
Installation Manager Components 9
Getting Started Quickly With Installation Manager 10
Example 12

Chapter 2 Installing Installation Manager

Overview 15
System Requirements 16
Requirements for the Target Servers 16
Requirements for the Package Management Server 16
Requirements for the Network Share Point Server 16
Requirements for the Packager Server 17
Account and Permission Requirements 18
Specifying a Network Share Point and User Account 19
Installing Installation Manager 20
Uninstalling Installation Manager 21
Uninstalling the Packager 22

Chapter 3 Using the Packager to Create ADF Packages

Overview 23
Introduction to the Packager 24
Packager Terminology Explained 24
About the Packager Wizards 26
Launching the Packager 27
The Packager Window 27

Creating an ADF Package 28
Before You Begin 28
Summary of the Steps 29
Creating an ADF Package Using the Wizards 29
Creating an ADF Package Manually 30
Checking Your Recording 36
Rolling Back the Packager Server to a Clean State 37
What To Do Next 37

Chapter 4 Deploying Applications Using Installation Manager

Overview 39
Introduction 40
Starting the Console 40
Before You Begin 41
Copying a Package to a Network Share Point 41
Copying MSI and MSP Packages 42
Copying ADF Packages 42
Adding a Package to Installation Manager 42
Creating a Server Group 43
Creating a Package Group 44
Scheduling the Installation of a Package 44
Publishing a Packaged Application 46
Configuring Preferred Packages 47
Monitoring the Status of Scheduled Jobs 47
Scheduling the Removal of a Package 48
Example: Deploying a Packaged Application 49

Index 51

Introduction

Overview

Welcome to Installation Manager for Citrix Presentation Server. This chapter introduces you to the documentation and to Installation Manager. Topics include:

- About this guide
- An introduction to Installation Manager
- Getting started quickly

About this Guide

The *Installation Manager Administrator's Guide* is for system administrators responsible for deploying applications, upgrades, service packs, and files to servers using Installation Manager.

This is a task-based guide to help you set up Installation Manager quickly and begin using it to deploy software components to your servers. This guide assumes knowledge of both Windows and Citrix Presentation Server administration.

Accessing Documentation

This administrator's guide is part of the Citrix Presentation Server documentation set. The documentation set includes online guides that correspond to different features of Citrix Presentation Server. Online documentation is provided as Adobe Portable Document Format (PDF) files.

Use the *Document Center* to access the complete set of online guides. The Document Center provides a single point of access to the documentation that enables you to go straight to the section of documentation that you need. The Document Center includes:

- A list of common tasks and a link to each item of documentation.
- A search function that covers all the PDF guides. This is useful when you need to consult a number of different guides.
- Cross-references between documents. You can move between documents as often as you need using the links to other guides and the links to the Document Center.

Important To view, search, and print the PDF documentation, you need to have the Adobe Acrobat Reader 5.0.5 or a later version with Search. You can download Adobe Reader for free from Adobe Systems' Web site at http://www.adobe.com/.

If you prefer to access the guides without using the Document Center, you can navigate to the component PDF files using Windows Explorer. If you prefer to use printed documentation, you can also print each guide from Adobe Reader.

More information about Citrix documentation, and details about how to obtain further information and support, is included in *Getting Started with Citrix Presentation Server*.

Introducing Installation Manager

Installation Manager is a feature of Citrix Presentation Server, Enterprise Edition that allows you to rapidly deploy applications and software components to your servers from a central location.

Using Installation Manager, you can install applications, files, service packs, and software patches to any or all servers in your server farm—attended or unattended—using any server running Citrix Presentation Server on the network, regardless of physical location, network connection type, or hardware setup. The applications and software components you deploy are bundled as *packages*.

For example, consider the task of installing Microsoft Office on 200 servers. To perform this task manually may take weeks because it involves attending each individual server and installing the software on it. And six months later you may have to repeat this cycle to upgrade these servers with the latest service packs or software patches.

Installation Manager eases this administrative burden by letting you install an application package, such as Microsoft Office, from a server to one or more servers in a server farm. This means that application deployment can be achieved rapidly from a central location; there is no need to attend individual servers.

Installation Manager Features

This section describes the key features and benefits of using Installation Manager.

Rapid, centralized application deployment. Installation Manager lets you deploy software quickly and easily to your servers from any server running Citrix Presentation Server on the network. You can deploy applications, files, service packs, patches, and upgrades to existing applications.

Application publishing. You can publish the applications that you have packaged using Installation Manager. Publishing an application makes the application available to your users, who can connect to the application and run it within a client session.

Schedule package installation and publishing. You can schedule when you want to install and publish software on servers. For example, you may want to schedule the deployment of a new application when farm usage is low. You can also schedule the removal of software on servers.

Replacement of damaged applications. You can use Installation Manager to quickly replace a corrupted application on all affected servers. You can do this by uninstalling the package and installing a new packaged application, or by forcing the reinstallation of the package.

Multiple package formats supported. Using Installation Manager, you can deploy applications, and software components in one of three package format types: MSI, MSP or ADF.

Easy creation of ADF packages using the Packager. If the software you want to deploy is not available in MSI or MSP format, you can use the Packager utility provided with Installation Manager to package software in ADF format. The Packager provides easy to use wizards that guide you through the process of creating an ADF package. ADF packages are fully customizable.

Add compatibility scripts in ADF packages. Citrix provides application *compatibility script*s that you can add to an ADF package. Compatibility scripts allow administrators to package and install single-user applications on target servers that do not run well in a multi-user Terminal Services environment.

View package information. Using the Presentation Server Console tree view, you can view the contents and status of a particular package and information about the scheduling of the package's installation.

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.

What's New in This Release?

Application Isolation Environments. With this version of Installation Manager, you can install and publish an application into an isolation environment. Applications installed into an isolation environment are completely isolated: application shortcuts, registry settings, and paths are created and reside within the confines of the isolation environment.

Installing and publishing applications into an isolation environment means that you can:

- Safely install and reliably run multiple applications that require different versions of the same shared component.
- Safely execute incompatible applications on the same server at the same time.
- Update applications independently of each other, without fear of impacting existing applications.
- Install and publish applications that are not designed to run in a multi-user environment using Citrix Presentation Server.
- Safely install incompatible applications on a single server preventing build-up of application specific server silos.

Note For more information on how to create and configure an isolation environment, see the Citrix Presentation Server Console online help system or the *Citrix Presentation Server Administrator's Guide*. For more information on installing and publishing a package into an isolation environment, see the Installation Manager online help system.

Windows Server 2003 x64 Edition Awareness. With a server farm running Citrix Presentation Server 4.0 or 4.5, you can add Windows Server 2003 x64 Edition server machines. Installation Manager allows you to add 64-bit servers to a server group, as well as install and uninstall packages to 64-bit servers in the server farm.

Note You cannot use Packager to create an ADF package on a server running Windows Server 2003 x64 Edition. However, once a package has been created (for example on a server running Windows 2000 Server), packages can be installed on servers running Windows Server 2003 x64 Edition as usual.

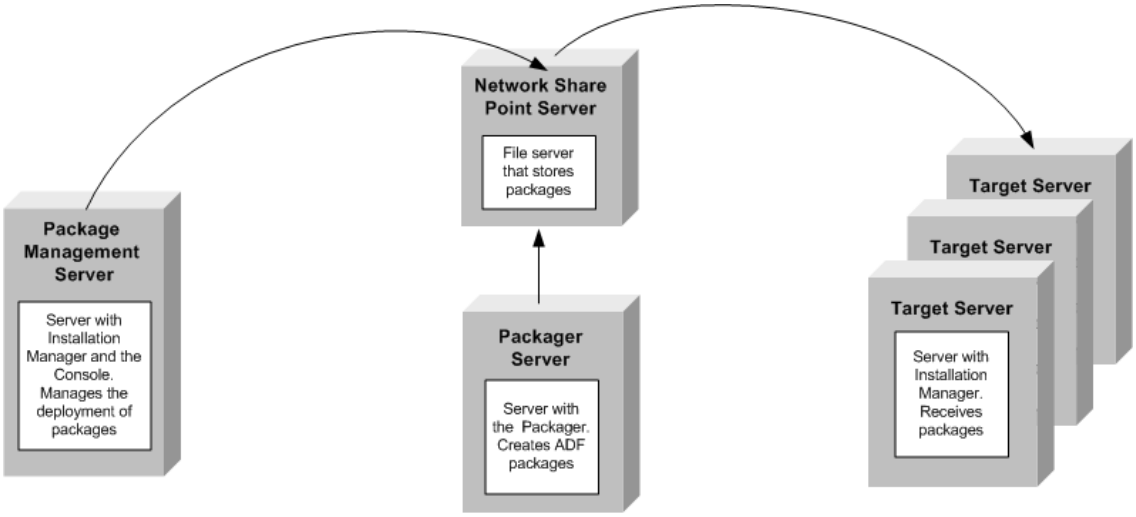
For more information, see the Citrix Presentation Server Console online help system or the *Citrix Presentation Server Administrator's Guide*.

Installation Manager Components

Installation Manager involves the interaction of the following components:

- Package management server. This is a Citrix Presentation Server Enterprise Edition server with the Console installed. This server is used to manage and schedule the packages you deploy using Installation Manager. This need not be a separate server; for example, you can use one of the target servers as the package management server.
- Network share point server. This is a file server that stores the packages that are to be deployed using Installation Manager. This can be any Windows server; for example, you can use the package management server as the network share point server. You can also have multiple network share point servers; for example, one in the US and one in the UK to speed up regional deployments.
- Packager server. If you use the Packager to create ADF packages, this is a server running Citrix Presentation Server Enterprise Edition dedicated to packaging only.
- Target server(s). The server or servers on which software is to be deployed. These servers must have Citrix Presentation Server Enterprise Edition and the Installer Service (which is an Installation Manager component) installed.

The following diagram illustrates the components in a typical deployment.



Components in a typical Installation Manager deployment

Getting Started Quickly With Installation Manager

The following section summarizes the steps required to deploy packages using Installation Manager. A simple example is used to illustrate these steps.

1. Identify and configure the servers you require
2. Determine the package and format you want to deploy
3. Copy packages to the network share point server
4. Use Installation Manager to deploy packages on the target servers

The following section discusses these steps in more detail.

Step 1—Identify and Configure the Servers You Require

You must identify:

- The target servers on which you want to install software using Installation Manager
- The server that will act as the package management server
- A suitable network share point server
- If you intend using the Packager to create ADF packages, the server you want to use to create packages

Note Read "Installing Installation Manager" on page 15 for detailed information about how to install and configure these servers for Installation Manager. This chapter also explains how to configure the accounts and permissions you require to create and deploy packages.

Step 2—Determine the Package and Format You Want to Deploy

You can deploy a number of different software types using Installation Manager: applications, service packs, upgrades, application suites, patches, and other files. Your software packaging product bundles the software as a *package*. A package can include combinations of these software components; for example, an ADF package built using the Packager may include an application and a patch file.

Using the Console, 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 into a package group makes them easier to categorize and locate.

After determining which packages you want to deploy, you must decide the package format you want to use. Installation Manager supports three package format types: *MSI*, *MSP,* and *ADF*.

- MSI packages are installation packages based on Microsoft's Windows Installer Service. 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 Citrix Presentation Server 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.

- An MSP package is created by a software manufacturer or by using a software packaging product that builds MSP packages. MSP packages are typically used to patch or update application installations that use the Windows Installer service for packaging.

Tip One benefit of installing MSI or MSP packages is that you simply need to place these packages on a network share point, then add and schedule their installation in the Console. This means that the deployment of MSI and MSP packages using Installation Manager is quick and easy.

- An ADF package is produced using the Packager utility provided with Installation Manager. ADF packages work well for installation recordings (where user interaction is required during installation setup), unattended installations, and other files.

  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 users require.

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

  For more information about using the Packager to create ADF packages, see "Using the Packager to Create ADF Packages" on page 23.

Step 3—Copy Packages to the Network Share Point

Before you can deploy a package on your target servers, the package must be on a network share point. Copying a package to a share point makes it accessible from the Console.

For more information about how to copy packages to a network share point, see "Copying a Package to a Network Share Point" on page 41.

Step 4—Deploy Packages on Target Servers

Using the Console, you add the package to the Installation Manager database, then schedule when you want to install the software on your target servers. You can also use the Console to publish an application to make it available to your Client users.

For more information about adding packages to the Installation Manager database, and installing and publishing packages on target servers, see "Deploying Applications Using Installation Manager" on page 39.

Example

In the following example, the administrator wants to install and publish Microsoft Word 2000 on 20 servers in a farm. This application is available as an MSI package. The administrator decides to schedule the installation for the evening, when network usage is low.

To deploy the application on 20 servers

1. The administrator identifies the target servers they wants to install Microsoft Word on and a package management server, and configures these servers appropriately. They also identify a suitable network share point server and configure the appropriate permissions.

2. The administrator obtains the MSI file for the Microsoft Word 2000 application and copies this file to the network share point.
3. Using the Console on the package management server, the administrator creates a server group containing the 20 target servers. They then add the package to the Installation Manager database and schedule the installation and publishing of the application for 8 o'clock that evening.

After completing these steps, the administrator can monitor the status of the scheduled job using the Console.

Installing Installation Manager

Overview

This chapter provides system requirement information and describes the accounts and permissions you need to use Installation Manager. It also explains how to install and upgrade Installation Manager. Topics include:

- System requirements
- Account and permission requirements
- Installing Installation Manager
- Uninstalling Installation Manager
- Uninstalling the Packager

System Requirements

Requirements for the Target Servers

Target servers are the servers on which software is to be deployed.

To install applications on the target servers in your network, these servers must have Citrix Presentation Server Enterprise Edition and the Installer Service (which is an Installation Manager component) installed. The Installer Service is included by default when you install the Enterprise Edition.

See the *Citrix Presentation Server Administrator's Guide* for more information about system requirements.

Requirements for the Package Management Server

The package management server is used to manage and schedule the packages you deploy using Installation Manager. This is a server running Citrix Presentation Server Enterprise Edition with the Console installed.

See the *Citrix Presentation Server Administrator's Guide* for more information about the requirements for Citrix Presentation Server and the Console.

Requirements for the Network Share Point Server

This is a file server that stores the packages that are to be deployed using Installation Manager. This file server must:

- Have adequate free disk space to hold all of the packaged applications and other software components (such as service packs) that you plan to install. The maximum disk space required for each application is usually 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 You must have the appropriate permissions to allow you to copy packages to the network share point and retrieve them for deployment on the target servers. See "Account and Permission Requirements" on page 18 for more information.

Requirements for the Packager Server

This is a server running Citrix Presentation Server Enterprise Edition dedicated to packaging software with the Packager utility provided with Installation Manager. You need to configure a packager server only if you intend using the Packager to package your applications and software components.

Citrix recommends that you install the Packager on a separate server running Citrix Presentation Server Enterprise Edition dedicated to packaging only.

The packager server should be a *clean* server that, where possible, closely approximates the environment of the target servers. A clean server is a fresh installation of Windows Server 2003 that does not contain any applications that the target servers do not have. The type of operating system on which an application installs can affect the application's setup routine. Therefore, to accurately record an application installation, ensure the packager server runs the same operating system as your target servers.

Note You can configure more than one packager server; for example, you can configure two packager servers to package both Windows 2000 Server and Windows Server 2003 packages.

The Packager requires at least 4933KB of disk space, in addition to the Windows operating system requirements and the disk space required to package applications, service packs, and other files. During packaging, all of the component files are copied to a package source directory. As much disk space as is 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 packager server 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 2003 Server.

  Important This installation cannot be an existing installation of Windows Server 2003. Use this installation exclusively for the purpose of packaging applications and not for any other tasks.

- The Packager installed on the same partition. This software is included on the Citrix Presentation Server CD-ROM.

Account and Permission Requirements

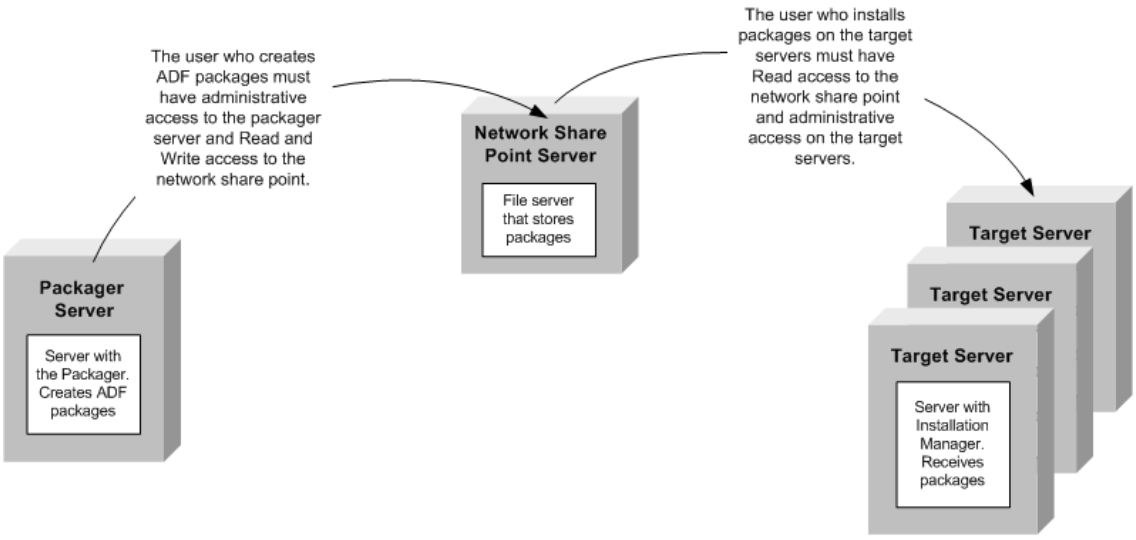
This section describes the user accounts and permissions that are required to create packages, copy and retrieve packages from the network share point server, and deploy packages on target servers.

The following accounts and permissions are required:

- An account for running the Packager, if you intend to create ADF packages. This account must have a minimum of administrative permissions. This account is required so that packages can be created on the packager server.
- An account for copying packages to the network share point server. This account must have a minimum of Read and Write user rights to the network share point. This account can be the same account you use to run the Packager but with appropriate permissions for copying packages to the share point (for example, you may create a local user account on the packager server that has Read and Write permissions to both the packager server and the network share point server).
- An account for retrieving packages from the network share point and installing these on target servers. You must specify this account in the Console. This account must have Read permission to the network share point server and administrative permission on the target servers. For more information about configuring this account in the Console, see "Specifying a Network Share Point and User Account" on page 19.

Note If you delegate areas of administration and server farm management to Citrix administrators, make sure administrators who deploy software using Installation Manager have full user rights to target servers. Without full user rights, administrators will be unable to install packages on servers using Installation Manager or publish applications using the **Installation Manager Package** option in the Application Publishing wizard. For more information about delegated administration, see the *Citrix Presentation Server Administrator's Guide*.

The following diagram summarizes the user accounts and permissions required.



User accounts and permissions required to create, copy, and deploy packages

Specifying a Network Share Point and User Account

This section explains how to specify an account in the Console that you can use to retrieve packages from the network share point and install on target servers.

This account must have read permission to the network share point server and administrative permission on the target servers.

Note Package groups can be created on a different network share point server, with different network credentials from that used for the main Installation Manager node.

To set up access to a share point

1. In the Console tree, right-click **Installation Manager**.
2. Click **Properties**.
3. In the **Installation Manager Properties** dialog box, select **Network Account**.

   In **Default Network Credentials**, type the user name in the format *domain\username* or select a user by browsing the network.
4. Click **Browse**.
5. In the **Look in** drop-down list, double-click the domain.

6. In the users list, click a user for this account and click **OK**.
7. Type the password and verify it.

   In **Default File Share Location**, type the default file share location in UNC format or select the location by browsing the network.
8. Click **Browse**.
9. Select the domain.
10. Select the server.
11. Select the share.
12. Click **OK**.

After you have entered the user, domain, and default file share location, click **OK** to save your changes.

Installing Installation Manager

You can install Installation Manager by running the Setup program for Citrix Presentation Server Enterprise Edition. Setup installs Installation Manager by default if you select the Enterprise Edition during the installation sequence.

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

Note The following procedure describes Installation Manager installation; general installation steps for Citrix Presentation Server are not described in detail. For complete installation instructions, see the *Citrix Presentation Server Administrator's Guide*.

To install Installation Manager on a server

1. Log all users off the server.
2. Close all applications on the server, including the Console.
3. Insert the Citrix Presentation Server CD-ROM in your CD-ROM drive:
   - If your CD-ROM drive supports *Autorun*, the 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 Product installations and updates icon.

5. Click the Install Citrix Presentation Server 4.5 and its components icon. The Setup wizard starts; follow the instructions on screen.
6. When the Component Selection page appears, ensure Installation Manager is selected.

Uninstalling Installation Manager

Before you uninstall Installation Manager, log off any currently connected clients and the 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 Console even though it is empty. This does not cause any harm.

To uninstall Installation Manager

1. Launch **Add/Remove Programs** from the **Control Panel**.
2. Select **Citrix Presentation Server for Windows**.
3. Click **Change**. The **Citrix Presentation Server for Windows Setup** dialog box appears.
4. Select **Modify** and click **Next**.
5. In the **Component Selection** screen, remove **Installation Manager** and click **Next**. Follow the instructions on screen.

After you uninstall Installation Manager, restart your server. Restarting the server removes any residual files left from the previous installation, making it ready for a new install. If you do not restart the server, the imsss.dll component remains in a deleted state and reinstallation is corrupted. Restarting your server removes the Installation Manager subsystem.

Uninstalling the Packager

To uninstall the Packager

1. Launch **Add/Remove Programs** from the **Control Panel**.
2. Select **Citrix Presentation Server for Windows**.
3. Click **Change**. The **Citrix Presentation Server for Windows Setup** dialog box appears.
4. Select **Modify** and click **Next**.
5. In the **Component Selection** screen, remove **Packager** and click **Next**. Follow the instructions on screen.

Using the Packager to Create ADF Packages

Overview

This chapter introduces the Packager utility provided with Installation Manager and explains how to use this utility to package applications ready for deployment on servers. Topics include:

- Introduction to the Packager
- Launching the Packager
- Creating an ADF package
- Checking your recording
- Rolling back the packager server to a clean state

Note If you want to use the Packager to package your applications and software components. You do not need to use the Packager if you deploy MSI or MSP packages with Installation Manager.

Introduction to the Packager

The Packager is a utility that packages software components into Application Deployment File (ADF) packages, ready for deployment on servers using Installation Manager. You need to use the Packager only if the software you want to deploy with Installation Manager is not available in MSI or MSP format.

You use the Packager to monitor and record the changes made when you install an application or software component. These changes, together with the relevant installation files, are bundled into an ADF package. Installation Manager can then use this ADF package to deploy the software on target servers in your farm.

You can use the Packager to package different types of software, such as applications, service packs, upgrades, application suites, patches, and other files. The Packager makes the process of creating an ADF package easy by providing wizards to guide you through the steps.

Note You cannot use Packager to create an ADF package on a server running Windows Server 2003 x64 Edition. However, once a package has been created (for example on a server running Windows 2000 Server), packages can be installed on servers running Windows Server 2003 x64 Edition as usual.

With MetaFrame XP, Feature Release 2, MetaFrame Presentation Server 3.x, and Citrix Presentation Server 4.0 and 4.5, you cannot package or deploy applications using Windows NT Server 4.0 Terminal Services Edition.

Packager Terminology Explained

The following section explains some of the key terminology and components that it is useful to know about when using the Packager.

ADF Files

When the Packager records the changes made when software is installed, it creates an Application Deployment File (ADF). This is a script file in human-readable format that contains information about the environment, resources, and files required to install and run the software on a server. The ADF file includes registry key, environment variable, and file system changes. The file has a.wfs extension and its name reflects the name of the project you specify (for example, *Winword.wfs*).

Note You can customize ADF files using ADF parameters. For example, you can use ADF parameters to install, repair, or remove an application. For more information about customizing ADF files and about ADF creation, format, and syntax, see Citrix Knowledge Base article CTX102950 available on the Citrix Web site.

ADF Packages

An ADF package is built by the Packager. The ADF package contains the ADF file and folders containing the software installation files. The ADF package stores all the information that Installation Manager needs to recreate the software installation on target servers.

The package folder, **PkgSrc**, contains the ADF package. By default, this folder exists in the Packager installation directory: Packager\Projects*project_name*\PkgSrc.

You add ADF packages to Installation Manager's database, either by using the Console or by configuring the Packager to do this automatically.

Projects

When you create an ADF package, the Packager prompts you to create a *project* to which you assign a project name. A project is a container that stores all the information that the Packager needs to build the ADF package. The project also includes the following files and information:

- **Project log file**. This is a text file (identified with a _log.txt extension) that contains errors, warnings, and information about the project. As you create an ADF package, you can view this information in the Output pane of the Packager window. Click **History Log** to display the Project log file.
- **Project file.** This is a binary file (identified with a.aep extension) that contains information describing the project, the version, the product ID, the product name and description, the operating system, and so on.
- **Record log file.** This is an intermediate file (identified with a.ael extension) that is created by the Packager during installation recording. It is used to hold information about the changes made to the target server by the installed application, including file system and registry changes. The Packager uses this file to generate the final ADF file.
- **Rollback information.** The project stores information that enables you to restore the file system and registry to its previous state, prior to recording an installation using the Packager.

Compatibility Scripts

Compatibility scripts allow administrators to package and deploy single-user applications on target servers that do not run well in a multiuser Terminal Services environment.

For example, because Microsoft Project 98 runs in single-user mode, it cannot run in a Terminal Services environment without the addition of the compatibility script for that application.

Compatibility scripts allow changes to the registry, environment variables, and so on. Compatibility scripts are available from Citrix. Citrix compatibility scripts are translations of Microsoft compatibility scripts into ADF files as Startup.wfs files. The Startup.wfs files merge into an ADF package.

The Citrix-supported default path for the most commonly used compatibility scripts is **Packager** > **appcompat**. The Microsoft compatibility scripts are located in your Windows directory: <drive>:\WINDOWS\Application Compatibility Scripts\ or <drive>:\Program Files\Citrix\IM\Packager\appcompat\.

You can specify compatibility scripts using the wizards, or from the **Packager** window.

Note When installing packages that use a Citrix Compatibility Script, you need to create the following registration key on each server to which the package is to be installed: HKEY_LOCAL_MACHINE\SOFTWARE\Citrix\AppCloning\RootDrive. Then set the value of the key to the application users' home drive

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About the Packager Wizards

The Packager provides various wizards to guide you through the process of creating an ADF package, depending on the type of software you want to deploy.

Package an Installation Recording wizard. Use this wizard to package an application that prompts you for information during installation. This wizard prompts you for information, such as the location of the application's installation files, a compatibility script, and a build location. The wizard then prompts you to begin the application installation. The Packager runs in the background while you install the application and records the changes. When installation is complete, the Packager creates an ADF package from the information collected.

Package an Unattended Program wizard. Use this wizard to package an application that does not prompt you for information (called an *unattended* or *silent* install). For example, this wizard is useful for service packs and software patches. The wizard prompts you for information such as the location of the file you are deploying and a build location. The Packager creates an ADF package from the information you provide.

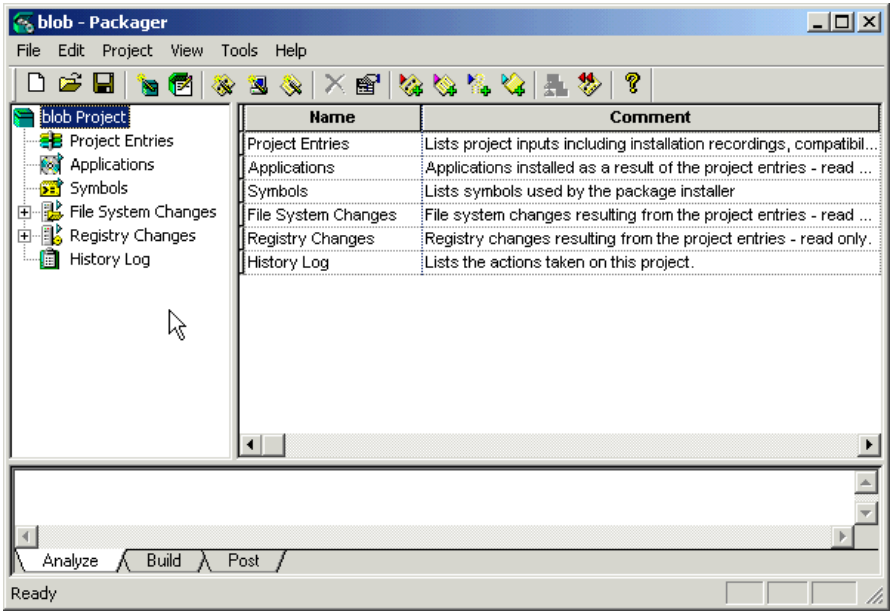
Package Files wizard. Use this wizard to package files or folders. For example, you may want to use this option to distribute documentation to a directory. This wizard prompts you for information such as the location of the file you are deploying. The Packager creates an ADF package from the information you provide.

Launching the Packager

To launch the Packager

From the **Start** menu, click **All Programs** > **Citrix** > **Citrix Presentation Server** > **Installation Manager Packager**. The **Packager** window and the **Project** dialog box appear.

The Packager Window



The Packager Window showing the three panes

The **Packager** window has the following panes.

- The left pane displays a list of the items in the project, called the *Packager tree*. The Packager tree includes the following items:
  - **Project**. This is the name of your Packager project.

  - **Project Entries**. Displays the entries added to this project, such as recordings, compatibility scripts, and so on. To add other components to the project, right-click **Project Entries**.
  - **Applications**. Displays the applications recorded and included in this project.
  - **Symbols**. Displays symbols added to this project. To edit symbols, right-click a symbol in the right pane to open the **Symbol Properties** page. For more information about editing symbols, see Citrix Knowledge Base article CTX102950 available on the Citrix Web site.
  - **File System Changes**. Displays any changes made to the file system during the packaging process.
  - **Registry Changes**. Displays any changes that were made to the registry during the packaging process.
  - **History Log**. Displays a list of information, warning, and error messages generated during the packaging process.
- The right pane displays detailed information about the item selected in the left pane. When you add components to a project, the details appear in this pane.
- After creating a project, a third pane appears at the bottom of the Packager window when you select **View** > **Output**. This is called the *Output pane* because it displays any messages, warnings, and errors generated during the packaging process.

Creating an ADF Package

The following section describes how to create an ADF package using the Packager. It describes how to use the wizards provided with the Packager to create ADF packages and also how to create ADF packages manually, without the wizards.

Note Only one recording of an application installation is allowed for each package you create. Therefore, to capture another installation recording, you must create another package.

The Installation Manager Packager is a 32-bit application. You can install a package on a 64-bit server; however, you must create it on a 32-bit server and enable the 64-bit option.

To use the Packager to create a 32-bit application to be deployed on a 64-bit server

1. Create the package on a 32-bit server as described below.
2. In the left pane of the Packager, right-click the project and select **Properties**.
3. In the window that appears, select the Windows 64-bit check box.
4. Rebuild the package and save it.
5. Place the package on a network file share and add it to the 64-bit server farm.
6. Install the package on the 64-bit server farm.

Before You Begin

Before you begin using the Packager, ensure that:

- The packager server is a clean server that closely matches the target server environment. For more information, see “Requirements for the Packager Server” on page 17.
- There are no other applications or background processes running on the packager server. Also, make sure you disable all sessions before you begin a recording.
- The applications and software components you want to package are accessible. You need the CD-ROM or other media containing the software you want to package, or make sure that the installation files are available on the packager server or on a file share that you can access.
- You have a directory in which to save the project. The default directory is: Drive:\Program Files\Citrix\IM\Packager\Projects.
- You have configured the appropriate accounts and permissions required to run the Packager and copy packages to the network share point. For more information, see “Account and Permission Requirements” on page 18.

Summary of the Steps

To create an ADF package, perform the following steps:

1. Launch the Packager.
2. Create the ADF package using the appropriate wizard, depending on the type of software you are packaging. Alternatively, create the ADF package manually.
3. After packaging is complete, check your recording.
4. Roll back the packager server to a clean state. This is an optional step.

The rest of the chapter explains these steps in more detail.

Creating an ADF Package Using the Wizards

The wizards guide you through the process of adding your package components, adding a compatibility script if required, building the package, and saving your package to a network share point so it can be deployed using Installation Manager.

Tip If you prefer not to use a wizard, you can perform the same tasks manually using the menu options and icons available in the Packager window. See "Creating an ADF Package Manually" on page 31 and the online help for more information about these options.

To create an ADF package using the wizards

1. Launch the Packager. The **Packager** window and the **Project** dialog box appears.
2. Select **Create a new project using project wizard** from the **Project** dialog box and click **Next**. The **Project Wizard** appears.

   Tip If you have already created a project that you want to use, select **Open an existing project** and either select a project from the list or click the **Browse** button to search for it.

   ---

3. Select the appropriate wizard to assist you in creating the ADF package. The **Project Wizard** displays three options:
   - **Package an Installation Recording**. Select this option to package applications that prompt you for information during installation.
   - **Package an Unattended Program (Service Pack, etc.)**. Select this option to package an application that requires no user interaction, such as a service pack or patch. You can also use this option to schedule remote jobs at the command line using a batch file or other program.
   - **Package Selected Files**. Select this option to package individual files or folders; for example, to distribute documentation to a directory.

The wizard guides you through each step in packaging your software. Follow the instructions on screen.

Note If you are packaging an installation recording, 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), select **No** when the application prompts you to restart. If there is no prompt, press ALT+TAB at the recording progress dialog box, then click **Done** and save the project. Click **OK** at the request to restart.

Creating an ADF Package Manually

The following instructions describe how to create ADF packages using the menu options in the Packager window, rather than the wizards. For example, if you previously used a wizard and packaging failed, you may want to try packaging manually.

You can use the following options from the **Project** menu to build the components of your ADF package manually:

Add Recording. Package applications that prompt you for information during installation.

Add Unattended Program. Package applications that require no user interaction, such as service packs or patches.

Add Files. Package files or folders.

Add Compatibility Script. Merge application compatibility scripts.

Packaging an Installation Recording Manually

The following procedure describes how to manually create an ADF package for an application that prompts you for information during setup.

To package an installation recording manually

1. Launch the Packager.
2. To create a new project for your package, select **File** > **New Project**. Type the project name and location and click **OK**.
3. To record the application's installation, select **Project** > **Add Recording**.
4. Browse to the application installation program you want to record and add the application to the package.
5. Click **Advanced** to specify:
   - The drives you want to use. To select drives, select the check boxes.

- Whether to record only this program or other programs as well. To record only this program plus any programs it starts automatically, select the **Only the Run Program and programs it starts** check box. To record everything, clear this check box.

6. Click **Start**. The **Recording** dialog box appears.

Tip To keep the **Recording** dialog box open and in the foreground during the recording process, select **Stay on Top of all Windows**.

---

7. Install the software as normal. The Packager runs in the background and records the changes.
8. When you have completed the installation, click **Done**.

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), select **No** when the application prompts you to restart. If there is no prompt, press ALT+TAB at the recording progress dialog box, then click **Done** and save the project. Click **OK** at the request to restart.

---

9. To select the package location, select **Tools > Build Options**. The **Build Options** dialog box appears.
10. In **Folder Location**, browse to the location to which you want to copy the package.
11. To specify a network share, enter the share point address in UNC format. Click **OK**.

Tip To automatically add the package to the Installation Manager database, select **Add packages to the Installation Manager database** in the **Build Options** dialog box. Type a network share point address in UNC format in **Folder Location**. When the package is next built, the Packager outputs the package to the specified location and attempts to add the package to the Installation Manager database. This saves you a step later when you deploy the package using Installation Manager.

---

12. To build the package, select **Project > Build Package**.

Packaging an Unattended Application Manually

The following procedure describes how to manually create an ADF package for an application that requires no user interaction (called a *silent install*), such as service packs or patches. These applications use the application vendor's defaults.

Warning If you create a package using the **Add Unattended Program** option, you cannot uninstall the package using Installation Manager after it is installed and deployed to your target servers.

To package an unattended application manually

1. Launch the Packager.
2. To create a new project for your package, select **File** > **New Project**. Type the project name and location and click **OK**.
3. To add the unattended program, from the **Project** menu, select **Add Unattended Program**. The **Unattended Program Properties** dialog box appears.
4. In **Description**, type a suitable description.
5. In **Unattended program**, type the name of the program or click **Browse** to locate the program.
6. In **Command line parameters**, add any command line parameters you want to include to ensure that the program runs without requiring user intervention.
7. If the unattended program is a setup program that requires a reboot when it is finished, select **Reboot after completion**. The reboot action is suppressed until the setup is finished.
8. To run the setup file directly from the network share point, select **Run program from source location**.

   Note If the unattended program is run directly from a network share point, the network account set up in the Console must have user rights to that network share point. For more information about accounts and permissions, see "Account and Permission Requirements" on page 18.

   Otherwise, accept the default **Copy program plus the following files locally and then run program** option.
9. Click **Add File** or **Add Folder** to add the files to copy.
10. Click **OK**.

11. To select the package location, select **Tools > Build Options**. The **Build Options** dialog box appears.
12. In **Folder Location**, browse to the location to which you want to copy the package.
13. To specify a network share, enter the share point address in UNC format. Click **OK**.

Tip To automatically add the package to the Installation Manager database, select **Add packages to the Installation Manager database** in the **Build Options** dialog box. You must enter a network share point address in UNC format in **Folder Location**. When the package is next built, the Packager outputs the package to the specified location and attempts to add the package to the Installation Manager database. This saves you a step later when you deploy the package using Installation Manager.

14. To build the package, select **Project** > **Build Package**.

Example: Deploying Files and Registry Changes

In addition to application installations, you can package system changes, such as registry modifications or file replacements, using the Packager. The following example illustrates how to use the **Add Unattended Program** option to package system changes that you can deploy on target servers.

Warning Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Citrix cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk. Make sure you back up the registry and update your Emergency Repair Disk (ERD) before you edit it.

To deploy files or registry changes

1. Create a batch file containing the commands you want to execute on the target servers.

   For example, to create an installation program that copies the file Notepad.exe from the %SystemRoot%\System32\ directory to a directory called %SystemDrive%\Myappdirectory, make a batch file containing the following commands:

   ```
   mkdir %SystemDrive%\Myappdirectory
   copy %SystemRoot%\System32\notepad.exe
   %SystemDrive%\Myappdirectory
   ```

Note You can use Windows system variables in your paths. If you specify a hard-coded path, make sure this path exists on each server.

To write an installation program that creates a registry key on your servers, make a.reg file and then a batch file containing the following command:

```
regedit /s Myregfile.reg
```

where Myregfile.reg is the name of a Reg file containing the name and value of the key(s) you want to create.

2. Save the batch file to a directory on the packager server. If you deploy a registry change, make sure you save the Reg file in the same directory.
3. Launch the Packager.
4. Follow the instructions on how to package an unattended application manually; for more information, see “Packaging an Unattended Application Manually” on page 33. Make sure you add any supporting files, such as Myregfile.reg, to the package.
5. Use Installation Manager to deploy the ADF package on the target servers. For more information, see “Deploying Applications Using Installation Manager” on page 39.

Packaging Files Manually

The following procedure describes how to manually create an ADF package of one or more files.

To package files manually

1. Launch the Packager.
2. To create a new project for your package, select **File** > **New Project**. Type the project name and location and click **OK**.
3. To add the files, select **Project** > **Add Files**. The **Add File Collection** dialog box appears.
4. In **Description**, type a suitable description.
5. Click **Add File** or **Add Folder** to browse for the files or folders you want to include in the package. Double-click a file or folder to add it to the list. To select multiple files, hold down the SHIFT or CTRL key and click the files you want to add.
6. Click **OK**.

7. To select the package location, select **Tools > Build Options**. The **Build Options** dialog box appears. In **Folder Location**, browse to the location to which you want to copy the package. To specify a network share, type the share point address in UNC format. Click **OK**.

   Tip To automatically add the package to the Installation Manager database, select **Add packages to the Installation Manager database** in the **Build Options** dialog box. You must enter a network share point address in UNC format in **Folder Location**. When the package is next built, the Packager outputs the package to the specified location and attempts to add the package to the Installation Manager database. This saves you a step later when you deploy the package using Installation Manager.

8. To build the package, select **Project** > **Build Package**.

Adding Compatibility Scripts

The following procedure describes how to manually add a compatibility script to an ADF package.

Note For more information about compatibility scripts, see "Compatibility Scripts" on page 26.

To add a compatibility script

1. Launch the Packager.
2. Open the project you want to add a compatibility script to. To do this, select **File** > **Open Project**.
3. Select **Project** > **Add Compatibility Script**. The **Application Compatibility Scripts** dialog box appears.
4. From the first scrollable list, select a script or click **Browse** to locate a script (if you have a central repository of compatibility scripts stored in another location). If additional instructions for this compatibility script are needed, they appear in the **Special Instructions** list.
5. Click **OK** to save your changes.
6. To build the package, select **Project** > **Build Package**.

Note When installing packages that use a Citrix Compatibility Script, you need to create the following registration key on each server to which the package is to be installed: HKEY_LOCAL_MACHINE\SOFTWARE\Citrix\AppCloning\RootDrive. Then set the value of the key to the application users' home drive.

Checking Your Recording

After completing the packaging, check that no errors or warnings occurred during the packaging process. To do this, use the **Analyze**, **Build**, and **Post** tabs located on the bottom, left of the **Packager** window.

Tip To display the output pane, ensure that **View** > **Output** is selected.

To check your recording

1. Click the **Analyze** tab. Any output messages generated during the recording are displayed in the output pane.
2. Click the **Build** tab. Any output messages generated while the package is being built are displayed in the output pane.
3. Click the **Post** tab. Any output messages generated while the package is being posted to the share point are displayed in the output pane.

Rolling Back the Packager Server to a Clean State

After completing the packaging process, you can restore your packager server to its original state prior to packaging the application. To do this, you use the **Rollback** option. This ensures that your packager server remains in a clean state, ready for the next package to be created.

Note If you prefer, you can use a third-party backup and restore product to re-image your packager server to its original state.

To roll back the packager server

1. From the **Tools** menu, select **Rollback**. The **Rollback** dialog box appears.
2. Select the session of the project you want to roll back.
3. Click **Rollback** to roll back the recorded session.

Tip To delete the recorded session permanently, click **Delete**. When you delete a recording, you accept the changes made to the Packager system and the session is not restored to its original state. For example, if you record an application installation then delete the session, the application remains installed on the Packager system.

4. Click **Yes** to confirm the action.
5. Click **Close** to close the **Rollback** dialog box.

What To Do Next

After you have created an ADF package, you are ready to add the package to the Installation Manager database, and schedule and install the package on your target servers. For more information, see “Deploying Applications Using Installation Manager” on page 39.

Deploying Applications Using Installation Manager

Overview

This chapter explains how to use Installation Manager to deploy packaged applications on your target servers. Topics include:

- Introduction to deploying software using Installation Manager
- Copying a package to a network share point
- Adding a package to Installation Manager
- Scheduling installation
- Publishing an application
- Monitoring the status of scheduled jobs
- Scheduling the removal of a package
- Example

Introduction

Use the Console on the package management server to deploy packaged applications using Installation Manage. Using the Console you can:

- Add packages to the Installation Manager database. Packages must be added to this database before they can be installed.
- Create server or package groups. These groups save you time when dealing with multiple target servers and packages.
- Schedule the installation of the package.
- Publish applications to your Client users, if required.
- Monitor installation status.
- Uninstall packages from target servers.

This chapter explains these tasks in more detail.

Note This chapter explains only the key tasks required to deploy packages on target servers. For example, it explains how to add, install, and publish software on servers and check the scheduling of the job. There are many other tasks that you can perform that are not covered in this guide, such as how to change the scheduling of a job or the sequence in which packages are installed. For more information about all of these tasks, see the online help.

Starting the Console

To start the Console

1. From the **Start** menu, select **Programs** > **Citrix** > **Management Consoles** > **Presentation Server Console**.
2. Log on to the Console and click **OK**.

Displaying Online Help in the Console

To view online help in the Console

From the **Help** menu, select **Contents and Index**.

—OR—

Press **F1** in the Console to access help.

Before You Begin

Before you use Installation Manager to deploy packaged applications on your target servers, ensure that:

- The software you want to deploy is packaged in MSI, MSP, or ADF format. If the software is not available in MSI or MSP format, use the Packager utility provided with Installation Manager to package it in ADF format. For more information about using the Packager, see "Using the Packager to Create ADF Packages" on page 23.
- You have the appropriate permissions to access the network share point server and run Installation Manager. You must also specify a network account in the Console that you can use to retrieve packages from the network share point. For more information, see "Account and Permission Requirements" on page 18.
- If you delegate areas of Citrix administration and server farm management to Citrix administrators, make sure administrators who deploy software using Installation Manager have full user rights to target servers. Without the appropriate user rights, administrators may be unable to view the Installation Manager node in the Console, add, edit, install, or remove packages using Installation Manager, or publish applications using the **Installation Manager Package** option in the Application Publishing wizard. For more information about delegated administration and configuring Citrix administrator accounts, see the *Citrix Presentation Server Administrator's Guide*.
- You have copied the packages you want to deploy onto a network share point, if you have not already done so. For more information about how to do this, see below.

Copying a Package to a Network Share Point

Before you can add and schedule a package for deployment on target servers, the package must be on a network share point. Copying a package to a share point makes it accessible from the Console.

Note If you created an ADF package using the Packager and you specified the network share point as the build location during the packaging process, the package is already on the share point. Therefore, there is no need to perform this step.

Copying MSI and MSP Packages

Copy MSI and MSP packages manually to the network share point.

Microsoft recommends that you copy MSI packages to 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 typing the command, the software prompts you for the share point to the package.

Microsoft recommends that you copy MSP packages to a share point using the following command at the command line: **msiexec /p** <***patch name***>.

Copying ADF Packages

You can copy an ADF package to the network share point in two ways:

- Copy the file manually.
- Use Packager to copy an ADF package
  - In the Packager, open the project. Right-click the project in the left pane and select **Properties**. The **Project Properties** dialog box appears.
  - Type the network share point address, in UNC format, in the **Output Location** field and click **OK**.

Adding a Package to Installation Manager

You must add packages to the Installation Manager database before you can install them on target servers. You use the **Add Package** option in the Console to add your package to the database.

Note If you created an ADF package using the Packager and you selected the **Add package to the Installation Manager database** option during the build process, the package is already in the Installation Manager database. Therefore, there is no need to perform this step.

To add a package to the Installation Manager database

1. Expand **Installation Manager** in the Console tree.
2. Right-click the **Packages** node and select **Add Package**. The **Add Package** dialog box appears.
3. In **Package Name**, type the name of the package.

4. In **File**, specify the location of the package (in UNC format; for example: *\\servername\sharename\path\filename*) or click **Browse** to locate the package on the network.
5. Click **OK**. If you are adding an MSI package, a prompt to add transforms or command line parameters appears; select whether to add these or not.

The package is added and appears in the **Contents** tab.

Creating a Server Group

You can create server groups using the Console. Creating a server group saves time when installing packages to multiple target servers because you select only the one entry, the server group, rather than selecting multiple servers one at a time. For example, you can group all Windows Server 2003 machines into the one server group.

To create a server group

1. In the Console tree, expand Installation Manager.
2. Right-click **Server Groups** and select **Create Server Group**. The **Create Server Group** dialog box appears.
3. In **Name**, specify a name for the server group. This name must be unique.
4. If necessary, use the platform filter check boxes to filter the list of servers displayed. For example, click the Windows 2000 Server filter to display only Windows 2000 Server machines.
   Note: You can now filter for Windows Server 2003 x64 Edition machines.
5. Use the buttons to move server names from the **Available Servers** list to the **Assigned Servers** list. The **Assigned Servers** list shows the servers currently included in the server group.

   Tip To select multiple servers, hold down the SHIFT or CTRL keys and click all the servers you want to include.

6. Click **OK**. The server group appears in the **Contents** tab when you click **Server Groups** in the tree view.

Creating a Package Group

You can create package groups using the Console. Creating a package group saves time when installing packages on multiple target servers by grouping related packages together. For example, you can group all the packages that run on Windows Server 2003 into the one group.

Note You can create package groups on a different network share point server, with different network credentials from that of the main Installation Manager node.

To create a package group

1. In the Console tree, expand **Installation Manager**.
2. Right-click **Packages** and select **Create Package Group**. The **Create Package Group** dialog box appears.
3. In **Name**, add a name for the package group. This name must be unique.
4. In the **Package Filter** list, select the package format. For example, select ADF Packages or MSI Packages. You can combine formats in your package group. If you select a server from the list, the packages that have been successfully installed on the server are displayed.
5. Use the buttons to move packages from the **Available Packages** list to the **Assigned Packages** list. The **Assigned Packages** list shows the packages currently included in the package group.

   Tip To select several packages, hold down the SHIFT or CTRL keys and click all the packages you want to include.

6. Click **OK**. The package group appears in the **Contents** tab when you click **Packages** in the tree view.

Scheduling the Installation of a Package

Use the Console to schedule the installation of packages on target servers. When you schedule a package, it creates an install *job*.You can schedule the installation of packages in the following ways:

Using the Install Package option. In the Console tree, expand **Installation Manager** and double-click **Packages**. Right-click the package or package group whose installation you want to schedule and select **Install Package**. The **Schedule Install Job** dialog box appears. For step-by-step instructions, see the online help in the Console.

Tip You can also access the **Install Package** option by right-clicking a server or server group node in the Console tree or **Content** tab.

Drag and Drop. Drag and drop a package item onto a server or server group in the Console tree or on the **Contents** tab. The **Schedule Install Job** dialog box appears. For step-by-step instructions, see the online help in the Console.

Using Application Publishing. If you want to install and publish an application, use the Application Publishing wizard in the Access Management Console. Right-click **Applications** and select **New** > **Publish application**. This wizard lets you install packages and publish these on servers in your farm. For more information, see "Publishing a Packaged Application" on page 46.

Note If you delegate areas of Citrix administration and server farm management to Citrix administrators, make sure administrators who deploy software using Installation Manager have full user rights to target servers. Without full user rights, administrators will be unable to install packages on servers. For more information about delegated administration, see the *Citrix Presentation Server Administrator's Guide*.

Installation Manager creates install log files that appear in the following folders, depending on the type of package:

MSI packages. MSI log files appear in: [*CitrixInstallDir*]\Installer\Logs\Jobxxxx.log. By default, [*CitrixInstallDir*] is C:\Program Files\Citrix

ADF packages. ADF package install logs appear in: %*systemroot*%\Program Files\Citrix\Installer\aginst.log

Note The Install Package wizard allows you to:

- Install packages to isolation environments. From the **Schedule Job Install** dialog box, select the **Install into isolation environment** check box under **Schedule Details**. Click **Settings** to select the isolation environment to which you want to install the package. See the online help in the Console for step-by-step instructions.
- Filter the server list for Windows Server 2003 x64 Edition server machines.

Publishing a Packaged Application

You can publish applications on servers in your farm from the packages you create. When you publish an application, the application becomes available to your users. Users can connect to the published application and run it within a client session.

You use the Application Publishing wizard to install and publish applications automatically on servers in the farm. This wizard allows you to create connection items called *published items* that point to specific applications on your servers.

Notes Before you publish an application, make sure that its package has been added to the Installation Manager database. See "Adding a Package to Installation Manager" on page 42 for more information.

If you delegate areas of Citrix administration and server farm management to Citrix administrators, make sure administrators who deploy software using Installation Manager have full user rights to target servers. Without full user rights, administrators will be unable to install packages on servers or publish applications using the **Installation Manager Package** option in the Application Publishing wizard. For more information about delegated administration, see the *Citrix Presentation Server Administrator's Guide*.

To publish an application using the Publish Application wizard

1. Open the Access Management Console.
2. Select the Applications node in the console tree.
3. From the **Action** menu, select **New** > **Published application**. The Publish Application wizard is displayed.
4. Specify the application name and a description of the application. Click **Next**.
5. Select **Installation Manager Package**. The wizard guides you through the remaining steps; follow the instructions on screen. For more information, see the online help in the Console.

Tip The **apputil** command allows you to roll out published applications over additional servers. Therefore, if you published an application previously using an Installation Manager package, you can use **apputil** to install and publish this application on additional servers in your farm. Enhancements to apputil in this release now allow you to roll out package groups on additional servers. When you run **apputil**, the package is scheduled for immediate installation on the target servers. For more information about **apputil**, see the *Citrix Presentation Server Administrator's Guide*.

Configuring Preferred Packages

If multiple packages contain the same applications, you can specify which package should be used by default. These packages are called *preferred packages*.

For example, you have several MSI packages on the network all containing Microsoft Office 2000. However, these packages contain different compatibility scripts and transform files that were added to the package during the package build process. You can designate one of the packages as a preferred package in Installation Manager. When a user selects Microsoft Word, the application in the preferred package starts.

To configure a preferred package

1. In the Console tree, expand **Installation Manager**.
2. Double-click **Packages**.
3. Double-click the package you want to configure.
4. In the **Applications** tab, right-click the application in the package and click **Properties**.
5. In the **Preferred Package** field, click the package from the drop-down list that you want installed by default.
6. Click **OK**.

Monitoring the Status of Scheduled Jobs

Use the Console to display the status of a scheduled job.

To monitor the status of a job

1. In the Console tree, double-click **Installation Manager**.
2. Double-click **Packages**.
3. Select the package you want to view.
4. Click the **Jobs** tab. The scheduled job name, status, and time the installation or uninstallation will occur is displayed.

To view all scheduled jobs

1. In the Console tree, double-click **Installation Manager**.
2. Click **Summary**.
3. Click the **All Jobs** tab. A list of the scheduled jobs appears.

Scheduling the Removal of a Package

You can schedule the removal of an installed package from one or more target servers using the Schedule Uninstall wizard. You can only remove a package if the package is in the Installation Manager database and was previously installed successfully. When you schedule the uninstallation of a package, it creates an uninstall *job*.

To schedule the removal of a package

1. Open the Console.
2. Right-click the package you want to uninstall and select **Uninstall Package**.

   Note Alternatively, to uninstall a package group, right-click the package group you want to uninstall and select **Uninstall Package Group**. The **Schedule Uninstall Job** dialog box appears

3. In the **Available Servers** list, select the server you want to remove the package from and click **Add**. To select several servers, hold down the SHIFT or CTRL key and click the servers you want to include. Click **Add All** to add all of the servers in the list. The servers move to the **Assigned Servers** list.
4. Click **Next**.
5. Specify when the package should be uninstalled by selecting **Schedule Now** or **Schedule Later**. If you select **Schedule Later**, specify the day and time the job should run.
6. Select the reboot options:
   - **Delay reboot until end of job**: This prevents the server from rebooting during a package group uninstallation. You cannot select this option if you are uninstalling a single package.
   - (Optional) Select **Force reboot after job** if you want the target server to restart after the package uninstalls.
7. Click **Finish** to schedule the removal of the package.

Note If a package has already been removed from one of the servers in a server group, the uninstall job fails for that server but continues for other servers in the group.

Example: Deploying a Packaged Application

In the following example, the administrator wants to install and publish Microsoft Word 2000 on 20 servers in a farm. The application is available as an MSI package and does not require any transform files or command line parameters. The administrator decides to schedule the installation for the evening, when network usage is low.

The administrator identifies the target servers that they wants to install Microsoft Word on and a suitable package management server, and configures these servers appropriately. The administrator also identifies a suitable network share point server with the appropriate permissions. They obtain the MSI file for the Microsoft Word 2000 application and copy this file to the network share point.

To deploy the application using Installation Manager, the administrator:

1. Adds the MSI package to the Installation Manager database using the **Add Package** option in the Presentation Server Console:
   - In the Console tree, expand **Installation Manager**.
   - Right-click the **Packages** node and select **Add Package**. The **Add Package** dialog box is displayed.
   - In **Package Name**, type the name of the package.
   - In **File**, specify the location of the package (in UNC format; for example: *servername**sharename**path**filename*) or click **Browse** to locate the package on the network.
   - Click **OK**.
   - At the prompt for transforms or command line parameters, click **No**. The package is added and appears in the **Contents** tab.
2. Creates a server group containing the 20 target servers:
   - Right-click **Server Groups** and select **Create Server Group**. The **Create Server Group** dialog box appears.
   - In **Name**, specify a unique name for the server group.
   - Use the buttons to move server names from the **Available Servers** list to the **Assigned Servers** list.
   - Click **OK**.
3. Schedules the installation and publishing of the application using the Application Publishing wizard in the Access Management Console:
   - Right-click **Applications** and select **New** > **Publish application**. The Application Publishing wizard appears.

- Specify the application name and a description of the application.
- Click **Next**.
- Select **Installation Manager Package**. Follow the instructions on screen.
- In the **Schedule Install Job** dialog box, select **Schedule Later** and specify the day and time the job should run.

After completing these steps, the administrator can monitor the status of the scheduled job using the Console.

Index

A

access permissions 18, 41
account requirements 18
Acrobat Reader, requirements 6
adding packages 42
ADF files
    about 24
ADF packages
    about 12, 25
    copying to a share point 42
    creating 28
ael files 25
aep files 25
aginst.log 45
Application Isolation Environment 8, 45
application publishing 7, 46
apputil command 46

C

Citrix Presentation Server requirements 16
clean server 17
    rolling back 37
command-line parameters, packaging 32
compatibility scripts 12, 26
    packaging 35
Console
    online help 40
    starting 40
creating
    ADF packages 28
        manually 30
        using wizards 29
    package groups 44
    server groups 43
credentials, requirements 18, 41

D

delegated administration 18, 41

E

errors, displaying 36

F

file replacement 33
file system changes, displaying 28
files
    packaging 30, 35

I

install job 44
install log files 45
Installation Manager
    adding packages to 42
    Application Isolation Environment 8
    components 9
    features 7
    installing 20
    introduction to 7
    system requirements 16
    uninstalling 21
    Windows Server 2003 x64 Edition 9, 43
installation recording
    packaging 30–31
Installer Service 16
installing
    Installation Manager 20
    packages 44

J

job
    monitoring 47
    scheduling 44, 48

L

launching
    the Console 40
    the Packager 27
log.txt files 25

M

monitoring jobs 47

MSI package
about 11
copying to a share point 42
msiexec command 42
MSP package
about 11
copying to a share point 42

N

network share point
copying packages to 41
server 9
specifying access to 19
system requirements 16
New features
Application Isolation Environment 8, 45
Windows Server 2003 x64 Edition 9, 43

O

online help
displaying in the Console 40
output pane 28

P

package groups 11
creating 44
package management server
about 9
system requirements 16
Packager
introduction to 24
launching 27
main window 27
tree 27
uninstalling 22
wizards 26
packager server
about 9
rolling back 37
system requirements 17
packages
about 11
formats 11
preferred 47
scheduling installation of 44
scheduling removal of 48
permission requirements 18, 41
preferred package 47
project
about 25
file 25
log file 25
publishing applications 46

R

record log file 25
recording
checking results 36
packaging an installation 30
rolling back 37
registry changes
displaying 28
packaging 33
rolling back the packager server 37

S

scheduling
package installation 44
package removal 48
server groups, creating 43
share point
about 9
copying packages to 41
silent install, packaging 32
status monitoring 47
symbol
displaying 28
system requirements 16
accounts and permissions 18

T

target server
about 9
system requirements 16
transform files 11

U

unattended program
packaging 30, 32
uninstall job 48
uninstalling
Installation Manager 21
Packager 22
packages 48

user account
requirements 18
specifying 19

W

warnings, displaying 36
wfs file 24
wizards 26
application publishing 46
Packager 29
schedule uninstall 48