

Comparing Monitor Information Reporting to Community Monitor Information Scripts



November 2, 2009

Written by
Garth Jones

Contents

Background	4
Garth Jones Bio	4
The Tools	4
Monitor Information Reporting v3.05	4
Monitor Serial Number Retrieval for SMS 2003 (MonSerNum)	5
EDID	5
Test Lab	5
PCs	5
External Monitors	6
Setup	6
Tests	6
Sample Monitor Data	6
Expected results	7
Monitor Information Reporting	7
MonSerNum	7
EDID	8
Results	8
Test 1	8
Monitor Information Reporting	8
MonSerNum	9
EDID	9
Summary of test 1	10
Test 2	10
Monitor Information Reporting	10
MonSerNum	10
EDID	10
Summary of test 2	10
Test 3	11
Monitor Information Reporting	11
MonSerNum	11
EDID	11

Summary of test 3	11
Comparing each version	12
Monitor Information Reporting	12
MonSerNum.....	12
EDID	13
Conclusions	13
Windows 7 and Windows 2008 R2	13
Definition	14
“Fake” Serial Numbers	14
Duplicate Monitors	14
False Positives.....	14

Background

On a regular base Enhansoft is asked how Monitor Information Reporting (MIR) compares to the community monitor scripts. So we thought that we would compare MIR to a few of the existing scripts. Throughout this white paper we will try to provide a fair comparison.

Garth Jones Bio

Garth Jones is the founder of the [Ottawa Windows Server User Group](#) (OWSUG) and its associated study group. He is an [MVP](#) for System Center Configuration Manager, and is a member of the myITforum Community Council. Garth is Chief Architect of [Enhansoft](#), an Ottawa company that develops products and services to extend the value of System Center Configuration Manager 2007, SMS 2003, Operation Manager, MOM and Virtual Server. He started working with Systems Management Server when it was a v1.1 (1996). He can be found in Microsoft newsgroups, on a few web forums, [OWSUG.ca](#), [SMSug.ca](#), [FAQshop.com](#) and [myITForum.com](#) and on the mailing list of myITforum.com. Garth has presented numerous times to OWSUG, created webcasts for both SMSUG.ca and myITForum.com and has presented at Microsoft Management Summit, EnergizeIT and Techdays. Since June 2002, Garth has written over 60 articles for [www.myitforum.com](#).

The Tools

Monitor Information Reporting v3.05

MIR through a series of processes gathers information about monitors attached to machines that it is executed on. This information is then returned to Microsoft System Center Configuration Manager 2007 (ConfigMgr / SCCM) or Microsoft System Management Server 2003 (SMS 2003).

- Determines Monitor Information
- Returns collected data back to ConfigMgr / SCCM / SMS
- Includes Web Report on collected data

In many businesses IT has been asked to track the life cycle of each asset on the network. With current tools available on the market there is no efficient way to easily determine monitor information such as:

- Serial Number
- Active monitor status
- Monitor power options
- Monitor size
- Monitor resolution
- Manufacture date

Monitor Serial Number Retrieval for SMS 2003 (MonSerNum)

The description listed within the script:

“The purpose of the monitor serial number script (monsernum.vbs) is to provide the retrieval of the monitor EDID data and it’s conversion to a readable format. This script also checks for the existence of the WMI classes required to store the processed monitor inventory information. If they do not exist on the client system, they are created. Once these classes are created, instances are generated for each class and the current monitor information is inserted into the WMI repository.”

<http://myitforum.com/articles/8/view.asp?id=8489>

EDID

The script can be found on myITForum.com, and there is no real description within the script or download page.

<http://www.myitforum.com/inc/upload/11905MonitorInfo.zip>

Test Lab

The following is a description of the equipment used for these tests.

PCs

This is a short description of all PC involved in this testing.

PC Name	Manufacturer	Models	Operation System
PC1	Acer, inc.	Aspire 5000	XP
PC2	Microsoft Corporation	Virtual Machine	Windows 2003
PC3	HP	ProLiant DL360 G3	Windows 2003
PC4	Dell Computer Corporation	PowerEdge 2850	Windows 2008
PC5	ASUS	DSBF-D12	Windows 2008
PC6	Hewlett-Packard	HP Pavilion dv7 Notebook PC	Windows 7
PC7	Hewlett-Packard	HP Pavilion dv9500 Notebook PC	Windows Vista

Each PC will have an external monitor attached to it, except virtual machines. By default virtual machines will have not monitor data.

Each Laptop will have both its display and the external displays active.

External Monitors

Manufacturer	Model	Serial Number	Year	Week	Model ID
Samsung Electric Company	SyncMaster 2345BW	MY23HVZS600077W	2009	23	SAM041E
Microvitec PLC	MV220	77MSBJ22FBM220260	2007	20	MVD0220
Goldstar Company Ltd	L1710S	409MXQA15892	2004	9	GSM4356

Setup

	Monitor Information Reporting	MonSerNum	EDID
Installation	The setup is wizard based	No setup program	No setup program
ConfigMgr Package	Setup creates package and program	Manual Setup of MonSerNum package and program	Manual setup of EDID package and program
Inventory Files	Setup edits sms_def.mof	Manually edit sms_def.mof	Manually edit sms_def.mof
Reports	Reports automatically installed	No reports exist to be installed	No reports exist to be installed

Tests

For each test or sub test, System Center Configuration Manager 2007 will be used to deploy the appropriate application to each PC.

1. Run tool with default monitor data; in most cases this will be 1 or 2 monitors. This test is designed to test the tool using a clean PC.
2. Run with sample monitor data; in all cases this will use the sample data as described below. This test is designed to test a large sample of data to determine things such as:
 - a. How each application detects false positive active monitors
 - b. How duplicate monitor data is detected and how it is handled
 - c. How serial numbers are identified
 - d. If the application can identify projectors
 - e. What monitor data is returned by each application
3. Clean out sample monitor data and swap in different monitor (for example, replaced the LG for Samsung) then re-run test 1. This is designed to test what happens when a new monitor is put in place.

Sample Monitor Data

Enhansoft has an ever growing set of sample monitor data that we use to test MIR; for this set of tests we will sample data from a mixture of manufacturers. Below is the breakdown for this sample data:

- 202 monitors samples

- 33 of them are default monitor data
- 15 of them are monitor driver data
- Of the remaining 154,
 - 35 duplicates
 - 59 of them are active monitors
 - Several of these are projectors

Expected results

Monitor Information Reporting

For MIR we expect that Monitor Information Reporting will provide the following data where appropriate:

- Monitor ID
- Monitor's plug and play ID (PNPID)
- Full manufacturer Name¹ or VESA manufacturer ID
- Manufacturer's unique device ID
- Manufacturer's model description or monitor name
- EDID version and revision numbers
- Serial number from EDID
- Calculated serial number¹
- Screen dimensions¹
- Native resolution¹
- Manufactured year
- Manufactured week
- Active monitor status
- Monitor power options¹
- Projector flags¹

MonSerNum

For MonSerNum we expect that it will provide the following data where appropriate:

- Manufactured year
- Manufactured month (month name i.e. March)
- Manufacture unique device ID
- Manufacturer's model description or monitor name
- Serial number from EDID
- Monitor description²
- Manufacturer's model description or monitor name
- Status²; this flag identifies suspicious data
- Unit²; this flag is a count of monitors

¹ Unique to MIR

² Unique to MonSerNum

EDID

For EDID we expect that it will provide the following data where appropriate:

- Serial Number from EDID
- Manufacture unique device ID
- Manufactured date (Month/Year)
- Manufacturer's model description or Monitor name
- EDID version and revision numbers
- Monitor ID
- Monitor's plug and play ID (PNPID)
- VESA manufacture ID (3 characters) ³

Results

Test 1

Monitor Information Reporting

1. On PC1, returned the appropriate data
2. On PC2, as per default, for all virtual machines (VM), this VM has no display data, MIR exited as it should.
3. On PC3, returned the appropriate data
4. On PC4, returned the appropriate data
5. On PC5, returned the appropriate data
6. On PC6, returned the appropriate data
7. On PC7, returned the appropriate data

³ Similar to but not the same as MIR "Full Manufacturer Name or VESA Manufacturer ID" field

Monitor Information Reporting

Tools Help

Monitor: PNPID:

Manufacture: Device ID:

Model: EDID Version:

Serial Number:

Calculated Serial:

Screen Size:

	Horizontal	Vertical	Diagonal
cm	<input type="text" value="51"/>	<input type="text" value="29"/>	<input type="text" value="58.6"/>
Inches	<input type="text" value="20.0"/>	<input type="text" value="11.3"/>	<input type="text" value="23.0"/>

Native Pixel Format:

<input type="text" value="2048"/>	<input type="text" value="1152"/>
-----------------------------------	-----------------------------------

Active Monitor:
☒ Active
☐ Marked Active
☐ Non-Active

Power Management Options:
☐ Standby
☐ Suspend
☒ Active-off/Low Power

☐ Include Default Monitors

Close OK

Figure 1 Sample output from PC6

MonSerNum

1. On the first attempt to run this script, I found an error within the script that needed to be fixed before it would continue. Once fixed I needed to update and redeploy this package.
2. On PC1, MonSerNum incorrectly identifies that there is only one monitor attached to the PC.
3. On PC2, This VM has no display data, scripted exited as it should.
4. On PC3, failed to detect attached monitor even though it is active.
5. On PC4, failed to detect attached monitor even though it is active.
6. On PC5, failed to detect attached monitor even though it is active.
7. On PC6, this script would not run correctly using this local system account due to a new security setting with Windows 7. This script needs to be manually run on all Windows 7 PCs.
8. On PC6, when manually run, this script required the use of an elevated CMD.
9. On PC6, MonSerNum incorrectly identifies that there is only one monitor attached to the PC instead of two monitors.
10. On PC7, MonSerNum incorrectly identifies that there is only one monitor attached to the PC instead of two monitors.

EDID

1. On PC1, failed to detect one of two attached monitors even though it is active.
2. On PC2, this VM has no display data, scripted exited as it should.
3. On PC3, failed to detect attached monitor even though it is active.
4. On PC4, failed to detect attached monitor even though it is active.
5. On PC5, failed to detect attached monitor even though it is active.

6. On PC6, this script would not run correctly using this local system account due to a new security setting with Windows 7. This script needs to be manually run on all Windows 7 PCs
7. On PC6, when manually run, this script required the use of an elevated CMD.
8. On PC6, failed to detect one of two attached monitor even though it is active.
9. On PC7, failed to detect one of two attached monitor even though it is active.

Summary of test 1

Only Monitor Information Reporting fully passed this test. MonSerNum failed to identify some monitors. EDID missed identifying some monitors that were attached to several of the PCs. EDID did identify more than MonSerNum but did not identify all monitors. This test revealed an issue with Windows 7 and these scripts. For remainder of tests on Windows 7 PC (PC6) the tests will be manually run.

Test 2

Since the test data is common for all tools and systems, we expect that the results will be the same for all tools and PCs. Therefore only differences will be noted between tools, PCs and the results from test 1.

Monitor Information Reporting

1. On all systems, MIR worked without issue and provided the expected data.
2. MIR detected all 59 active monitors and identified where appropriate that “Real” active monitor vs. those “Marked Active”.
3. MIR filtered out all truly duplicated monitors.
4. MIR identified all projectors.
5. MIR identified the enhanced serial numbers where appropriate.
6. MIR identified the full manufacture name or VESA manufacture ID for each monitor.
7. MIR identified the monitor power options for each monitor.
8. MIR identified the monitor, monitor’s plug and play ID (PNPID), manufacturer unique device ID, manufacturer’s model description or monitor name, EDID version and revision numbers, serial number from EDID, screen dimensions, native resolution, manufactured year, and manufactured week in addition to the data listed above.

MonSerNum

1. There was no real difference in results compared to the first test.

EDID

1. 25 of 59 active monitors were recorded.
2. No identification of which monitors are truly active
3. It filtered out monitors that should not have been. For example: there are 3 monitors in the sample data that use fake serial numbers; of these monitors only one of them was listed and the other two were filtered despite each of them having different manufacturer, monitor IDs and device IDs.

Summary of test 2

Again on test 2 Monitor Information Reporting was the only application that completed this test successfully. There was no change between test 1 and test 2 for MonSerNum. EDID again did

better than MonSerNum with respect to reporting on some of the monitor data but EDID has clear limitations. EDID missed identifying more than half of the active monitors within the sample; EDID did not identify any of the false positives. EDID filtered out monitors that it should not have due to the fake serial number issue.

Test 3

Since this test is intended to simulate replacing a monitor with a new monitor, the expected result for all products should be to adjust data returned so that the new data is identified.

Monitor Information Reporting

1. On all systems, MIR only reported the data for the current monitors.

MonSerNum

1. Updated its data with the new monitor data; however it did still miss identifying some active monitors.

EDID

1. For all systems, EDID failed and continued to display the sample data from test 2. The sample data does included the new active monitor but it didn't clean up the old data. Therefore there was no way to see the new active monitor nor did it remove any or the monitor data from test 2.

Summary of test 3

Again on test 3 Monitor Information Reporting was the only application that completed this test successfully. EDID failed as there was no way to see what is the new monitor compared to what was the old monitor as both were listed in the results. This would lead to a higher than normal count of monitors. Surprisingly in this test MonSerNum did better than EDID, due to MonSerNum design. However MonSerNum did again fail to detect a number of monitors as it did within test 1 & 2.

Comparing each version

Monitor Information Reporting

Monitor Information Reporting

Tools Help

Monitor: PNPID:

Manufacture: Device ID:

Model: EDID Version:

Serial Number: Screen Size:

	Horizontal	Vertical	Diagonal
cm	51	29	58.6
Inches	20.0	11.3	23.0

Calculated Serial: Date:

☒ Calculated ☐ Default

Native Pixel Format:

Active Monitor

☒ Active

☐ Marked Active

☐ Non-Active

Power Management Options

☐ Standby

☐ Suspend

☒ Active-off/Low Power

☐ Include Default Monitors

Close OK

- Returns data for all non duplicate monitors
- Determines the truly active monitors⁴
- Provides data on monitor power options
- Provides data on screen dimensions
- Provides data on native screen resolution
- Provides manufactured year and week
- Provides full manufacturer name
- Where possible provides enhanced serial number information
- Log file
- Identifies projectors
- Includes 26 reports : [client reports](#) and [site wide reports](#)
- Customer support for MIR
- Graphical User Interface (GUI) exists
- All false positives were detected and flagged as such using the active monitor flag

MonSerNum

- No log file
- Finicky
- It failed on all dual monitor setups within the lab

⁴ Unique to MIR

- It does not evaluate monitors (even active ones) that it can't determine a serial number for.
- No GUI
- No support for the product
- No false positives detected.
- Failed to run on Windows 7 PC

EDID

- Returns data for false positives respect to which monitor(s) are active.
- It does not evaluate monitors (even active ones) that it can't determine a serial number for.
- No log file by default
- No support for the product
- Failed to run on Windows 7 PC

Conclusions

I think that we have shown the value of Monitor Information Reporting and how it is head and shoulders over the others. Just to reiterate the main points:

- Configuration Manager Reports
- Enhanced serial numbers data
- Real active monitor data on Windows Vista, Windows 7 Windows 2008.
- Provide monitor size
- Provide monitor native resolution
- Filtering of duplicate monitors
- Identifying projectors

Yes both MonSerNum and EDID were created by community members and yes both are available at no cost, but they do lack data that most people require. If these do suit your needs then remember that these scripts are available on community sites and without those community sites these scripts would not exist for public consumption. I therefore recommend that if you do use either of these scripts that you at least give at least a minimum donation of \$250 to myITforum so that they can continue to provide community resources.

Windows 7 and Windows 2008 R2

Applocker is a new security feature within Windows 7. This feature is setup to prevent virus infections and malicious content from running on these PCs. In the cases of MonSerNum and EDID both will be blocked from running on Windows 7 workstation by default. Before changing the Applocker rules, it would be recommended checking with your security team as this could lead to other unwanted scripts (virus / malicious software) from running on these PCs.

Definition

“Fake” Serial Numbers

In some cases manufacturers do not bother to properly fill out the serial number of a monitor or projector. In many cases the serial number is listed as “000000000” however there are several other “fake” serial numbers.

Duplicate Monitors

Truly duplicate monitors is defined when we compare the data of two monitor and confirm that the monitor is the same as another one. For example:

Within the sample data for example we have two monitors listed:

- DEL4001\5&27165f79&0&10000082&01&00
- DEL4001\5&27165f79&0&10000083&01&00

Both monitors are marked as active.

Both monitors have a same serial number.

The serial number is not listed as one of “fake” Serial Numbers

Therefore we can filter out one of the two monitor data due to them being the same monitor. This information is record within MIR’s log file.

False Positives

False Positive is when Windows has declared a monitor as active when in fact it is not active. There are many reasons why this occurs. The two most popular reasons are when the OS has crashed and a new monitor replaces the original monitor or when the PC is imaged the active monitor flag does not always get cleared.