# Unattended Installation in Prior Versions

Prior versions of Windows provided methods for performing unattended installations. Many organizations first started using automated setup with Windows 2000, but even Windows NT 4.0 could be installed using setup files and images.

## Unattended Installation in Windows 2000

The following are three methods for automating Windows 2000 deployments:

- **Unattended setup answer files**—Automate Windows 2000 installations by providing the answers to the questions asked by Windows setup.
- **Third-party imaging software**—Imaging software deployments take an exact copy of a reference machine and deploy it to multiple target machines.
- **Remote Installation Services**—RIS deployments use the RIS infrastructure in Windows 2000 to deploy either CD-based answer file installations or RIPREP image-based installations.

### Unattend and UDF Files

Automated installations of Windows 2000 using answer files are performed by running the setup program (`winnt.exe` or `winnt32.exe`) with the appropriate switches to specify an answer file.

The setup program switches are different depending on the program. The switches for each program can be ascertained by running the respective setup program with the `/?` switch (`winnt.exe /?` or `winnt32.exe /?`).

To automate installations, the important switches are `/u` and `/udf` for `winnt.exe` and `/unattend` and `/udf` for `winnt32.exe`.

| Note | UDF stands for uniqueness database file. This file contains the information that's unique from one computer to another, such as the computer name, and allows a single unattended file to be used with multiple computers. |
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You can use either program and specify the respective `/u` or `/unattend` option to initiate an unattended setup. When you do, Setup looks for the answer file specified and uses it to answer the questions asked. If the `/udf` parameter is specified, Setup uses the specified `udf` file with the specified value to perform a computer-specific installation.

For example, running `winnt.exe /u:unattend.txt /udf:Server1,unattend.udf` and running `winnt.32.exe /unattend:unattend.txt /udf:Server1,unattend.udf` are equivalent. Both launch Setup using the answer file `unattend.txt` to provide generic answers to Setup questions and the `unattend.udf` file for providing the computer-specific answers.

Obviously, the key to automated setup is in the answer file and the `udf` file. So, let's take a closer look at these files and how they work.

The answer file is broken down into sections, and each section corresponds to one or more screens in the Setup program. Under each section header in the answer file, you specify a key and value pair. Each key corresponds to the question on the setup screen, and the value is the answer to that question. For example, the UserData section has four potential keys: Computername, FullName, Orgname, and ProductID. By specifying these keys and values for them in this section, you will not be prompted to enter your name and organization, the license key, or the Computer Name. For example, let's say the answer file contains the following:

```
[UserData]
ComputerName=Server1
FullName="Mark Rouse"
OrgName="BrainCore.NET"
ProductID=GTR4Q-8GHEM-4TGES-GLS9Y-FG6TW
```

In this case, the computer is installed as Server1, you will not be promted for a license key, and it will be licensed to Mark Rouse from BrainCore.NET.

| Tip | If any of the values specified in the answer file contain any special characters, such as punctuation or spaces, put the values in quotes so they will be read as a single value. |
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| | If a key and corresponding value is not specified in the answer file, Setup prompts for the answer and is not fully automated. |

| Note | Full documentation and sample answer files for Windows 2000 automated Setup files can be found in the `unattend.doc` file on the Windows 2000 CD. It can be extracted from the `deploy.cab` directory in the `Support\Tools` directory. |
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Uniqueness database files (UDFs) supplement unattend answer files by providing computer-specific answers. By using a UDF file with an unattend file, you can use the same files for installation on multiple machines—the only difference is in the command line used to kick off Setup.

UDF files have a similar structure to answer files, except for the beginning. At the beginning of the answer files is an extra UniqueIds section that lists the unique identifiers (specified when run from the command line) to be used with this file. The UniqueIds section lists each of the unique identifiers to be used and the corresponding sections to be used with each. The rest of the udf file contains the settings for each of the unique IDs listed, as seen in the following example:

```
[UniqueIds]
    Server1=UserData
    Server2=UserData,
[Server1:UserData]
    ComputerName=Server1
[Server2:UserData]
    ComputerName=Server2
```

Suppose you have to deploy Windows 2000 Professional across your organization. The offices in Detroit need certain options, Singapore needs other options, and so on.

You can create a single answer file with the options common to everyone and then create a single udf file that contains a list of each of the computers to be installed and the appropriate options for each. Then, when you install each machine, you can run `winnt.exe` with the `/u` and `/udf` options. For example, you'd run `winnt.exe /u:unattend.txt /udf:Server1,unattend.udf`, where `unattend.txt` is the answer file, `unattend.udf` is the udf file, and `Server1` is one of the UniqueIDs listed in the answer file. Running this command-line option installs server options with the generic settings specified in the `unattend.txt` file and those specified in the `unattend.udf` file. If a conflict exists, such as both files specify the same setting, the one in the `.udf` file wins.

To facilitate the creation of these answer files, Microsoft provides the Setup Manager Wizard. To run this wizard, you must extract `setupmgr.exe` and `setupmgx.dll` from the `deploy.cab` file in the `Support\Tools` directory. When run, Setup Manager Wizard prompts for the information necessary for setup and creates the answer files for you based on the answers provided.

## Imaging

Another method for deploying Windows operating systems is by using third-party imaging software, such as PowerQuest Drive Image Pro or Symantec Ghost. These applications take a snapshot of a hard drive, copy it to a network server, and then allow you to download it to another hard drive, thus transferring an exact copy of the original system to the new system.

If two exact duplicate copies of the same system come online on the network, problems would occur. The computer names, IP address, and Windows account (SID) would all be the same. So, to make this work, Microsoft provides a utility (`sysprep.exe`) to remove all the machine-specific information.

Sysprep is obtained by extracting the `deploy.cab` file from the `Support\Tools` directory of the Windows CD. Sysprep actually requires a number of files and is run from the `C:\sysprep` directory. When it runs, it removes all the computer-specific information and shuts down the system.

To deploy an image of a Windows operating system, perform the following steps:

1. Install Windows on the system to be copied (the reference machine).
2. Install and configure the applications you will want on the new system.
3. Run `sysprep.exe`.
4. Use your favorite third-party imaging software to capture the image of the reference machine and upload it to your image repository.
5. Download the image to the target machine.

When the target machine is started, it runs a mini-setup wizard that prompts for the information that was removed by sysprep, such as the computer name, license key, and so on. When it's complete, a new system is installed with all the same software and configurations as the original.

### Profile Workaround

Many applications install only shortcuts, icons, and configure settings in the profile under which the application is installed—usually the administrator. There is an old trick to getting the applications to appear for everyone. After configuring everything the way you want under the administrator profile, log on with a different administrative account and copy the profile for the administrator account to the All Users profile. The first time a user logs on, her profile will be built from the All Users profile and she will get all the shortcuts, icons, and settings you've configured.

This is all well and good, but how does this automate a deployment of Windows 2000? You can create an answer file for the mini-setup wizard by placing a file called `sysprep.inf` in the `C:\sysprep` directory with the same format as the unattended setup file previously mentioned. For that matter, you can use the Setup Manager Wizard to create the `sysprep.inf` file just like you can use it for creating the unattended set files.

Regardless of whether you perform CD- or network-based installs or use third-party imaging software, you can automate deployments of Windows 2000 by creating and using the appropriate answer files. By using the Setup Manager Wizard, you can even make creating the answer files a breeze. With that, you'll soon be deploying thousands of systems automatically.