File System Management Pack

User Guide

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Contents

1 Warning

This is a warning to all users using this Management Pack.

If used improperly, this management pack can cause serious performance issues in the Operations Manager Management Group. The performance issues are related to the discovery data, more focused on the folder and specially file discovery, because it can discover thousands of objects.

Discovery of folder and files must be used only to discover the needed objects do monitor. However, it is possible to discover thousands of files and folders. This exceeds the Microsoft best practice of defining an object class of no more than 50 – 100 objects.

So use the option "discover to all targets" at our own risk. So a strong word of advice on the discovery of Folders and Files, discover only the ones you need to monitor. A recommended value for each server will be about 30 discovered folders and 20 Files.

2 Introduction

The FileSystem Management Pack for Operations Manager 2007 will allow the discovery of File Shares in all Servers, and will enable monitoring on them. Will allow also the discovery of Folder and Files within the File Share and will enable their monitoring over various situations.

This Management Pack was developed to add more functionality to Operations Manager 2007.

3 Installing the Management Pack

The following setup instructions include the required steps for the installation of the FileSystem Management Pack.
Import the FileSystem Management Pack using the Operations Console. The file name is

Windows.Monitoring.FileSystem.mp.

4 How the Management Pack Works

The FileSystem Management Pack will allow the discovery of File Shares in all Servers. Also after this File Share discovery is completed, the management will allow the discovery of Folders and Files in the File Shares.
There are three discovery rules in the FileSystem Management Pack-

4.1 Discovery Rules *(Read the Warning before use!)*

These are the Discovery Rules of the FileSystem Management Pack.

4.1.1 File Share Discovery

Monitor Name	Override Parameter	Description
FileShare Discovery	Enabled	File Share Discovery. Enables the discovery of File Shares. **Discovery disabled by default.** The OpsMgr Action Account needs Read Permission on the Share. This rule uses WMI to discover all Shares in a Windows Computer with the exception of system shares (ex: c$).
	Frequency	The frequency where the discovery will run **default** value is **3600 seconds.**

4.1.2 Folder Discovery

Monitor Name	Override Parameter	Description
Folder Discovery	Enabled	Folder Discovery. Enables the discovery of folder classes. **Discovery disabled by default.** Note: You can only discover folders that are Shared and that they are discovered has File Shares.

Monitor Name	Override Parameter	Description
		The Discovery Process will discover all folders and subfolders within this folder. This rule uses a custom script to discover the Folders and subfolder in a File Share.
	Frequency	The frequency where the discovery will run **default** value is **7200 seconds.**

4.1.3 File Discovery

Monitor Name	Override Parameter	Description
File Discovery	Enabled	File Discovery. Enables the discovery of file classes. **Discovery disabled by default.** Note: You only can discover files for the folders discovered. The Discovery Process will discover all files in a folder NOT the Subfolders. **For complete file discovery all folders and subfolder need to overrided**. This rule uses a custom script to discover the Files in a Folder.
	Frequency	The frequency where the discovery will run **default** value is **7200 seconds.**

4.2 Monitors

These are ten monitors in the FileSystem Management Pack.

4.2.1 File Share Monitors

Monitor Name	Override Parameter	Description
File Share Availability	Enabled	Monitors the availability of this File Share. The Operations Manager Action Account needs Read Permission on the Share. **Monitor is disabled by default.**

	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

4.2.2 Folder Monitors

Monitor Name	Override Parameter	Description
Folder Modified Availability	Enabled	Monitors if this folder has been modified within a specified time. The specified time is an override and it's in minutes. **Monitor is disabled by default**.
	Otime	Time in minutes for witch the folder hasn't been modified**.**
	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

Monitor Name	Override Parameter	Description
Folder Size Availability	Enabled	Monitors the size of this folder is greater than the given size override. The size of the folder in the override in given in KB. **Monitor is disabled by default**.
	Folder Size	Size of the Folder in Kb**.**
	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

Monitor Name	Override Parameter	Description
File NOT Modified	Enabled	Checks any file that hasn't been modified in a specified time and gives an alert. **Applies to All Files in a Folder.** **Monitor is disabled by default**.
	oTime	Time in minutes for the Modified Time**.**
	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

Monitor Name	Override Parameter	Description

File Count Availability	Enabled	Counts the number of Files in a Folder. Has a specific threshold for the number of Files in a Folder. **Applies to All Files in a Folder. Monitor is disabled by default.**
	File	Number of Files that the Folder should have.
	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

Monitor Name	Override Parameter	Description
Number of Files by Extension Availability	Enabled	Monitors a specific File Extension and Counts the number of Files with that extension in a Folder. Has overrides for the File Extension to monitor and for the number of files that must be in that Folder. **Applies to All Files in a Folder. Monitor is disabled by default**.
	FileCount	Number of Files that the Folder should have.
	oExtensao	File Extension.
	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

Monitor Name	Override Parameter	Description
File Extension Modified by Time Availability	Enabled	Monitors a specific File Extension and their Modified Time (All Files on a Folder) Has overrides for the File Extension to monitor and the Time witch they are NOT Modified (Time in minutes). **Applies to All Files in a Folder. Monitor is disabled by default.**
	oTime	Time in minutes for the Modified Time.
	oExtensao	File Extension.
	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

4.3 File Monitors

Monitor Name	Override Parameter	Description
File Not Modified Availability	Enabled	Monitors if this folder has been modified within a specified time. The specified time is an override and it's in minutes. **Monitor is disabled by default**.
	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

Monitor Name	Override Parameter	Description
File Size Availability	Enabled	Monitors the size of this file. Checks if it's greater than the given size override. The size of the file in the override is given in KB. **Monitor is disabled by default**.
	File Size	Size of the Folder in Kb**.**
	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

Monitor Name	Override Parameter	Description
File Version Availability	Enabled	Monitors the File Version Attribute of a File. A check for File Version if version doesn't match it raises an alert. The File Version is an override. **Monitor is disabled by default**.
	strFileVersion	Version of the File**.**
	Interval in Seconds	The frequency where the discovery will run **default** value is **3600 seconds.**

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4.4 Rules

There are seven rules in the FileSystem Management Pack.

4.4.1 Windows Computer Rules

Rule Name	Override Parameter	Description
File Share Creation Detection Rule	Enabled	Alerts when a File Share is created on a Server. **Rule is disabled by default.**

Rule Name	Override Parameter	Description
File Share Deletion Detection Rule	Enabled	Alerts when a File Share is deleted on a Server. **Rule is disabled by default**.

Rule Name	Override Parameter	Description
File Share Performance	Enabled	Performance Rule for File Share Latency. There are two overrides: Override to windows computer - The Server that has the shares to be checked. WatcherServer - The Server that will copy the File. This Rule works in the following way. You create an override for the Target Server you need to be monitored and input a remote watcher also in the override. The rule will create a file on the Remote Watcher (this is done automatically), the file size is 977Kb, and it will be copied to all shares of the target computer and the response time

		to copy the file is recorded into performance data. File Name created is "SMBSharePerformance.bin" and it will be on (c$) of the remote watcher and it will be on all the shares of the Target Server. Rule is disabled by default.
	WatcherServer	The Server that will copy the File.
	Interval Seconds	The frequency where the discovery will run **default** value is **900 seconds.**

4.5 Folder Rules

Rule Name	Override Parameter	Description
File Count Performance	Enabled	Collects the performance custom counter File Count Performance Performance Data for the number of Files in a Folder (**all files in a Folder**). **Rule is disabled by default.**
	Interval Seconds	The frequency where the discovery will run **default** value is **900 seconds.**

Rule Name	Override Parameter	Description
File Size Performance Rule	Enabled	Collects the performance custom counter File Size Performance Performance Data for size of the Files in a Folder (**all files in a Folder**). **Rule is disabled by default.**
	Interval Seconds	The frequency where the discovery will run **default** value is **900 seconds.**

Rule Name	Override Parameter	Description
Folder Size Performance	Enabled	Collects the performance custom counter Folder Size Performance Performance Data for size of a Folder. **Rule is disabled by default.**
	Interval Seconds	The frequency where the discovery will run **default** value is **900 seconds.**

4.6 File Rules

Rule Name	Override Parameter	Description
Single File Performance Rule	Enabled	Collects the performance custom counter Single File Size Performance Linked to the File Class. Collects performance Data (File Size) for a single instance (one file only). Monitor is disabled by default.
	Interval Seconds	The frequency where the discovery will run **default** value is **900 seconds.**

4.7 Tasks

There are three tasks in the FileSystem Management Pack.

4.7.1 Windows Computer Tasks

Task Name	Override Parameter	Description
Display Existing File Shares	Enabled	Display existing File Shares on a Computer.

4.7.2 File Share Tasks

Task Name	Override Parameter	Description
Display File Share Permissions	Enabled	Display File Share Permissions.

4.7.3 Folder Tasks

Task Name	Override Parameter	Description
Display Folder NTFS Permissions	Enabled	Display Folder NTFS Permissions.

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4.8 Views

There are fourteen views in the FileSystem Management Pack.

4.8.1 FileSystem Management Pack

View Name	Description
Active Alerts FileSystem	Displays Active Alerts for the FileSystem Management Pack.

4.8.2 File Share Views

View Name	Description
Active Alerts File Share	Displays File Share Active Alerts.
File Share Performance View	Displays File Share Performance View. (Performance Rule - File Share Performance).
File Share State View	State View File Share Class.
File Share Task Status	Displays tasks status for tasks for File Share.

4.8.3 Folder Views

View Name	Description
Active Alerts Folders	Displays Active Alerts for Folders.
Folder File Count Performance View	Folder File Count Performance View. (Performance Rule - File Count Performance).
File Size Performance View	Displays File Size for all Files in a Folder. (Performance Rule - File Size Performance Rule)
Folder Size Performance View	Folder Size Performance View. (Performance Rule - Folder Size Performance Rule).
Folder Status Tasks View	Displays Folder Tasks Status.
Folders State View	State View Folder Class.

4.8.4 File Views

View Name	Description
File Size Performance View	Single File Size Performance View. (Performance Rule - Single File Performance Rule).
Active Alerts Files	Displays Active Alerts for Files.
Files State View	State View File Class.

4.9 Scripts Events

In the FileSystem Management Pack there are these scripts events.

ScriptName	EventID	Source	Description
FileDiscovery.vbs	10615	Health Service Script	File Discovery Ok.
FileDiscovery.vbs	10620	Health Service Script	File Discovery Error.
FolderDiscovery.vbs	10605	Health Service Script	Folder Discovery Ok.
FolderDiscovery.vbs	10610	Health Service Script	Folder Discovery Error.
FileShareAvailability.vbs	10600	Health Service Script	File Share is being monitored.
SMBSharePerformance.vbs	10625	Health Service Script	Share Performance Ok.
SMBSharePerformance.vbs	10630	Health Service Script	Share Performance Error.

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5   Inside the FileSystem MP

There are four classes inside the FileSystem Management Pack.

Class Name	Attributes	Properties	Description
File And Print	Abstract		File And Print Main Class an aggregator for all classes in this Management Pack.

Class Name	Attributes	Properties	Description
File Share	Hosted		All instances of File Shares in a Windows Computer.
		File Share Name	Displays the File Share Name.
		File Share Path	Displays the File Share Path.
		File Share Status	Displays the File Share Status.
		File Share Server	Display the Server where the File Share is located.
		File Share Description	Displays the File Share Description.

Class Name	Attributes	Properties	Description
Folder	Hosted		All instances of Folders and Sub Folders inside a File Share.
		Folder Name	Displays the Folder Name.
		Folder Path	Displays the Folder Path.
		Folder Drive	Displays the Folder Drive.
		Folder Size KB	Displays the Folder Size in Kb.
		Folder Date Created	Displays the Folder Creation Date.
		Folder Date Modified	Displays the Folder Modified Date.
		Folder Date Accessed	Displays the Folder Last Accessed Date.

Class Name	Attributes	Properties	Description
File	Hosted		All instances of Files inside a Folder.
		File Name	Displays the File Name.

		File Path	Displays the File Path.
		File Drive	Displays the File Drive.
		File Size Kb	Displays the File Size in Kb.
		File Date Created	Displays the File Creation Date.
		File Date Modified	Displays the File Last Modified Date.
		File Date Accessed	Displays the File Last Accessed Date.

6 Know Problems

When discovering File Shares in a mount point volume if the share name is the drive letter, the discovery won't discover the file share. For the discovery to work you need then create a folder within the mount point volume and share it.

7 Best Practices

Please remember NOT to create overrides within the **Default Management Pack**, because if you do so delete the FileSystem MP, the Default Management Packs needs to be deleted (because there are overrides from the FileSystem Management Pack in it) ,also and you will lose a lot of **important views** in the console, there are several workarounds for this problem. But it's best not to create ANY overrides in this Management Pack.

8 Tips

Here are some tips for some better understanding of the FileSystem Management Pack.

8.1 Folder Discovery

This discovery rule will discover all folder and subfolder for a give share. The correct use is the following: If you have a share that has 3 folders, creating an override that share will discover the 3 folders that are inside.
There are some situations that all must be aware, image the following scenario, there are 3 shares, but 2 shares are within folders of the first share so we will have.

C:\TestShare (this is the main folder and a share with the name **TestShare**)
C:\TestShare\Office\Documents (This is a share called **Docs**)

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C:\TestShare\Accouting
C:\TestShare\Financial (This is a share called **Financial**)
C:\TestShare\Users (This is a share called **Users**)

So in this scenario I enabled the share discovery rule, and it shows me 4 shares (**TestShare**, **Docs**, **Financial** and **Users**). So I want to discovery all the folders on root folder that is "C:\TestShare", if I create an override for the Share "**TestShare**" I will discover all the folders and subfolders within "C:\TestShare". I will have this set of folders and SubFolder:

C:\TestShare (FolderName: TestShare)
C:\TestShare\Office (FolderName: Office)
C:\TestShare\Office\Documents (FolderName: Documents)
C:\TestShare\Accounting (FolderName: Accounting)
C:\TestShare\Financial (FolderName: Financial)
C:\TestShare\Users (FolderName: Users)

If I want to discover the folder within the Share Docs, there is no need to because they where already discovery in the root Folder, that's the concept, creating an override for the Share "Docs" will give an error in the discovery script for the Folder Class.
So Overrides must be done carefully regarding what's needed to be discovered.

8.2 File Discovery

The File Discovery Rule will only work if there are folders discovered, and it will only discover file for a folder NOT for all subfolders of that folder if they exist. I did this in order not to create too many objects on the DB.
So if a have a folder that has 50 files and several subfolders with files also, the discovery will only discover the 50 files that are in the folder for the discovery. If I want to discover the files for the subfolders I need to create an override for each subfolder.

8.3 Override Tips

Here are some tips on creating overrides on Operations Manager 2007 SP1.
When create an override for any monitors on this Management Pack please see if there is this error when creating the override.
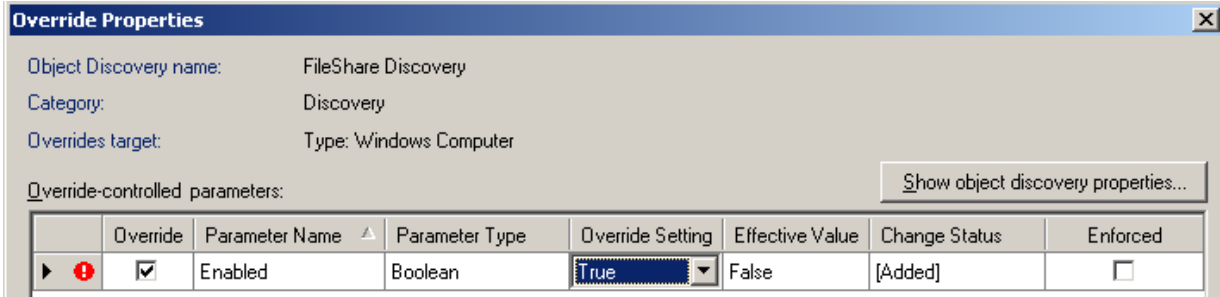
The icon in red indicates that is something missing, but has you can see the override setting is set to *True*. What you need to do is click on the *False* on the Effective Value and then select *true* again for the Override Setting. It should look like this.
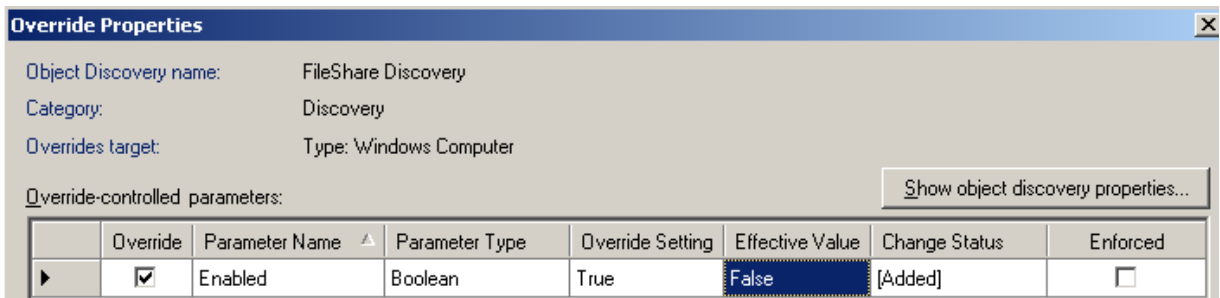
I think this is a bug from Operations Manager 2007 SP1, because in the R2 Beta that problem doesn't exist.
So always check for this when making overrides.

9 Frequently Asked Questions (FAQ)

Q: Why is this MP sealed?
A: There are several advantages of shipping the MP in a sealed format:
Upgrade Path – Because you can save your overrides to an external unsealed MP, you can easily upgrade to future releases of this MP without losing your customizations (overrides, diagnostics and recoveries).
Reference from other MPs – Object classes in unsealed management packs cannot be referenced from outside the unsealed MP in which they exist. By sealing the MP, the object classes are available for use in other custom monitoring you may author.

Q: How can I obtain an unsealed version?
A: Using Powershell, you can export a copy of the sealed MP to an unsealed copy.

10 Conclusion

This Guide has covered all the basic steps for this Management Pack not going too deep on the technical stuff.
I'm not a developer but still I tried to develop this Management Pack for all because I think this kind of monitoring is beneficial for everyone.
Your feedback for improving and suggestions is always welcome: jaimebcorreia@netcabo.pt
Would like to thanks Pete Zerger for publishing this MP on his site:
http://www.systemcenterforum.org/

11 Resources

Download at
http://www.systemcenterusergroup.com/files/
http://www.systemcenterforum.org/