OPEN FILE
MANAGER

USER MANUAL

OPEN FILE MANAGER
VERSION 8

CONTENTS

Welcome to Open File Manager!

Network and system administrators are becoming acutely aware that their current backup software solutions are failing at the very thing they were purchased to do…back up the most critical data in the organization.

The reason for this failure is that the most important files (such as email, database and accounting files) are usually "open" and in use when the backup is run.

In these instances, any of three things can happen and none of them is desirable:

* Files are skipped. Some backup packages will come back later and retry open files, however most application data will still be open, and therefore these files will be skipped again.

* Users get locked out of their applications. The backup application will lock the files while the backup is taking place. Users then receive a "File in Use" error.

* The backup is forced. In this instance, if any changes occur to a file during the backup, only part of the changes might get captured by the backup software, while other changes may be in areas of the file that have already been read for backup. Hence, the data on tape will be corrupt. This is a very dangerous scenario, since the administrator thinks there is a restorable copy of the file on tape, when in fact, that data is not useable.

Open File Manager? is a utility that helps the backup software capture files that are open, even if they are changing during the backup, without locking users out of the applications or forcing them to log off the network.

Introduction

Open File Manager monitors the file system for read requests coming from a backup program. Open File Manager recognizes backup programs that run on the same system as well as those running on remote systems (across a network). The remote system recognition is based on a configurable user name, which the System or Network administrator should create and then reserve for backups only.

When the backup operation is initiated, Open File Manager determines when there are no partial transactions pending on the system. Once it discovers this state, Open File Manager begins maintaining a dynamically allocated pre-write cache for each open file on the system in the form of a standard disk file; this is called Preview Data.

From this point on, any file write operation from a user or application goes directly to the requested file after a copy of the data being overwritten has been placed by Open File Manager into the Preview Data. When the backup application gets to a part of a file that has been changed during the backup, Open File Manager substitutes the original, pre-write Preview Data to fulfill the backup requests. The file on the tape will then be identical to what was on the disk when the backup application first began backing up the system. Meanwhile, users of the data have normal access to read and write to their files, and the information on disk is what would be expected without a backup running!

Open File Manager can be configured to release the Preview Data for a file after it is backed up, after it has been read for the backup application's verify pass, or after the backup application terminates. This provides the network administrator with the flexibility to manage system disk space with respect to backup program functionality. If system disk space is scarce, Open File Manager can discard Preview Data as soon as a file is backed up. If disk space is plentiful, Open File Manager can hold the Preview Data until the backup verify pass is complete, giving the network administrator additional confidence in the backup. This provides more functionality, but requires that the Preview Data be maintained for a longer period of time.

Open File Manager can handle backup situations where the entire file system needs to appear static for the entire length of the backup application's execution. The amount of information that is overwritten in a file during backup is minimal, so the total space required to cache changed data is slight.

Open File Manager does not add any noticeable overhead to the systems on which it resides. Furthermore, the speed of the backup is fully dependent on the backup software, tape drive and network bandwidth availability (when backing up across a network).

If Open File Manager-enabled backups take longer to complete, it's only because more data has been copied. This is good, since it is the reason backups are run. The value Open File Manager brings is its ability to allow backup products and end users to deal with open files concurrently.

Components

Open File Manager consists of four primary components: the Setup Program, the Control Component, the NetWare System Component, and the Windows NT System Component.

Setup Program

The Setup Program unpacks the distribution files and installs the Control Component.

Control Component

The Control Component is the user interface portion of Open File Manager. It is a Windows application used to install, control and monitor the System Components of Open File Manager.
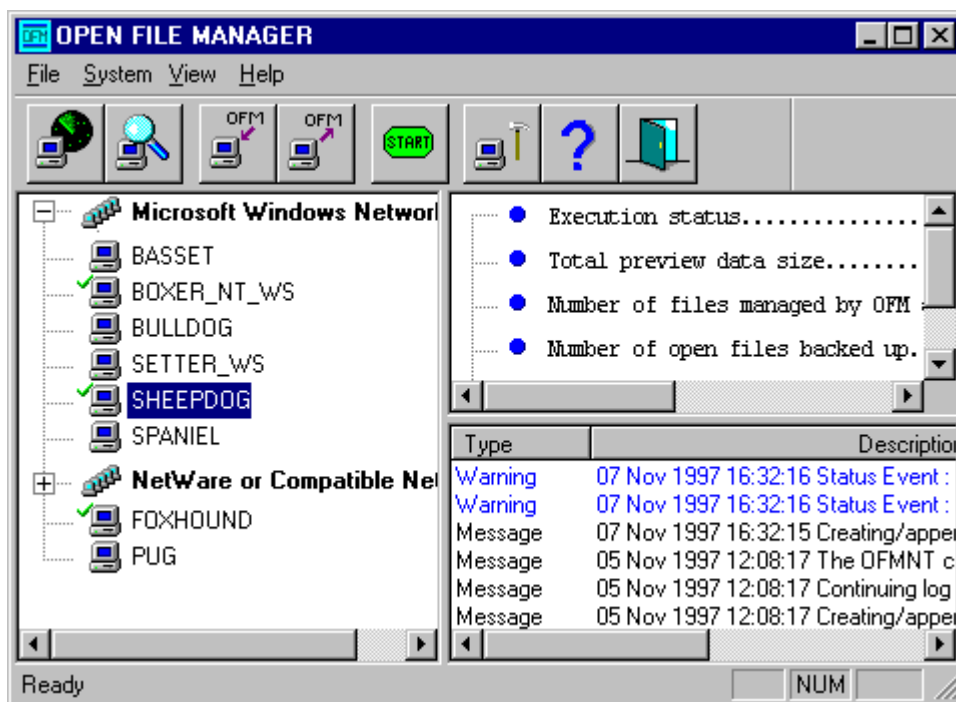
NetWare System Component

The NetWare System Component is a NetWare Loadable Module that provides open file management. It manages files residing on the local hard drives of the computers where it is installed. Each NetWare computer that is backed-up needs to have the NetWare System Component installed on it.

The NetWare System Component is installed using the Control Component, running on a Windows computer on the LAN. The backup application may be run on any computer on the LAN.

NT System Component

The NT System Component is a set of Windows NT Services that provide open file management. They manage files residing on the local hard drives of the computers where they are installed. Each Windows NT computer that is backed-up needs to have the NT System Component installed on it.

The NT System Component is installed using the Control Component, running on the same or another Windows computer on the LAN. The backup application may be run on any computer on the LAN.

Licensing

Software Licenses

The Setup Program and Control Component are not subject to unit license restrictions: They can be run on as many computers as is convenient, for system administration.

The NetWare and NT System Components are subject to unit license restrictions: Software license(s) are required, covering the number of computers and the tier of operating systems on which the software is installed, and the version of software installed.

Unit Licensing

The software licenses allow running the system components on a specific number of computers. Sufficient licenses must be purchased to cover the number of system components in use.

If you purchased Single System Licenses, you will receive a different serial number to use in each System Component installation.

If you purchased Multiple License Agreements, each serial number will allow multiple System Component installations, up to some maximum. You may still have multiple serial numbers to administer, if you purchase more than one MLA.

Platform Licensing

The software licenses allow use of the System Components on one or more tiers of operating systems:

* Workstation Licenses allow installing the NT System Component to workstation versions of Windows NT, only.

* Server Licenses allow installing the NT System Component to the server version of Windows NT, only.

* Enterprise Licenses allow installing the System Components to all supported versions of NetWare and Windows NT. This includes the workstation and server versions of Windows NT, above; adds the advanced and cluster versions of Windows NT; and allows use on NetWare.

See Supported Platforms, below, for the versions of operating systems supported.

Time Licensing

Open File Manager comes with a live trial license, which provides full product functionality for a limited time. Purchased licenses are generally valid indefinitely for a given software version, though support for a version may expire.

Supported Platforms

The terms defined here are used in subsequent sections.

NetWare

"NetWare" denotes Novell NetWare, version 4.x and 5.x, running the NetWare legacy file system. The NSS file system is not currently supported.

On NetWare 4.10, update 410PT8 is required.

On NetWare 4.11 or 4.2, update IWSP6a or later is required.

On NetWare 5.x, current updates are recommended.

Windows

"Windows NT" denotes Microsoft's NT-based operating systems, version 4.0 and above (Windows NT 4 / 2000 / XP / .NET), all tiers (Home / Workstation / Professional / Server / Enterprise / Advanced Server / Datacenter), all Service Pack levels except where specified, running on Intel-compatible processors. Relevant differences between these versions will be made explicit, when necessary.

On Windows NT 4, Service Pack 5 or higher is required.

On Windows NT 4 with Services for Macintosh, Service Pack 6a is required.

On Windows XP Home Edition, only local operation is supported. Network-based remote control to and from Home Edition is not fully provided by that platform.

"Windows 9x" denotes Microsoft's Windows 95 family -- Windows 95, Windows 98 and Windows Millennium Edition, including intermediate updates.

"Windows computer" denotes a computer running Windows NT or Windows 9x.

System Requirements

Open File Manager consists of four primary components having the following requirements. These system requirements refer to operating systems as defined in Supported Platforms, above.

Setup Program

The system requirements for the Setup Program are included in those listed for the Control Component, below.

Control Component

The system requirements for the Control Component are:

* Windows NT or Windows 9x.
Windows NT is required when administering the NT System Component. Functions that require Administrator privilege (Install, Uninstall, Start, Stop) are unavailable from Windows 9x.
Windows NT is preferred when administering the NetWare System Component.

* 10 MB available hard disk space.

* Windows and/or NetWare networking, depending on the System Component(s) to be administered.

NT System Component

The system requirements for the NT System Component are:

* Windows NT.

* 5 MB available hard disk space, plus an additional amount to store data changed during backup.

* Windows networking.

NetWare System Component

The system requirements for the NetWare System Component are:

* NetWare.

* 5 MB available hard disk space, plus an additional amount to store data changed during backup.

* NetWare networking, TCP/IP or IPX/SPX-based, with Microsoft or Novell NetWare clients.

Installation Overview

Install the Open File Manager components in two stages. First, run the Setup Program to install the Control Component. The Control Component can be installed on one or more Windows computers from which system administration is performed. This installation will copy all files required by all components of Open File Manager.

Second, install the NetWare or Windows NT System Components. Administrative Rights to the computers are required.

When run on Windows NT, the Setup Program allows installing the NT System Component to the local computer, as part of installing the Control Component. This is convenient when installing Open File Manager to a small number of Windows NT computers.

More generally, run the Control Component to install the System Components over the local area network to all NT and NetWare computers which are to be backed-up.

Additional installation methods are provided for large-scale deployments. Microsoft System Management Server (SMS) installations are supported for the Control Component and the NT System Component, and the OFMMassDeploy Utility allows script-based installation of all components.

The OFMNetScan Utility is useful in preparing for installation, particularly Open File Manager upgrades or script-based installations. OFMNetScan reports all NetWare and Windows NT computers found on the local network, including OS type and version. For each computer on which Open File Manager 5.x or higher is installed, installation information is provided, including the serial number and version number.

These installation methods and utilities are described further in the following sections.

Control Component Installation

Open File Manager is distributed on CD-ROM and as a self-extracting archive file. Proceed with installation from either medium as follows.

1. Serial Number: If you purchased Open File Manager, have on-hand the product serial number that you were given. Otherwise, the installation will provide you with a default serial number that enables full product functionality for a limited period.

2. Administrative Workstation: Select a Windows computer from which you administer the Windows NT and NetWare systems that you backup. A Windows NT computer is preferred, and is required for NT System Component administration. Log onto this computer as a user with administrative rights to the systems that you backup.

   Note: The Control Component should be installed on a workstation in the same physical subnet as the systems to be administered. The Control Component and the System Components communicate, in part, via broadcast messages. If there is a networking device separating them, which does not forward "type 0" broadcast messages, their communication will be disrupted.

3. Run Setup:
   If you received Open File Manager on CD-ROM, put it in the Windows computer's CD drive. Run the Setup Program, Setup.exe, from the Open File Manager files on the CD-ROM.

   If you received a self-extracting archive of Open File Manager, run that file. It will unpack the archive and run the Setup Program automatically.

4. Welcome: A Welcome message will be displayed recommending that you exit all Windows programs before continuing with the installation. Do so, and click the NEXT button to continue.

5. License: Read and agree with the Software License Agreement. If you do not agree with the license agreement, Open File Manager will not install. Click the YES button to continue.

6. ReadMe: Read the ReadMe.txt file that is now displayed - it contains important information as an addendum to the User Manual and On-line Help System. This file will be copied to the installation directory, later in the installation process. Please refer back to it. After reviewing the ReadMe.txt file, click YES to continue.

7. User: Enter your name, your organization, and the product serial number.

   If this is a new installation of Open File Manager, the serial number defaults to a live trial for evaluation purposes. (This serial number is in SerialNo.txt, on the distribution medium.) Override this default if you have purchased the product.

   If Open File Manager is already installed, its serial number is used as the default. Override this default if you purchased a version upgrade.

   The product serial number must be entered exactly as printed, including the dashes. Click the NEXT button to continue.

8. Setup Type: Choose a Setup action, normally OFM Installation.

   OFM Installation installs the Open File Manager Control Component.

   Download Latest Version, if available, will download the latest version of Open File Manager as a self-extracting archive. This is helpful if you want the latest maintenance release. After downloading, run the archive to restart the installation process. Do not choose this option again, on the second time through.

OFM Uninstall uninstalls all Open File Manager components found on the computer.

Disk Image makes a copy of the Open File Manager CD-ROM image, on your local hard drive or network drive. This is helpful for network-based installs and SMS-based installs, or to save an unpacked version of the self-extracting archive.

9. Destination: Choose a local installation directory, normally the default under Windows' Program Files folder. The BROWSE button can be used to choose a different directory. Click the NEXT button to continue.

10. Program Folder: Choose a Windows Start Menu | Programs folder to contain links to Open File Manager programs, normally the default under All Users. Click the NEXT button to continue.

11. Start Copying: The setup program now has enough information to start copying the product files. If you want to change any settings, click the BACK button. When you are satisfied with the settings, click the NEXT button to begin copying files.

12. Copying: All product files are now copied from the distribution medium, and a program group for Open File Manager is created.

13. Control Component Complete: The Setup Program has now completed the installation of the Open File Manager Control Component.

14. NT System Component: If the Setup Program is running on Windows NT, it will offer to install the NT System Component to this computer.

If this is a system that is backed-up, and is not currently running Open File Manager, enable the options presented. This will install and start the NT System Component.

Do not enable the options if Open File Manager is currently running. To upgrade the NT System Component, run the Open File Manager Control Component and stop the System Component. To complete the upgrade, see NT System Component Installation.
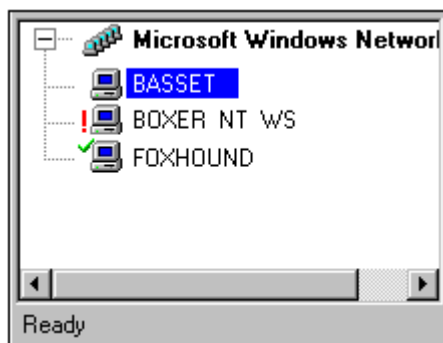
15. Register: If available, registration will provide you with a free support period, and if you purchased extended maintenance, will activate it.

NT System Component Installation

The Open File Manager NT System Component is normally installed using the Control Component, available from the Start Menu | Programs folder created by the Setup Program.

In these instructions, the computer running the Control Component is referred to as the local computer. The computer to which you are installing the System Component is referred to as the target computer. The local computer and target computer may be the same.

1. Serial Number: If you wish to license the System Component using a different serial number than previously used to install the Control Component or System Component, have that serial number on-hand now. For example, if you previously used the default evaluation serial number and subsequently purchased the product, or you have purchased a product upgrade, then you should override the default serial number that will be presented during this installation.

2. Administrative Workstation: Select a Windows NT computer from which you administer the target computer. Log onto this computer as a user with administrative rights to the target computer. This can be a local Administrator account for installs to the local computer. More generally, it will be a Domain Administrator account for the domain containing the target computer.

3. Run Control Component: From the Start Menu, select the Open File Manager program item.

4. List Targets. The left-hand windowpane, or Network Pane, contains a network browse tree. Expand the tree nodes (click on '+') to display the target computers of interest.

5. Select Targets. Select (click on) one or more computers in the Network Pane, to which the System Component will be installed. To select multiple systems, hold down the CTRL or SHIFT key while selecting.

6. Install Option: Select the System | Install menu item.
   If the Network Pane shows a selected computer with a green checkmark (the System Component is already running) or a red exclamation point (you do not have administrative rights), the Install option will be disabled.
   Green Checkmark: To re-install the system component, you must first Stop it.
   Red Exclamation Point: To install the system component, you must have Administrator rights to the target computer.

7. Install Parameters: The list of target computers will be displayed in a dialogue. By selecting a target, you can override the default Serial Number and or Destination Directory for its installation. Click INSTALL to continue.

8. Re-Install: If the installation detects a previously installed copy of the System Component, the Confirm Setup dialogue will be displayed. This allows you to choose whether to preserve your existing Open File Manager configuration options on the target computer. The System Component software modules and backup application ("agent") definitions will be overwritten in either case. Click OK to complete the installation process.
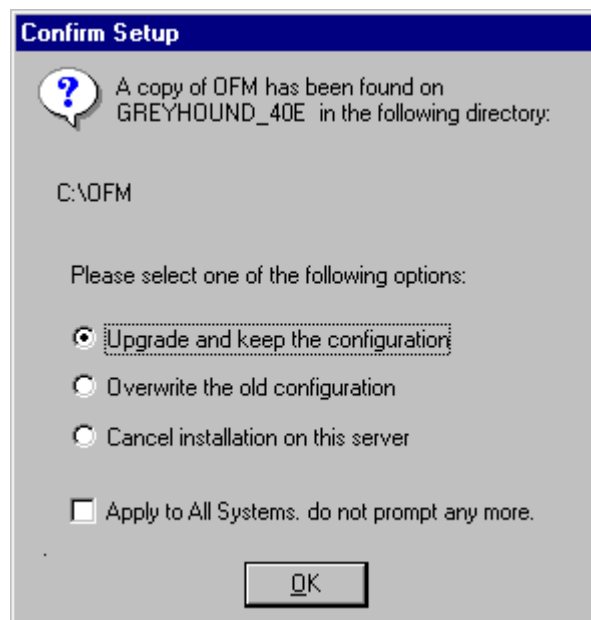
9. Start: If you are ready to configure the System Components, select the target computers in the Network Pane and select the System | Start menu item, to start the newly installed System Components. Then see Quick Configuration.
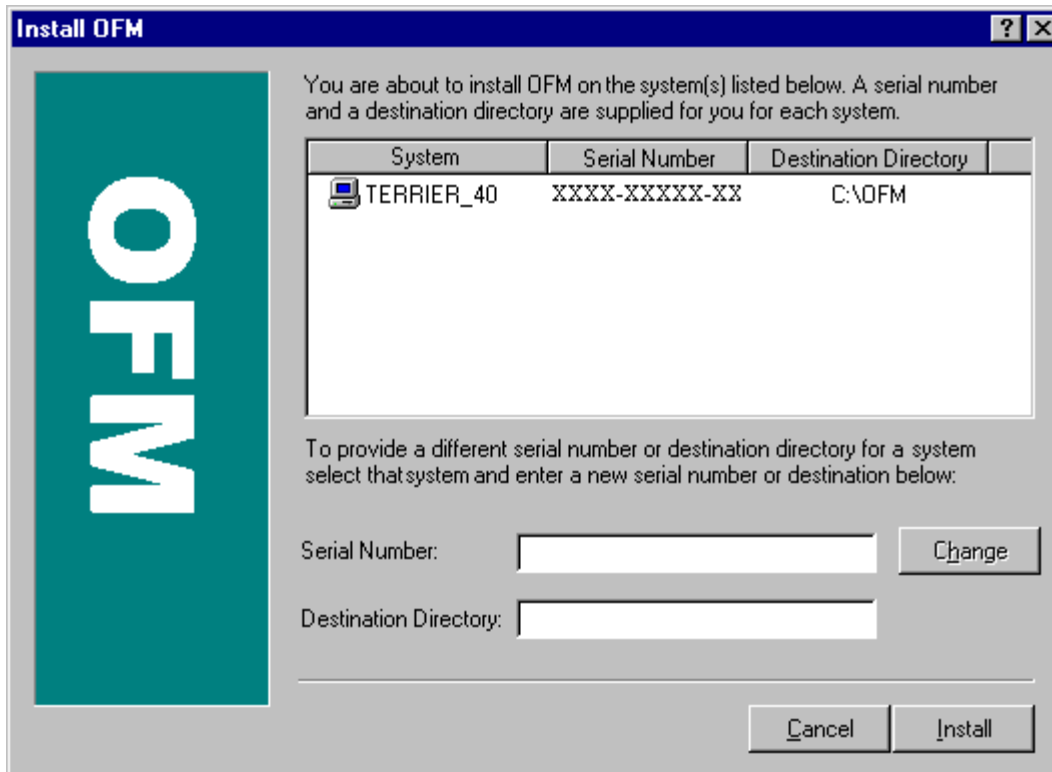
NetWare System Component Installation

The Open File Manager NetWare System Component is normally installed using the Control Component, available from the Start Menu Programs folder created by the Setup Program.

In these instructions, the Windows computer running the Control Component is referred to as the local computer. The NetWare computer to which you are installing the System Component is referred to as the target computer.

1. Serial Number: If you wish to license the System Component using a different serial number than previously used to install the Control Component or System Component, have that serial number on-hand now. For example, if you previously used the default evaluation serial number and subsequently purchased the product, or you have purchased a product upgrade, then you should override the default serial number that will be presented during this installation.

2. Administrative Workstation: Select a Windows computer from which you administer the target computer. Log onto this computer, or otherwise authenticate to the target computer, as a user with administrative rights to the target computer.

3. Run Control Component: From the Start Menu, select the Open File Manager program item.

4. List Targets. The left-hand windowpane, or Network Pane, contains a network browse tree. Expand the tree nodes (click on '+') to display the target computers of interest.

5. Select Targets. Select (click on) one or more computers in the Network Pane, to which the System Component will be installed. To select multiple systems, hold down the CTRL or SHIFT key while selecting.

6. Install Option: Select the System | Install menu item.
   If the Network Pane shows a selected computer with a green checkmark (the System Component is already running) or a red exclamation point (you do not have administrative rights), the Install option will be disabled.
   Green Checkmark: To re-install the system component, you must first Stop it.
   Red Exclamation Point: To install the system component, you must have Administrator rights to the target computer.

17

7. Install Parameters: The list of target computers will be displayed in a dialogue. By selecting a target, you can override the default Serial Number and or Destination Directory for its installation. Click INSTALL to continue.

8. Re-Install: If the installation detects a previously installed copy of the System Component, the Confirm Setup dialogue will be displayed. This allows you to choose whether to preserve your existing Open File Manager configuration options on the target computer. The System Component software modules and backup application ("agent") definitions will be overwritten in either case. Click OK to complete the installation process.
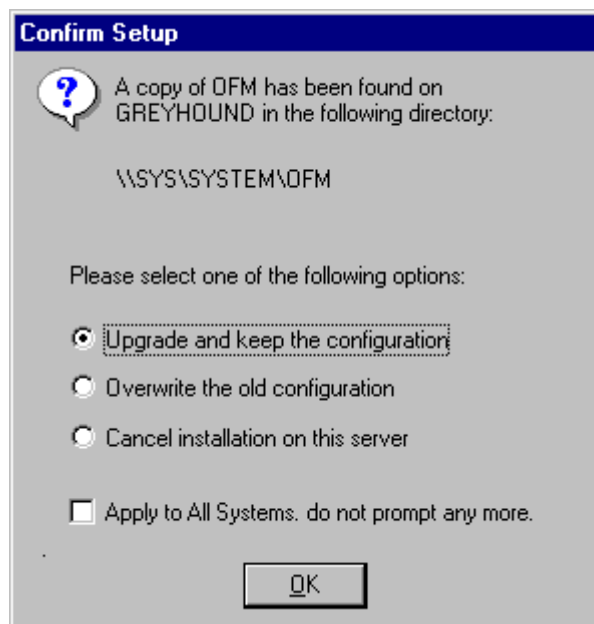
Confirm Setup

A copy of OFM has been found on
GREYHOUND_40E in the following directory:

C:\OFM

Please select one of the following options:

○ Upgrade and keep the configuration
○ Overwrite the old configuration
○ Cancel installation on this server

☐ Apply to All Systems. do not prompt any more.

[OK]

9. Start: If you are ready to configure the System Components, they can be started.

   If the local computer has Novell's NetWare Client installed, then you can start the NetWare System Components from the Open File Manager Control Component. Select the target computers in the Network Pane and select the System | Start menu item, to start the newly installed System Components.

   Otherwise, go to each target computer console (physically, or using RConsole), and type Load OFM.

   Then see Quick Configuration.

SMS-Based Installation

The Open File Manager Setup Program allows for software distribution and inventorying using Microsoft System Management Server (SMS). (Microsoft's SMS is not to be confused with Novell's Storage Management Services.)

The Setup Program automatically creates inventory records, in the SMS-default Windows directory (normally /WinNT/).

The Disk Image, Record and Silent options of Setup support software distribution, as follows.

1. Run the Setup Program and choose Setup Type: Disk Image (see Control Component Installation). As a destination, choose a network drive that is accessible to all SMS clients.

2. Run the Setup Program again, this time from the network Disk Image created above, and with the –r (record) option:

   From a Command Prompt window, change directory to the disk image and enter "setup –r". Then proceed to install the Control Component, using options that will apply in subsequent SBS-based installations.

   This generates a Setup.iss file in the SMS-default Windows directory (normally /WinNT/), containing a record of the options used.

3. Copy the Setup.iss file to the disk image directory. Edit this file to finish specifying the options that will apply to SMS-based installations.

4. Open File Manager installations can now be added to SMS packages, which will invoke Setup from the Disk Image directory with the –s (silent) option and the setup options file: "Setup.exe –s Setup.iss".

The following Open File Manager Setup Types can be performed on SMS clients, using the method above:

* Disk Image – Creates another copy of the Open File Manager Disk Image.

* Open File Manager Install – Installs the Open File Manager Control Component, optionally installs the NT System Component, and optionally starts the NT System Component.

* Open File Manager Uninstall - Uninstalls all components of Open File Manager that are present.

OFMMassDeploy Utility

OFMMassDeploy is a command-line utility program that is capable of installing the Open File Manager components, and updating the serial number of existing installations. It supports command-scripted mass software deployments. One function is performed per invocation.

1. Install the Control Component as usual (see Control Component Installation). This copies all Open File Manager product files to the installation directory tree, including OFMMassDeploy, which is located in the OFM\ installation root.

2. Determine the Open File Manager components whose installation you intend to script, and the target computers to which you will install them.

3. Perform trial installs of NetWare and Windows NT System Components, using the Control Component as usual. Then Start them, configure them, and Stop them. If you change configuration settings, this will create template configuration files to be used in the mass deployment, so that you will not need to later configure each installation individually.

4. (Skip this step if you are not performing NT System Component installs.)
   Copy the updated NT System Component Configuration File between Open File Manager installation directories.
   From the target computer System Component installation, get OFMNT.Cfg from the NT\ subdirectory.
   To the local computer Control Component installation, put OFMNT.Cfg in the NT\ subdirectory.

5. (Skip this step if you are not performing NW System Component installs.)
   Copy the updated NetWare System Component Configuration File between Open File Manager installation directories.
   From the target computer System Component installation, get OFMNW.Cfg from the \Sys\System\OFM\ subdirectory.
   To the local computer Control Component installation, put OFMNW.Cfg in the NW\ subdirectory.

6. Create a command script that invokes OFMMassDeploy multiple times, once for each operation to be performed.

7. Place the script in the OFM\ root of the Control Component installation on the local computer. Execute it from there. It will make use of the other files in the installation directory tree.

The OFMMassDeploy commands consist of "OFMMassDeploy," followed by a function, followed by a list of parameters for that function. The functions and their parameters are as follows:

1. **nt** serialNumber userName companyName machineName [installPath]
   – Installs the NT System Component.

2. **nw** serialNumber userName companyName machineName
   – Installs the NetWare System Component.

3. **ofmwin** serialNumber userName companyName directory
   – Installs the Control Component.

4. **waitsrv** *srcDirectory destDirectory machineName*
   – Installs WaitSrv, a limited-distribution utility.

5. **ntsn** *newSerialNumberForNTServer machineName*
   – Changes an NT System Component serial number.

6. **nwsn** *newSerialNumberForNWServer machineName*
   – Changes an NetWare System Component serial number.

7. **ofmwinsn** *newSerialNumberForUI version machineName*
   – Changes a Control Component serial number. Requires the major *version* number of the installed component, such as 7 or 8 for Open File Manager 7.0 or 8.0.

The function names above (nt, nw, ofmwin, etc.) must be entered as shown.

The parameter names (licenseNumber, userName, companyName, etc.) must be replaced with actual values containing no spaces. The values are separated by spaces.

For example, the command:

OFMMassDeploy nt 01-01f3-103c-9898 JJones StBernardSoftware JJonesXP C:\OFM

has the following meaning:

Install the NT System Component ("OFMMassDeploy nt");

use serial number 01-01f3-103c-9898 (*serialNumber*),

installed-by user JJones (*userName*), and

installed-by organization StBernardSoftware (*companyName*);

to the computer JJonesXP (*machineName*), and

to the target installation directory C:\OFM (optional *installPath*).

OFMNetScan Utility

OFMNetScan is a command-line utility program that inventories the installations of Open File Manager System Components on your network. OFMNetScan generates a text report listing all NetWare and Windows NT computers to which it is able to browse.

* For each computer found, OFMNetScan reports whether it can gain sufficient access to query for Open File Manager installations.

* If such access can be gained, it reports whether Open File Manager is installed.

* If so, it reports whether it is running, its version, its serial number, and other information.

* The report ends with a summary section, listing the Open File Manager serial numbers in use, the number of times each is used, and a decoding of those serial numbers to report the license rights that they provide.

The OFMNetScan report is useful for a number of purposes, including:

* Inventorying Multiple License Agreement (MLA) serial numbers, to find license rights which you own but are not fully exploiting.

* Determining Open File Manager coverage of your systems needing backup, and holes in that coverage.

* Inventorying existing installations, in preparation for upgrading them.

OFMNetScan is provided by the Control Component installation, in the UI\ subdirectory. Run it as follows:

1. Administrative Workstation: Select a Windows computer from which you administer the network to be scanned. Windows NT is preferred over Windows 9x; the superior remote services provided will allow a superior report.

2. Administrative Rights. Log onto this computer as a user with administrative rights to the computers of interest. You may need to run OFMNetScan multiple times, compiling a set of reports, under some security models.

3. Start a command prompt and change to the Control Component installation directory, UI\ subdirectory.

4. Enter the command OFMNetScan.

5. Allow OFMNetScan to run unattended until complete. This can be a lengthy process, due to the number of expensive remote queries made by the utility. A dot '.' is printed to the command prompt window periodically, to indicate that the utility is still processing.

6. While scanning all network providers, domains and computers, OFMNetScan writes its report to the file OFMNetReport.Txt, in the directory from which the utility is executed.

OFMNetScan is compatible with OFM versions 5.x and higher.   Displayed at the end of OFMNetReport will be the number of Serial Numbers found, what is the allowable number of licenses for the Serial Number, and a breakdown of the Serial Number. A sample of the output is as follows:

```
Provider Name: Microsoft Windows Network

        System Name: CLUSTER01
                OFM is installed, but not running
                Serial Number:   XX-XXXX-XXXX-XXXX
                Installation Organization: St Bernard Software
                Installation Date: 12 November 2001 12:16:44
                Installation User: Development
                Computer Type:  Server
```

OS Version: Windows 2000

System Name: CLUSTER02
       OFM is installed and running
       OFM Version: 8.0
       OFM Build Level: 001
       Serial Number: XX-XXXX-XXXX-XXXX
       License Level: UNLIMITED
       Installation User: Development
       Installation Organization: St Bernard Software
       Installation Date: 12 November 2001 12:14:43
       Log File Path: C:\PROGRAM FILES\OFM\NT\I386\OfmNt.log
       Computer Type: Server
       OS Version: Windows 2000
   …
Serial Number   XX-XXXX-XXXX-XXXX
Number of Occurrences 2
Number of Licenses   5
Sequence Number: 3
OEM Code: 1
Product Experiation: Normal
License Type: OFM 8.x Enterprise

Quick Start

The Quick Start topics help the first-time user properly configure Open File Manager for trouble-free use. The Quick Start dialogue, linking to this topic, is displayed each time the Control Component is invoked, until the dialogue is disabled.

Please review and apply these brief topics, after installing Open File Manager.

* OFM Ignore Set Configuration

* Platform Configuration

* OFM Agent Configuration

* OFM General Settings

* Backup Application Settings

As you then become familiar with Open File Manager, you will benefit from the information provided in The Control Component and The System Components sections.

OFM Ignore Set Configuration

In order for Open File Manager to operate properly, it is required that you identify the backup application installation directories on the systems running the Open File Manager System Component. These directories should be included in Open File Manager's Files to be Ignored. Since backup programs are specifically designed to backup their own data files, it is required that Open File Manager be configured to ignore these files. If backup catalogs are stored in a non-default location, you'll need to specifically add these to Open File Manager 's Ignore set as well.

To accomplish this, perform the following steps on any system running the Open File Manager System Component:

1. Identify your backup application and/or backup agent installation directories. For our example, we'll use "C:\BackupApplication\" - Some backup applications use secondary installation directories, which should also be added to the ignore set.

2. From the Open File Manager Control Component, select the system in the Network Pane and select System | Properties.

3. Select the Files tab. Select Add and bring up the Windows Browse dialogue. From this dialogue, one or more files, directories and subdirectories can be added to the "Files to be Ignored by Open File Manager" configuration. The standard Windows CTRL-Select and SHIFT-Select conventions are supported for multiple file/directory selections.

4. Select the backup application and agent top-level installation directories, and select the checkbox "Include all subdirectories". This will cause Open File Manager to ignore C:\BackupApplication\ and all of its subdirectories.

5. Save your selections and verify that they appear correctly in the Files tab list of ignored files/directories.

6. Exit Properties.

Platform Configuration

Service Packs and Patch Levels

Verify that your systems running Open File Manager meet or exceed the System Requirements specified. Do not use Open File Manager on systems below these levels.

Disk Free Space

By default, Open File Manager stores its temporary Preview Data files on all local hard drives when the system is synchronized. You should exclude any volumes with a small amount of

free space from Preview Data storage, using System | Properties | General | Preview Data Volumes. Open File Manager will continue to manage the open files on these drives, putting the Preview Data for these files on the other drives with more available space.

NetWare SET Command Settings

Proper configuration of NetWare servers' SET commands is important. Pay particular attention to Directory Cache Buffers, Packet Receive Buffers, Service Processes and their associated Allocation Wait Times. More of each of these resources may be required as the number of users increases. Upgrade Low Priority Threads should be set to OFF on servers not loading SMP to avoid High CPU Utilization issues.

System Maintenance Routines

Maintenance Routines such as defragging, compacting or re-indexing typically open a lot of files and add a significant amount of I/O to the already high I/O backup operation. Schedule these activities outside of the backup window.

OFM Agent Configuration

Systems without a Local Backup Agent

If the System Component is installed to a target computer without a backup agent (the application itself or a client agent) installed, you must enable one of the Remote System Backup Agents in the Agents tab of Open File Manager System | Properties. Otherwise, Open File Manager will not detect the backup and open files will be skipped.

If both the backup server and target are NT systems and the backup application is NT Aware (uses the NT API "open with backup intent when backing up mapped drives"), enabling the Remote System Backup-NT Aware agent so it has a green checkmark next to it will suffice.

For NetWare or mixed platform backup, you must enable the Remote System Backup-Login Agent and configure it with the Username your backup application uses to login and establish communication with the backup client.

OFM General Settings

Backup Inactivity Timeout

If a target computer's backup does not require manual tape changes (it fits on one tape or has an autoloader handling the tape changing), you may reduce Open File Manager's Backup Inactivity Timeout to 20 minutes from its default 120 minutes. This will cause Open File Manager to automatically unsync earlier after the backup is completed and afford some disk space and memory utilization savings on backup.

Stopping the OFM System Component

It is recommended that you do not stop a Windows NT Service and Driver such as Open File Manager on a system under heavy load. Open File Manager contains a warning message when you attempt to Stop the NT System Component that recommends that this function only be used on an idle system, with only the administrator connected.

System Synchronization Problems

If you see "System Synchronize Failed" messages in the Open File Manager Log File, you will need to increase the Sync Attempt Timeout and/or decrease the Write Inactivity Period by increments until Open File Manager can achieve System Synchronization. This is important for the proper restoration of files that are related to each other.

Backup Application Settings

General Backup Settings

Some backup agents do not attempt to open a file when they expect the attempt to fail. (This occurs for some agents that can be configured to open files in either exclusive or non-exclusive modes, when the exclusive mode is selected.) Similarly, some backup agents can be explicitly configured to skip open files. In each of these cases, Open File Manager does not have the opportunity to assist and grant the open request. Therefore, backup agents should be configured to open files in non-exclusive modes (such as "Deny None if Deny Write Fails"), and to backup open files. Open File Manager will then grant the open requests and provide consistent data for backup.

Workstation-based Backup Product

If you are using a workstation-based backup product or you are backing up a remote system, you must login with a specific user name that is reserved for backups. Refer to Login Agents.

Application Specific Agents

Running an application-specific agent to assist backups of a live database results in a complicated interaction among Open File Manager, the backup program and the specialized backup agent. If you are using Open File Manager on a system that also has an application specific backup agent, you must instruct Open File Manager to ignore all files (all of the application's installation and data directories) that are managed by that backup agent.

Multiple Open File Solutions

Multiple third-party open file solutions should not be installed concurrently on the same system. These include Open File Manager, Computer Associates Backup Agent for Open Files (OFA), and Veritas Software's Open File Option (OFO).

Loading OFM while Backup is in Progress

It is recommended that you not start Open File Manager while a backup is in progress.

Restores

It is recommended that Open File Manager be disabled when performing restores, in order to conserve system resources.

The Control Component

Main Window Overview

The Control Component is the user interface portion of Open File Manager. Its main window
has a Menu Bar, Tool Bar, Status Bar, and three window panes:

1. Network Pane

2. Status Pane

3. Log File Pane
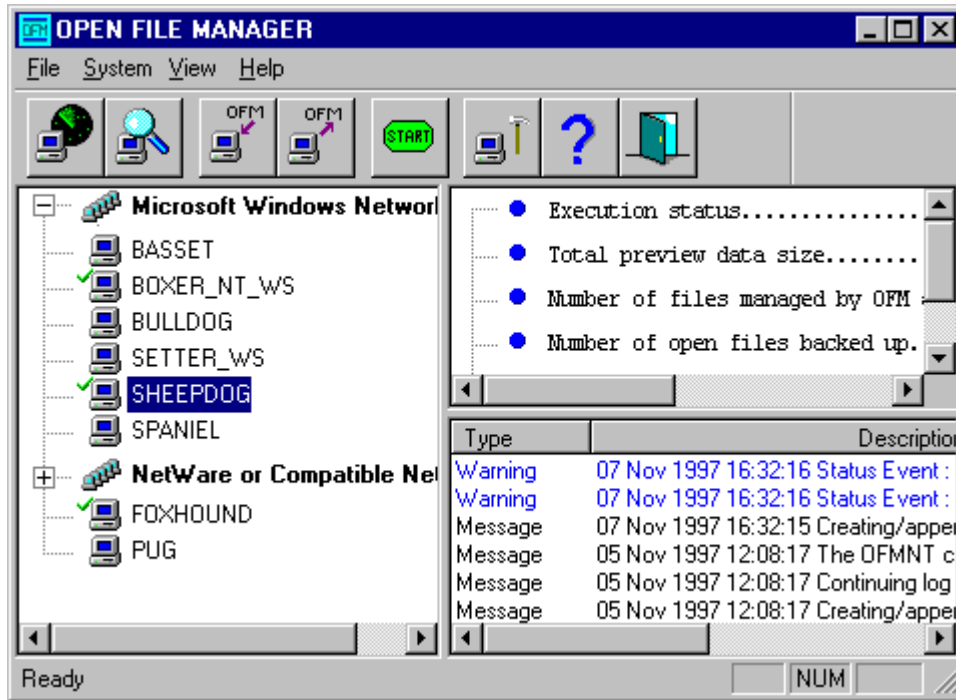
The window panes and menu bar are described in the following sections.

The tool bar provides shortcuts to commonly used menu items.

This status bar displays the current status of the Open File Manager Control Component
(normally "READY"). It also displays the functions of the various tool bar buttons. To activate
this feature, place the cursor over a button and its function will be displayed.

Network Pane

The Main Window's Network Pane displays available networks, domains, NetWare computers and Windows NT computers.

NetWare and Windows networks are shown as separate hierarchies. The Windows network contains domains that may again be collapsed or expanded. In the same way as Windows Explorer, the expansion indicator box of the list entry can show either a "+" or "-", meaning that the branch is collapsed or expanded, respectively. Click on the "+" or "-" to expand or collapse the branch. Navigation is also available via the arrow keys. Multiple systems may be selected for some operations.

Open File Manager caches the results of previous network scans to avoid re-scanning. The status icons shown below may not be up-to-date if the status was changed externally or from another installation of the Open File Manager Control Component. To ensure up-to-date status, highlighting individual systems will update the status information. A System | Scan will refresh the currently selected tree or subtree of the network.

See the View Menu to set the Network View to show only servers, workstations or both. Right clicking on a computer name will bring up a menu allowing you to access the Install, Uninstall, Start, Advanced and Properties menu items. Right clicking in an empty area of the Network Pane will allow you to perform a System | Find to locate a specific system.

Next to the name of each server is an icon representing the state of Open File Manager on that system. A description of the icons follows:

✍   The Open File Manager System Component is started and the Control Component user has sufficient rights to configure it. For a NetWare computer, this means you are logged on with supervisor, admin or console operator rights. For a Windows NT computer, this means you are logged on as a member of the Administrators, Backup Operators or Server Operators group. Click on the entry to view Open File Manager status.

!   Indicates that the currently logged in user has insufficient Administrative Rights to install, uninstall, start/stop, configure or view the status of Open File Manager. If the Open File Manager System Component is started, the system status cannot be viewed, the log file display is disabled, the System Component cannot be configured and the Properties option will be disabled.

If you select a NetWare system and Open File Manager determines that the currently logged on user has insufficient administrative rights, a Login dialog will be displayed allow the user to re-authenticate to that system.

<**no icon**>   This will indicate one of two things. If System | Start is enabled, then the System Component is installed but not running. Otherwise, the System Component is not installed.

29

Status Pane

The Main Window's Status Pane displays real-time status information for the System Component (if any) on the computer selected in the network pane.
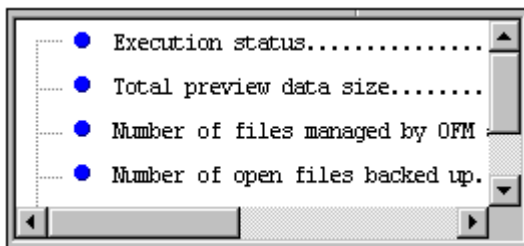
The following information is displayed:

* Execution Status

* Total Preview Data size

* Number of files managed by OFM and the number with Preview Data

* Number of open files backed up

* Number of files released due to reaching the access release point

* System synchronization status

Right clicking in the pane provides a menu of File | Status Print functions.

The total Preview Data line is expandable. When expanded, it will show the following information about each volume that contains Preview Data:

* Volume name

* File data size

* Preview data size

* Peak Preview Data size

* Volume free space

* Minimum volume free space (the smallest it has been since Open File Manager has been active)

* Free space threshold

The number of files managed by Open File Manager is expandable. When expanded the files being managed by Open File Manager are listed with the number of times they have been read by the backup agent

The system synchronization line is expandable. Its expanded content depends on the current synchronization status:

* System synchronized

    System sync time

    Elapsed time since sync

    Backup agent inactivity elapsed time

* System synchronization in progress

    Sync attempt start time

Elapsed time since sync attempt start

Sync attempt timeout

* System not synchronized

This state has nothing additional to display.

* System wide synchronization failed, file level synchronization being used

Time system wide sync attempted

Elapsed time attempting system wide sync

Log File Pane

The Main Window's Log File Pane shows the log file maintained by the System Component (if any) on the computer selected in the network pane.

The log file entries may be simply informational messages reporting various normal events in the operation of Open File Manager, or they may be warnings or errors. The text and color of the message indicates the type of entry.

* Message – Normal operational events, for informational purposes.

* Warning – A questionable situation exists that may need correction.

* Error – A definite problem exists that should be corrected.

Each log entry is a separate item in the list box, with two separate parts – the item's Type (severity) and Description (time-prefixed message text). The two parts are in separate columns. Clicking on a column heading will reorder the log file items. All errors can be collected at the top of the list by clicking the Type column heading, and returned to chronological order by clicking the Description heading.

Right clicking in the log pane presents File | Log Print functions.

Main Menu

The Main Menu bar contains the File, View, Help and System Menus.

File Menu

The File Menu provides print functions and Exit.

Print Log

Prints the log file maintained by the System Component (if any) on the computer selected in the network pane. This is the file currently displayed in the log pane.

Log Print Preview

Provides an on-line preview of the Print Log output.

Print Status

Prints real-time status information for the System Component (if any) on the computer selected in the network pane. This is the status currently displayed in the status pane.

Status Print Preview

Provides an on-line preview of the Print Status output.

Exit

Exits the Control Component. This has no effect on any System Components.

View Menu

The View Menu controls the aspects of the Control Component main window are visible. The visible aspects have checkmarks next to their corresponding menu item.

Toolbar

The tool bar is a row of icons below the main menu, providing shortcuts to commonly used menu items. This bar can be visible or hidden. Hiding the bar provides more space for the windowpanes.

Status

This status bar is a one-line display at the bottom of the main window. It displays the current status of the Control Component, and the functions of the various tool bar buttons when the cursor is over a button. This bar can be visible or hidden. Hiding the bar provides more space for the windowpanes.

Servers / Workstations / All

These items are mutually exclusive; only one can be active at a time. They control which types of computers are displayed in the network pane.

* All: This is the default setting. The Control Component will normally display the platform families supported by the System Components, namely all NetWare and Windows NT components.

* Servers: This setting causes Windows NT workstations (Workstation, Professional and Home editions of Windows NT) to be omitted from the network pane.

* Workstations: This setting causes only Windows NT workstations (Workstation, Professional and Home editions of Windows NT) to be included in the network pane. NetWare and Windows NT servers are omitted.

Help Menu

The Help Menu items provide access to the Open File Manager on-line documentation.

* Contents: Opens the document and its contents pane.

* Search: Opens the document and its index or search pane.

* Quick Start: Opens the document to its key topics for fast but trouble free use of Open File Manager.

* About: Provides version information for the Control Component. The version information for System Components is accessed through the System Menu | Properties menu item.

System Menu

Overview

The System Menu provides operations on the items displayed in the network pane, including finding computers and installing and starting Open File Manager System Components on them.

Scan and Find

The System Menu includes the following network browse-list control items. The browse-list, displayed in the network pane, may be filtered by settings on the View Menu.

Scan

Re-scans the network or domain (if any) selected in the network pane. (This menu item is disabled if a computer is currently selected in the network pane.) The scan discards the cached item list and refreshes it with domains or computers currently visible to the Control Component. The results are equivalent to a Windows Explorer browse list pruned to the System Component platforms supported by Open File Manager.

The display for scopes other than the one selected remain unchanged.

For example, to scan a Windows NT network, select the Microsoft Windows Network item and select the Scan menu option. This will display all the available domains. Select a domain and scan again to display the NT computers in that domain. Click on each system for the current Open File Manager System Component status.

Find

Searches any scope of the network for a computer by name, or by partial name ending in asterisk ('*') for wildcard searches. The network is scanned until a matching computer is found or until all computers on the network have been examined. If the search is successful, the computer is displayed and selected in the network pane. If the search is unsuccessful, a dialog box indicating this fact will be displayed.

This menu item is available at all network scopes.

Install, Start and Uninstall

The System Menu includes the following installation items.

Install

Installs an Open File Manager System Component on the computers selected in the network pane.

This item is disabled if a computer is not selected in the network pane; or administrative access is unavailable to that computer; or the computer is already running a System Component. See Installation Overview.

Start

Loads and starts the Open File Manager System Component that is installed but not running on the computer selected in the network pane.

This item is available for NT target computers when the Control Component is run on an NT computer.

This item is available for NetWare computers if the Control Component is running on a Windows computer with Novell's NetWare client installed. To start the NetWare System Component, go to the console (physically or through RConsole) and type LOAD OFM.

This item is disabled if a computer is not selected in the network pane; or administrative access is unavailable to that computer; or the computer is already running a System Component; or no System Component is installed.

Uninstall

Removes the Open File Manager System Component from the computer selected in the network pane.

This item is disabled if a computer is not selected in the network pane; or administrative access is unavailable to that computer; or the computer is not running a System Component. System Components must be Started to be uninstalled.

You will receive an "Are you sure?" dialog. Selecting Yes will complete the uninstall process, selecting No will abort the uninstall process. System Components should be stopped or uninstalled when systems are idle, with only the administrator connected.
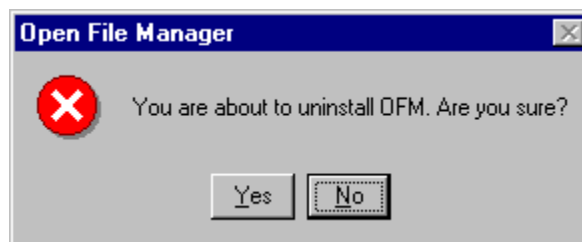
Advanced

The System Menu | Advanced submenu provides the following items, which should be used with care.

Stop

Stops and unloads the Open File Manager System Component that is installed and running on the computer selected in the network pane.

System Components should be stopped or uninstalled when systems are idle, with only the administrator connected.

This item is available for NT target computers when the Control Component is run on an NT computer.

This item is available for NetWare computers.

This item is disabled if a computer is not selected in the network pane; or administrative access is unavailable to that computer; or the computer is not running a System Component.

When the Windows NT System Component is stopped, it is possible that it will not be able to unload. This can happen when an I/O operation remains pending after a delay of several seconds, or if another driver is loaded at a higher level (later in time) than the Open File Manager driver. If the driver is unable to unload, an error message is placed in the Open File Manager log file. The driver remains loaded, but in a paused state.

Synchronize System

This item forces the Open File Manager System Component to synchronize on the computer selected in the network pane. This feature is not often used outside test and evaluation efforts.

This item is disabled if a computer is not selected in the network pane; or administrative access is unavailable to that computer; or the computer is not running a System Component; or that component is already synchronized.

Un-Synchronize System

This item forces the Open File Manager System Component to unsynchronize on the computer selected in the network pane. This feature can be used to unsynchronize a system once a backup is complete in order to release Preview Data, rather than waiting for the Backup Inactivity Period to expire.

Using this feature while a backup is in progress is not recommended, except in test and evaluation efforts.

This item is disabled if a computer is not selected in the network pane; or administrative access is unavailable to that computer; or the computer is not running a System Component; or that component is not synchronized.

Reset Status Counters

Open File Manager System Components maintain cumulative counts of "The number of open files backed up" and "The number of files released," displayed in the status pane. These counts are not reset between backups, for example.

The Reset Status Counters item resets both values to zero.

This item is disabled if a computer is not selected in the network pane; or administrative access is unavailable to that computer; or the computer is not running a System Component.

Properties

This System Menu item invokes a multi-tabbed properties page providing extensive configuration control of the System Component running on the computer selected in the network pane. The options available here are a major topic in themselves; see The System Components, below.

This item is disabled if a computer is not selected in the network pane; or administrative access is unavailable to that computer; or the computer is not running a System Component.

The System Components

Usage

The System Components are the core technology in Open File Manager. They recognize backup agents, and provide the agents with open file management for files residing on the local hard drives of the computers where the System Components are installed.

Deploying and monitoring the real-time and cumulative performance of the System Components are done through the Control Component Main Window, as covered in the previous main topic.

Configuring the System Components is done through the Control Component menu item System | Properties. This item presents four properties tabs – General, System, File and Agent.

* General Properties – Settings for Open File Manager timing parameters, preview data, and log file.

* System Properties – Installation information for the computer currently being configured.

* Files Properties – A set of files that should be excluded from Open File Manager processing.

* Agents Properties – Configuration settings for specific backup applications and agents recognized by Open File Manager, and various generic agent support (login based, NT-aware, Novell SMS) provided by Open File Manager.

These functions, and the Administrative Rights required to access them, are covered in the subsections, below.

Administrative Rights

Configuration and control of the System Components requires administrative rights to the given systems, as determined by the following methods.

NetWare Administration

Installing and administering the NetWare System Component requires read/write access to the \Sys\System\ directory on the target server.

Windows NT Administration

Three levels of users are recognized for NT Administration – Administrators, Operators, and all others.

* Administrators are members of the NT Administrator user group, and are given full access to all Control Component features.

* Operators are backup operators, with the right to monitor and configure Open File Manager, but without the right to Install, Start, Stop or Uninstall. This is consistent with NT Security, which permits only Administrators to control NT Drivers.

* Users who are neither Administrators nor Operators for a system will have no access to that system through the Control Component.

For each system accessed through the Control Component, it will check whether the user is an Administrator, an Operator or neither. The same user may have different rights to different systems.

(On Windows9x, the Control Component never grants more than Operator privileges.)

Any user, who is an Administrator or a Domain Administrator for an NT system, will be an Administrator of that system through the Open File Manager Control Component.

Otherwise, any user who is a Backup Operator for an NT system will be an Operator of that system through the Open File Manager Control Component.

NT System Administrators can allow other users to be Operators in either of two ways.

1. The user can be added to the Backup Operators security group, using User Manager on the local NT system to be accessed. Often, this has already been done, to allow the user to operate the site's backup application.

2. The user can be added to the list of users with Read access to the OFMLOG share point on the NT system to be accessed. The NT System Component creates the OFMLOG share point when it is installed and started. Read access is already granted to Backup Operators. Other users can be added through Explorer | Properties [of the share point] | Security | Permissions.

Administrators are given full access to all Open File Manager Control Component features. Operators are backup operators, with the rights to monitor and configure.

System Properties

The System | Properties | System tab displays information regarding the System Component installation on the computer selected in the network pane.

* System Name: The system for which the information is presented.

* OFM Version: The major and minor version number of the System Component; e.g., 8.0.

* OFM Build Level: The maintenance build level within the given version of the System Component; e.g., 001.

* Serial Number: The license serial number in effect for the System Component.

* License Level: The number of concurrent System Component installations allowed by the serial number.

* Installation User: The user name entered at the installation of the Control Component, which was then used to install the System Component.

* Installation Organization: The company name entered at the installation of the Control Component, which was then used to install the System Component.

* Installation Date: The date and time at which the System Component was installed.

Files Properties

The System | Properties | Files tab contains the Files to be Ignored by Open File Manager, a predefined and user-defined list of file and directory names. The file names may be wildcards ending in asterisk ('*'), and the directory names automatically end in wildcards, to include all files within the directory. The directories may automatically include subdirectories. The list may include files and directories that do not (yet) exist.

You can add Files to be Ignored using the Add dialogue, and remove the selected one(s) using the Remove button. Reset discards all changes since the last save (OK or Apply).

This list identifies the files that are not to be managed by Open File Manager. Essentially, for any files matching the specifications, it is as though Open File Manager does not exist.

For example, there is no purpose in managing the operating system's paging file. The paging file is irrelevant to backup integrity, and managing it would cost some amount of system overhead.

Another example is the installation directory tree for your backup application. Backup applications know how to backup their own files, if necessary; so managing them is not useful. Furthermore, it can be harmful. Some backup applications use files for job scheduling. If

Open File Manager presented a stable view of those files, then the backup job schedule would never change.

> You should add your backup application installation directories to the Files to be Ignored, as described in Quick Configuration's Open File Manager Ignore Set Configuration topic.

An entire volume can be ignored. Open File Manager optimizes this special case. The optimization requires that you Stop and Start the System Component, directly or by restarting the computer.

Log File Path and Max Size

The System | Properties | General tab provides the following configuration options for the Open File Manager Log File.

Log File Path

By default, the Open File Manager log file is stored in the OFM/NT/i386 directory on Windows NT and in the \SYS\SYSTEM\OFM directory on NetWare computers. If the location needs to be changed, enter a new location using the full path and filename. If the path specified does not exist, Open File Manager will create it.

Log File Path:
C:\OFM\log\OfmNt.log

If the active log file is deleted externally, you will need to Stop and Start the System Component on that system in order for Open File Manager to recreate the missing log file.

Log File Max Size

By default, Open File Manager will allow the log file to grow to 2048K. Once the file reaches the maximum defined size, Open File Manager will purge about 40% of the older entries to reduce the log file to a level below the maximum size. If the size of the log file needs to be changed, enter the new maximum log file size (in kilobytes) in this field. The size should be set at least large enough to allow the messages from one full backup to be captured without pruning.

Log File Max Size: 2048 ⬍ KBytes

Preview Data Volumes and Free Space

The System | Properties | General tab provides the following configuration options controlling Open File Manager's use of disk space for Preview Data.

Preview Data Volumes

Open File Manager maintains Preview Data in a pre-write cache. This cache is kept on one or more disk volumes. The Preview Data Volumes dropdown list will contain an entry for every available volume on the system that can be used to store Preview Data. By default, Preview Data is balanced across all volumes.

Preview Data Volumes: C ▼
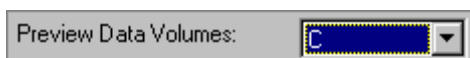
The volume list is used in conjunction with the Preview Data checkbox, to the right, to specify which volumes can be used to store Preview Data. When a volume is selected in the dropdown list, a checkmark in the Preview Data checkbox indicates that Preview Data can be stored on the volume.
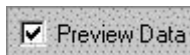
Note: Disabling ALL the available volumes will in effect disable Open File Manager since it no longer has a location to store Preview Data.

Preview Data Volume Free Space

This volume dropdown list is also used in conjunction with the Preview Data Volume Free Space controls to specify the minimum volume free space required on the volume. If the free space on the volume reaches this minimum free space threshold, Open File Manager will not add any more Preview Data to that volume. If the minimum free space threshold is reached on all volumes that store Preview Data, Open File Manager will discontinue operations, free all Preview Data and generate an error message in the log file.

Three controls apply:

1. The Use Default checkbox indicates whether to use the default value for the volume currently selected in the Preview Data Volumes dropdown list.

2. The Preview Data Volume Free Space spinner (numeric field) is an override for the default value otherwise applied to all volumes. It indicates the value to use for the selected volume when the Use Default checkbox is unchecked.

3. The Minimum Free Space (default for all volumes) spinner (numeric field) is the default value applied to all volumes that have the Use Default checkbox checked.

Preview Data Release Point

Open File Manager maintains Preview Data while a backup is in progress. The System | Properties | General tab has the Preview Data Release Point dropdown list to control when the preview data is released. This can be after a file backed-up, after it is verified, or after the entire backup job completes.

* After Backup – Open File Manager will release the Preview Data on a file-by-file basis upon the completion of the backup of each open file.

* After Verify – Open File Manager will hold the Preview Data after a file is backed-up, then release it on a file-by-file basis upon the completion of a verify pass of each open file by the backup agent. This allows the results of the backup pass and the verify pass to agree, avoiding backup log errors.

* After All Backup Activity Stops - With this option selected, Open File Manager will hold the Preview Data until it determines that all backup activity has stopped, for all files, and the Backup Inactivity Timeout has expired. This option is particularly useful if multiple backup jobs are run on the same computer, overlapped.

Use Defaults

The System | Properties | General | Use Defaults button resets the General Properties to their default values.

Property	Default Value
Log File Path	OFMNT.Log or OFMNW.Log
Log File Max Size	2048K
Preview Data Volumes	All Available Volumes
Preview Data Checkbox	Enabled
Preview Data Volume Free Space	4096K
Use Default Checkbox	Enabled
Minimum Free Space Default	4096K
Preview Data Release Point	After Verify
Write Inactivity Period	5 Seconds
Synchronization Timeout	60 Seconds
Backup Inactivity Timeout	120 Minutes

Write Inactivity Period and Sync Attempt Timeout

The System | Properties | General tab allows controlling Open File Manager's timing parameters for achieving synchronization, through the following options.

Write Inactivity Period

Open File Manager applies the Write Inactivity Period (WIP) to detect when the files on a system are in a synchronized state. The WIP is measured in seconds. If data is modified more frequently than the WIP, then the modifications are treated as being related. As long as this frequency of modification persists, the data is not synchronized – it may contain only a part of a series of related modifications, and therefore must be regarded as transiently corrupt and not ready for backup.

Conversely, when modifications are separated by a period of time greater than the WIP, then the modifications are treated as unrelated and the data is coherent. The data is synchronized and reliable for backup and restore.

Write Inactivity Period: [5] Secs

When a backup begins, Open File Manager begins to look for a point in time that satisfies the WIP. This point in time represents system-wide synchronization (system sync). The backup can proceed before system sync, so long as it is accessing only files that are not changing. Usually Open File Manager will detect system sync before the backup accesses a changing file. Open File Manager will then maintain the bookkeeping information (principally, Preview Data) that it needs to provide the backup with the synchronized view of the system.

Sync Attempt Timeout

If the backup attempts to access a changing file before the system is synchronized, Open File Manager will delay that access, until the WIP occurs. This delay is limited, to the Sync Attempt Timeout (Sync Timeout). Sync Timeout is measured in seconds, and is the amount of time that Open File Manager will delay a backup's attempt to open a file, while waiting for the WIP to occur.

Sync Timeout: [60] Secs

For example, if the WIP is set to 3 seconds and the Sync Timeout is set to 60 seconds, then the backup may be delayed up to one minute waiting for the 3 second WIP.

If the WIP is not met within Sync Timeout, then the system will not be synchronized during this backup.

In this case, Open File Manager will abandon its attempt to achieve system sync, and will degrade to an attempt to synchronize each file individually (file-by-file sync). The WIP will be applied to each file individually, and the Sync Timeout will again limit each such attempt. File-by-file sync is much easier to achieve than system sync, which itself is almost always achieved, sometimes after adjusting the WIP downward.

If system sync fails, a warning is posted to the Open File Manager log file. Each open file backed-up will be self-consistent under file-by-file sync, but any two files may be mutually inconsistent.

Backup Inactivity Timeout

System | Properties | General | Backup Inactivity Timeout is Open File Manager's timing parameter for ending synchronization.

When all backup activity on a system stops, Open File Manager begins tracking the elapsed time. When this elapsed period of continuous backup inactivity reaches the Backup Inactivity Timeout, Open File Manager concludes that the backup job is completed. It then releases all resources that were allocated for maintaining the synchronized state (system sync or file-by-file sync), and resets for the next backup job.

Backup Inactivity Timeout: [120] Mins

The Backup Inactivity Timeout is measured in minutes and is the time between a backup stopping and Open File Manager concluding that it has stopped. The purpose of this delay is to accommodate mechanical operations that may delay a backup that is still in progress. For

example, if the backup job requires manual intervention to change a tape that unexpectedly filled, the delay provides the operator with time to detect and correct the situation, without losing data synchronization.

If such delays are unnecessary, the Backup Inactivity Timeout can be reduced from its default, as described in Quick Configuration's Open File Manager General Settings. This will reduce the period in which Open File Manager holds resources unnecessarily.

Agents Properties

Agent List

The System | Properties | Agents tab contains the Agent List. The agent list enumerates the specific backup applications and other agents recognized by Open File Manager, and the various generic agent support (login based, NT-aware, Novell SMS) provided by Open File Manager.

The agents are in a two-level list. The outer level lists agent categories, and opens to display one or more agent names. Open the item by clicking the expansion mark ('+') or double-clicking its name.

A checkmark next to an item indicates that the item is enabled and will be recognized by Open File Manager. Disabled items, without a checkmark, will not be recognized or supported by Open File Manager.

Agents can be enabled and disabled as a whole category (the outer level items), or as individual agents (the inner level items). To enable or disable an item, select it and change the setting in the Agent Disabled checkbox below the list. Double-clicking in the item's adjoining checkmark area will also change the setting.

Disabling agents that are not in use will provide a minor performance improvement since Open File Manager will no longer have to monitor for those applications.

Agent Compatibility

The vast majority of agents are compatible and can be enabled simultaneously. An occasional exception to this rule occurs when a significant feature of an agent changes from one release to another. In this case, the different versions of the agent are not mutually compatible, for Open File Manager's purposes.

Such agents are always grouped together in a single category. This makes it easy to maintain compatible settings.

> If you modify an agent setting within a category that has only some of its agents enabled, then you should treat these agents as mutually exclusive, and enable only one at a time, disabling the others at the same time.

No agents outside of the given category need to be adjusted.

Login Agents

The System | Properties | Agents tab allows controlling Open File Manager's recognition of Login Agents and Application Agents the perform backups.

Some agents in the Agent List have names ending in "(login)" and are referred to as login agents. Open File Manager recognizes login agents by their security (user or group) identity.

Most agents, on the other hand, are recognized by their program name, and are referred to as application agents. Most backup agents are application agents. Many are client-server applications, with one main server component communicating with client components that reside on each computer to be backed-up. As long as the application has some software component residing on the target computer, then it can be handled as an application agent.

By default, application agents are enabled in the agent list, and login agents are disabled. If you enable a login agent you will need to provide a login identity under which they perform their accesses.

Login agents always perform their accesses remotely, that is, the files being backed-up reside on a different computer than the one from which the access comes. (If it were a local access, then the agent could be recognized by program name, and the login identity would not be required.)

Login agents include Remote System Backup (Login) and Open File Copy (Login). Remote System Backup allows you to use a standalone backup application to backup computers on the network other than the one on which it is installed.

Open File Copy allows you to use any application whatsoever – including the Copy command – to copy or read files while they are open. This is particularly useful for creating test copies of production databases, copying locked data files for browsing and report generation, and off-line backup.

Configure login agents as follows:

* Create a specific computer account that your backup will use to access the remote target computer. Do not use any predefined account, or any account that is used for other purposes. It is recommended that you create an account called BACKUP with all the necessary rights to access the files for backup.

* Open Agent Properties. (Select the target computer in the Control Component network pane; select System | Properties; and select the Agents tab.)

* Open the Remote System Backup agent category and enable the "Remote System Backup (Login)" agent.

* Enter the backup account name (e.g., BACKUP) in the Login Name text box.

   On NetWare, if the context is not set on the target computer, use the distinguished, untyped name, without a leading dot (the bindery form of the NDS name). For example, co.org.suborg.backup.

   On Windows NT, a security group can be used as well as a user identity.

* Select whether this is a user name or a group name.

* Ensure that your backup is using this account to connect to the remote server for backup. If the program is interactive, this simply involves a user logging-on and running the program.

Special Windows NT Agents

The following non-application agents are specific to Windows NT. Open File Manager's recognition of these agents is controlled through the System | Properties | Agents tab.

Local Security Agent

The Local Security Agent supports the backup of encrypted files in Windows 2000 and later. If you are running Open File Manager on a Windows 2000 or later computer needing encrypted file support, this agent needs to be enabled.

Remote System Backup (NT Aware)

On Windows NT, Open File Manager supports remote backup programs that are "NT aware". This means that both the computer on which the backup program is running, and the target computer being backed up are Windows NT systems, and that the backup program uses an operating system feature ("open for backup intent") that is available only to holders of the security privilege "Backup Files and Directories". This privilege is normally granted to administrators and backup operators. Use of this feature eliminates the need to configure a login name for remote server backup.

Do not enable this agent on systems running Services for Macintosh.

Special NetWare Agents

The following non-application agent is specific to NetWare. Open File Manager's recognition of this agent is controlled through the System | Properties | Agents tab.

SMS Backup Method

Novell's Storage Management Services (SMS) is a backup application programming framework and associated services. (Novell's SMS is not to be confused with Microsoft's System Management Server.) It is used by NetWare-aware backup applications. Some NetWare-aware backup applications use a variety of backup methods simultaneously. This can include using SMS together with either application agents or login agents, or even all three together. The SMS Backup Method should be enabled for all NetWare System Components.

Advanced Topics

These topics are beneficial to experienced users of Open File Manager.

Optimizing Open File Manager

Backups are intensive operations that can place severe demands on I/O subsystems, memory utilization and network bandwidth. Tactics for reducing these demands include the following.

Segregate Maintenance Routines

Perform system maintenance other than backup outside of the backup window. Disk and application maintenance routines include disk defragmentation, database rebuilds, and index optimization. If you perform these tasks while a backup is in progress, Open File Manager will be forced to create Preview Data on every file that is modified, moved, or accessed. While Open File Manager can manage this situation, it can be an unnecessary performance drain.

Curtail Spurious Synchronization

Open File Manager will recognize Backup Agent activity and synchronize the system, even when the activity is not necessarily for the purpose of performing a backup. If this happens when other demanding activities are in progress, the contention can degrade system performance. Options for reducing this situation include the following.

* Configure Files to be Ignored. Backup applications can generate activity without external intervention. For example, some applications use files to communicate job schedules, and check those files frequently. In an extreme case, this could keep Open File Manager perpetually synchronized, since the Backup Inactivity Timeout may never be satisfied. Ensure that backup application installation directories and scratch directories are in the Files to be Ignored. There may be multiple, disconnected directories for a single application on a system.

* Suppress Recognition, or Unsync. Running a backup application's user interface program or report generator, for backup log maintenance, can unintentionally cause Open File Manager to synchronize the system. This can be managed in one of two ways. (1) Disable Open File Manager's recognition of the agent before starting the activity, and re-enable it afterwards. See the Agent List. (2) Unsynchronize Open File Manager manually, after the activity is completed, rather than waiting for the Backup Inactivity Timeout. See Advanced options on the System Menu. This method can also be used after a backup – e.g., to end synchronization, or to reset it in preparation for starting another backup.

Review Virus Scanning Strategy

Virus scanners often make temporary modifications to scanned files, and many do so on every file that they scan. (For example, temporarily modifying the read-only attribute regardless of its starting value, and resetting the time-last-modified attribute after that.) If this occurs during a backup, Open File Manager will maintain Preview Data for every scanned file – even though the scanner's changes turn out to be only temporary. This is may be a needless waste of resources, which can be avoided.

* Scan Incoming, Not Outgoing. Scanning Incoming files (i.e., when files are written) prevents viruses from entering a system. If they do not enter, then there is none to exit, so there is no need to Scan Outgoing files (when they are read) to prevent their proliferation.

* Schedule Full Scans, but Not during Backup. As an additional assurance, and as an alternative to Scan Outgoing, Full Scans can be scheduled. It is important, however, to schedule them outside the time that Open File Manager has the system synchronized for a backup.

Release Preview Data Early

The less time that Open File Manager retains Preview Data, the less demand will be placed on system resources such as disk space and system memory.

* Set Preview Data Release Point to After Backup. If you do not perform a verify during backup, or your backup does a quick verify (e.g., verifying against CRCs rather than disk), then Open File Manager can release Preview Data for a file as soon as it is backed-up. Since backups may take hours, this will greatly reduce the amount of Preview Data that can accumulate. The default setting is After Verify. If the verify never happens, then this is effectively the same as after the entire job completes and the Backup Inactivity Timeout expires. See System | Properties | General | Preview Data Release Point.

* Backup Changing Files Early. Files that undergo the most intensive change will produce the greatest amount of Preview Data. Schedule them early in the backup job, and set the Preview Data Release Point correctly (see previous point), will significantly curtail the amount of Preview Data that can accumulate during a backup – since Open File Manager will not maintain the files in sync after the release point.

* Reduce the Backup Inactivity Timeout. Even with the changes above, some Preview Data will be retained until the backup job ends and the Backup Inactivity Timeout expires. The default value for this setting is two hours, to allow time for a manual tape change during the backup. If such a contingency is not needed, then this setting can be greatly reduced, usually down to 20 minutes.

Create, Delete and Rename Handling

Open File Manager System Components provide a stable view of persistent files whose content changes during a backup. Files that are Created, Deleted or Renamed during a backup require special consideration. Open File Manager handles these operations differently between Windows NT and NetWare, based in part on the behavior of those operations in the host operating system. Open File Manager's handling of these operations on each operating system is described below.

Windows NT Create, Delete, Rename Handling

NT Files Created During Sync

Any file that did not exist at sync is intentionally made invisible to the backup application. This correctly reflects the state of the system at the time it was synchronized. The file is visible to users and applications in general, but not to backup agents.

NT Files Deleted During Sync

Any file deleted after sync has it's full content saved in the Open File Manager Preview Data. If the file is recreated (by either a create or a rename), the original, synchronized content is available to the backup application.

NT Files Renamed During Sync

Any file renamed after sync will have preview data available to the new name. This is the content of the source file unless the target was previously deleted, in which case the target content is retained. (If neither the source nor target existed at sync, then both are treated as Created; see above.)

NT Directories Renamed During Sync

If an entire directory tree is renamed after sync but before it is backed-up, Open File Manager does not traverse the tree to cache it. Open File Manager fails sync on the directory tree if and when the backup later accesses it, and a warning is issued at that time indicating that the directory was renamed.

NetWare Create, Delete, Rename Handling

NetWare Files Created During Sync

Files created after sync are visible to the backup application. Since they had no content at the time the system synchronized, they will appear to have no content (a zero byte size).

NetWare Files Deleted During Sync

Files deleted after sync will not have their content cached. The file may have been backed-up before it was deleted. If the backup attempts to access the file after it is deleted (by a name from a backup list), the access will be denied, and a warning will be issued.

NetWare Directories Renamed During Sync

Any file renamed after sync will have preview data available to the new name if the rename was within the same directory. A rename into a different directory will cause preview data to be lost. A rename into a directory in the 'Files to Ignore' definition will also cause preview data to be lost.

NetWare Directories Renamed During Sync

Any directory renamed after sync will have preview data available to the new name if the rename was within the same parent directory. A rename into a different parent directory will cause preview data to be lost. If the target of the rename is in the Files to Ignore, it will not be ignored.

User Manual and Technical Support

User Manual

The Open File Manager User Manual (this document) is provided in two formats.

* On-Line Help: The documentation is installed with the product as a Windows Help file, and is accessible from Open File Manager's Start Menu Programs group or the Control Component Help Menu.

* Adobe PDF: Printable documentation is installed with the product as an Adobe PDF file, to the OFM\ root installation directory. The Adobe Acrobat Reader is available on the Open File Manager CD or the Adobe web site. It is not included in the Open File Manager self-extracting archive.

Technical Support

Refer to Technical Support Contact Information in the Help file for steps to take in obtaining direct support for Open File Manager.