

2008

Disk Space Monitoring

A Microsoft Office Visio 2007 Add-In
Implementation



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1. Introduction

A Microsoft Office Visio 2007 Add-In Implementation.

Microsoft Visio 2007 Add-In for Disk Space Monitoring uses the new Data Graphics features of Visio 2007 to display the results of server monitoring. This application enables effective integration of Microsoft Office Visio 2007 with the service management solution System Center Operations Manager 2007. The Visio 2007 Add-In allows the users to view the results of monitoring servers from in a clear, comprehensive Visio network diagram.

2. Installation Overview

2.1 Permission for Installation

Permissions required for Installation

Permissions needed	Description
Local Administrator on the Server	Required for - invoke the MSI - read/write registry

Table 1: Permissions for Installation

2.2 Software Prerequisites

1. .NET Framework 2.0
2. .NET Framework 3.0
3. Microsoft Office Visio 2007 Professional

2.3 Installing the Prerequisites

1. .NET Framework 2.0

Download and install the **.NET framework 2.0** from <http://www.microsoft.com/downloads/details.aspx?familyid=0856eachb-4362-4b0d-8edd-aab15c5e04f5&displaylang=en>.

2. .NET Framework 3.0

Download and install the **.NET framework 3.0** from <http://www.microsoft.com/downloads/details.aspx?FamilyID=10CC340B-F857-4A14-83F5-25634C3BF043&displaylang=en>

3. Microsoft Office Visio 2007 Professional

The system should have the **Microsoft Office Visio 2007 Professional** installed.

2.4 Installation Flow

The Setup.exe installs the Visio Add-In for Disk Space Monitoring as an Add-In on the machine.

1. Run the **DiskSpaceMonitoring.msi**.
2. The Welcome screen appears.



Figure 1: Welcome Screen

3. Click **Next** to continue. The **License Agreement** window appears.
4. Click **I Agree**.
Note: Clicking **I Agree** enables the option **Next**
5. Click **Next** as shown in **Figure 2**



Figure 2: License Agreement

6. The **Setup Installation Path and Disk Space Information** screen appears.



Figure 3: Set Up Installation Path and Disk Space Information

- Click **Next**, for the default path, or click **Browse** to select the destination folder path.
- To check the Disk Space Required, click **Disk Cost**.

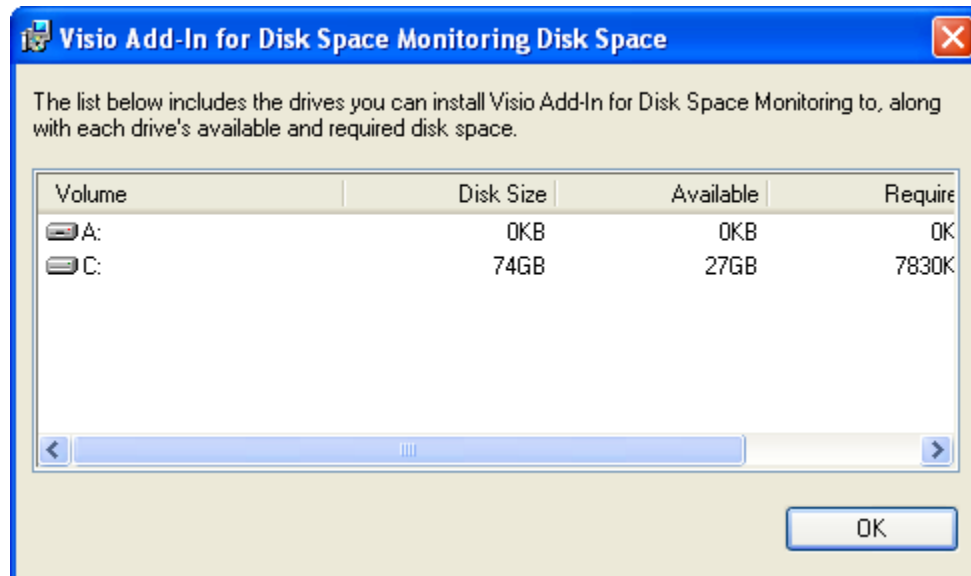


Figure 4: Disk Space Monitoring Add-in Disk Space

7. Click **Next** to continue.
8. The **Confirm Installation** screen appears.

9. Click **Next** to begin installation or **Cancel** to exit the setup wizard

Note: If you want make any changes to the installation settings or go back to the previous pages, click **Back**.

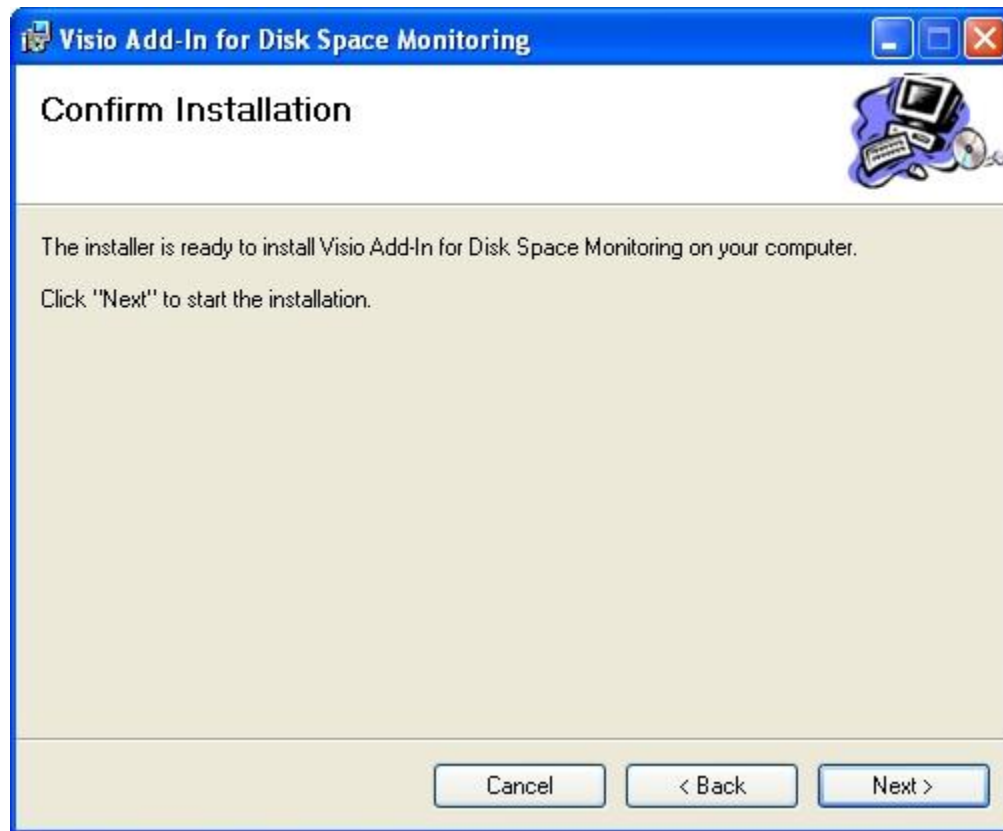


Figure 5: Confirm Installation

10. Installing Disk Space MonitoringAdd-in screen appears.

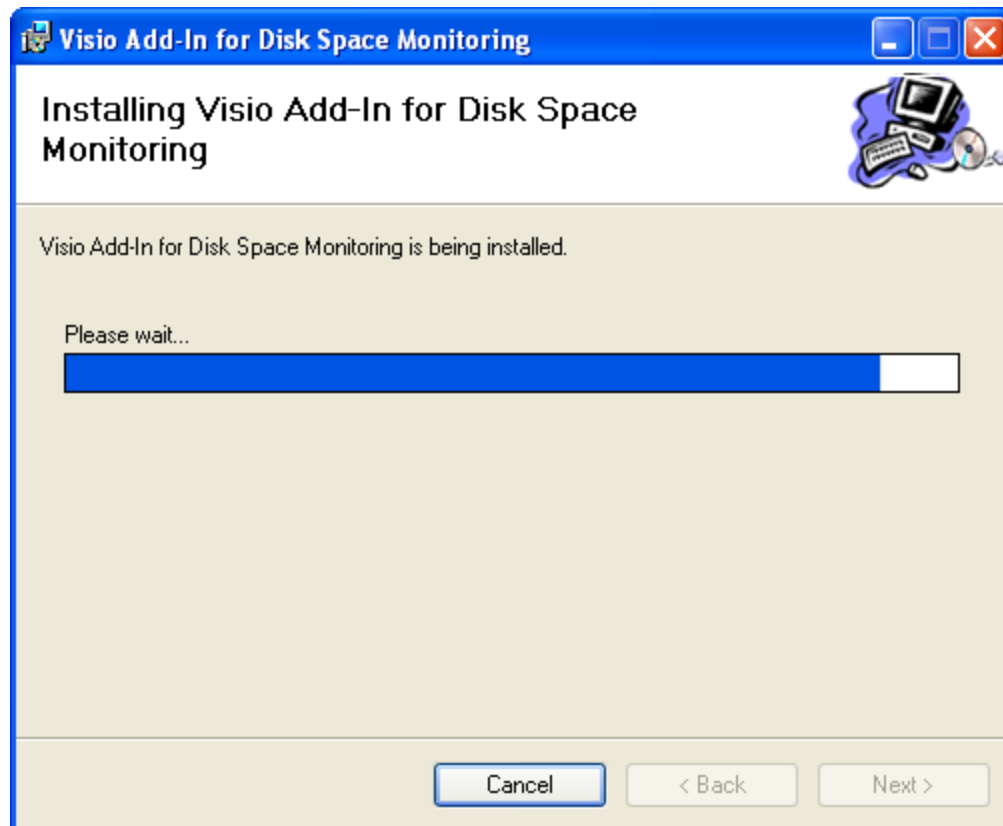


Figure 6: Installing Disk Space Monitoring Add-in

Note : Please wait while the setup wizard installs Disk Space Monitoring Add-in. This may take few minutes. The installation bar is displayed. To cancel the installation click **Cancel**

11. Once the installation is successful the **Installation Complete** screen appears.

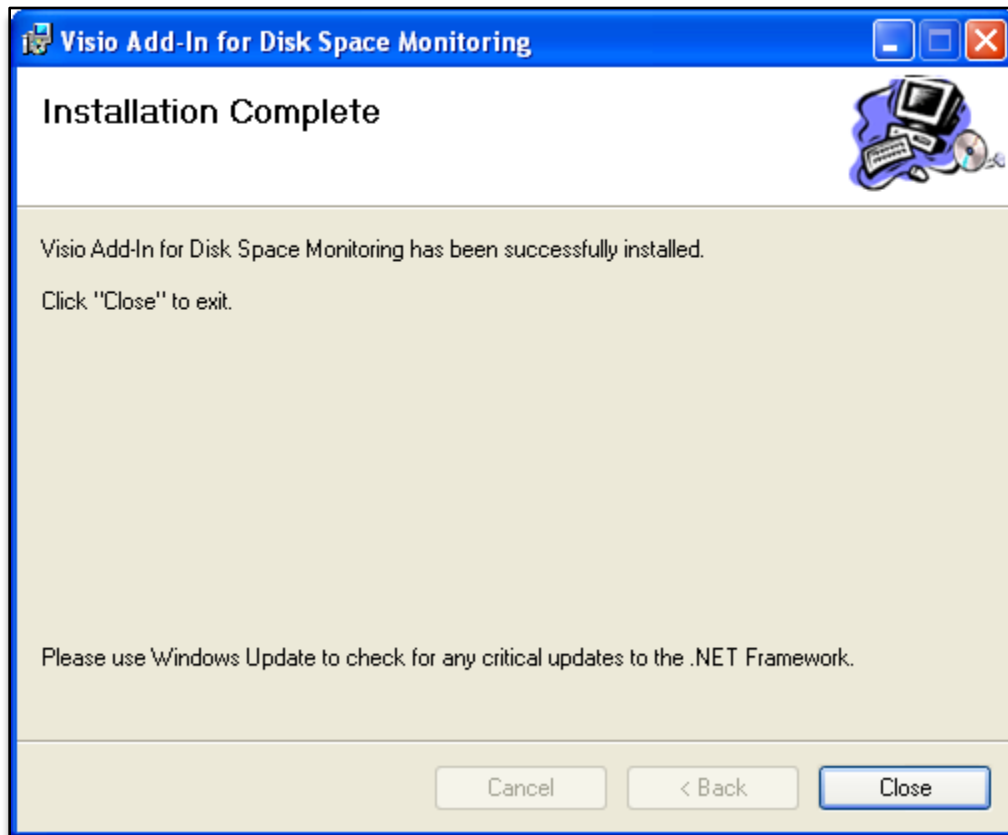


Figure 7: Installation Complete

3. Getting Started

This section describes the basic flow of the reference implementation.

The Microsoft Office Visio 2007 Add-In for Disk Space Monitoring is a COM Add-In that starts up automatically with Visio 2007.

3.1 Selecting/Opening the Disk Space Monitoring Template

The Add-In when installed adds a new template "**Disk Space Monitoring**" under "**Add-Ins**" Templates Category.

1. Open Visio 2007, from **File**, select **New** and the **Getting Started**.

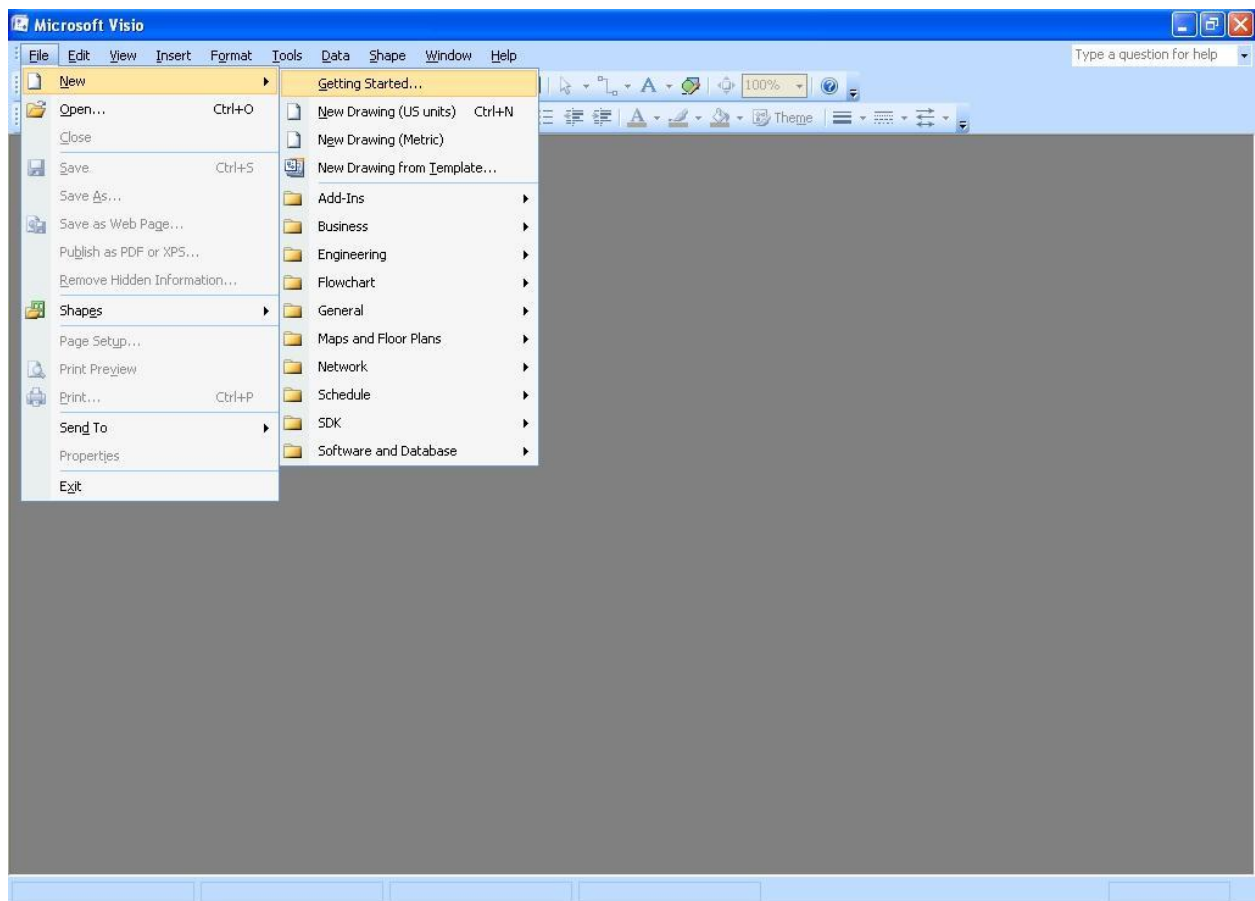


Figure 8: Getting Started

2. Select "**Add-Ins**" from the "**Template Categories**" list from the left pane.
3. Select "**Disk Space Monitoring**" from the "**Featured Templates**" group.
4. Click on "**Create**" button.

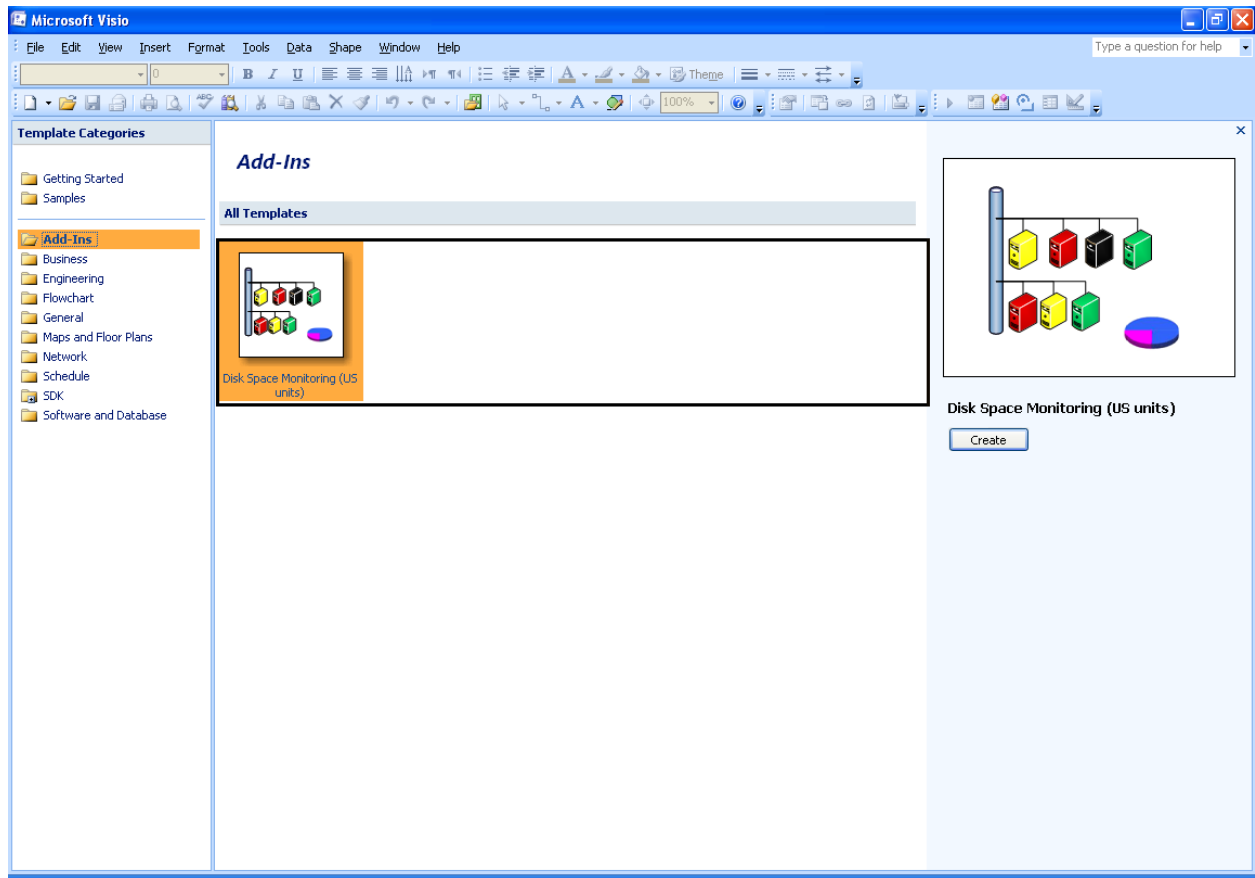


Figure 9: Selecting the template

A new menu “**Disk Space Monitoring**” is added as the template opens a new document. A stencil **Disk Space Monitoring** consists of predefined shapes to show Disk Space Monitoring diagram will be also be opened.

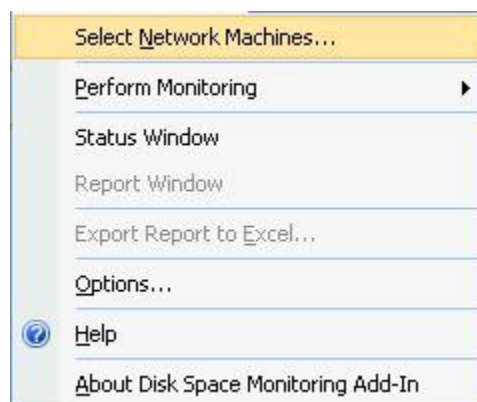


Figure 10: Disk Space Monitoring Menu

The **Disk Space Monitoring** menu consists of the following sub-menus –

- **Select Network Machines...** – For selecting machines to be monitored.
- **Perform Monitoring** – For Start and Stop monitoring.
- **Status Window** – To check the status of diagram generation or monitoring while in progress.
- **Report Window** – To see the report of the monitoring.
- **Export Report to Excel...** – To export monitoring report to Excel.
- **Options...** – To configure threshold values.
- **Help...** – User Guide for Visio Add-In for Disk Space Monitoring
- **About Disk Space Monitoring Add-In** – Version information of the Add-In.

3.2 Machine Selection

The add-in monitors shapes that are added to any Visio drawing, created from **Disk Space Monitoring** template, with the following Custom Properties:

- Machine Name
- IP Address

To monitor the machines for Disk Space with Disk Space Monitoring:

1. Select the source from **Disk Space Monitoring** Menu to get the machines to monitor.
2. Manually add the machine to the drawing and configure it to use with Disk Space Monitoring.

3.2.1 Manually add the machine and configure it for use with Disk Space Monitoring

1. Start Visio 2007 and from the Choose Drawing Type dialog, choose the **Add-Ins** category and the **Disk Space Monitoring** template.
2. From **Disk Space Monitoring** stencil, drag and drop a Server shape onto the drawing page.
3. With the Server shape still selected right click on shape and select Properties. The Shape Data dialog box will display.

Shape Data - Server	
Asset Number	
Serial Number	
Location	
Building	
Room	
Manufacturer	
Product Number	
Part Number	
Product Description	
Network Name	Localhost
IP Address	
Subnet Mask	
Administrative Interface	
Number of Ports	
Community String	
Network Description	
MAC Address	
CPU	

Figure 11: Server Shape Properties

4. In the dialog enter either a valid **Network Name** or **IP Address** (or both).
5. The Server shape is now configured for use with Disk Space Monitoring.

3.2.2 Selecting the source to get the machine list to monitor

1. Start Visio 2007.
2. On the Visio Menu bar, click the **Disk Space Monitoring** menu, and click **Select Network Machines**.

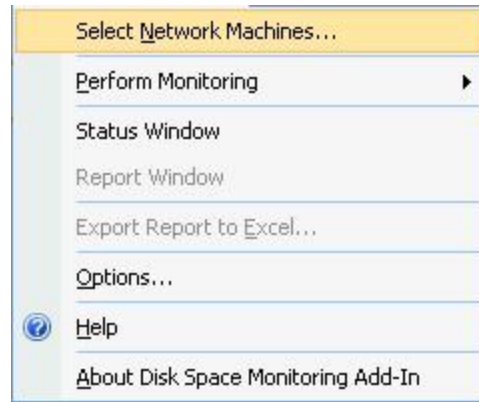


Figure 12: Disk Space Monitoring Menu: Select Network Machines

3. User can opt for following options to monitor machines disk data.

- System Center Operations Manager
- Microsoft Office Excel Workbook
- Machines on Active Document

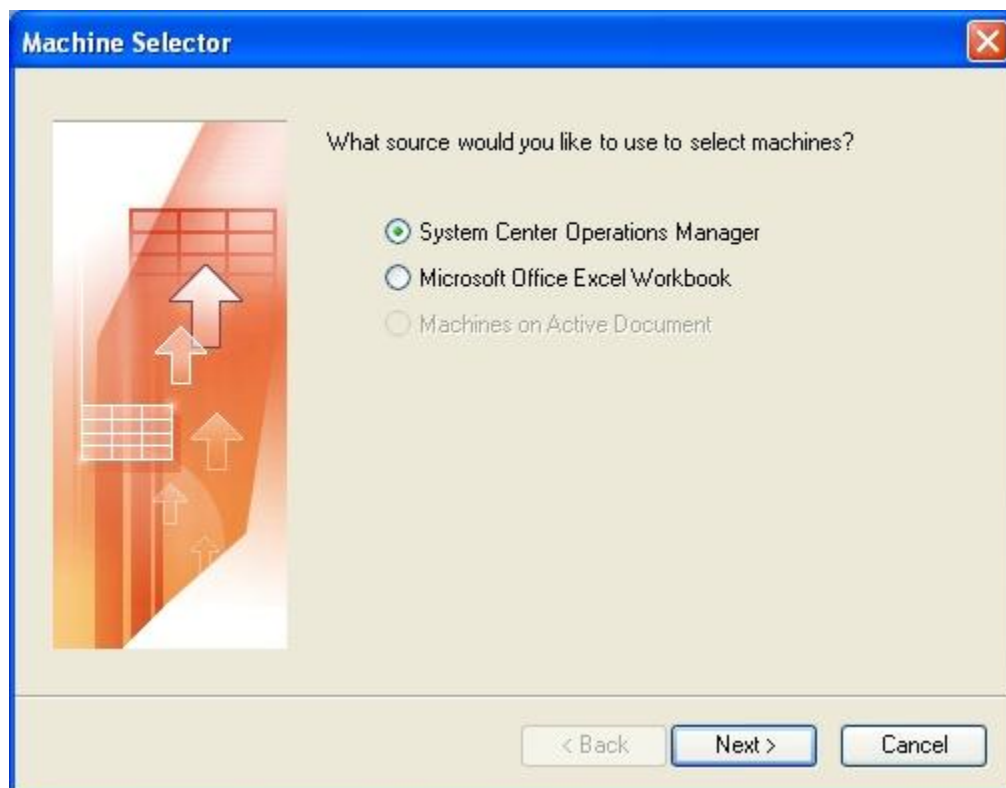


Figure 13: Machine Selector: Source to get the Machine List

3.2.2.1 Selecting the System Center Operations Manager

1. Select the **System Center Operations Manager** radio button and click **Next**.

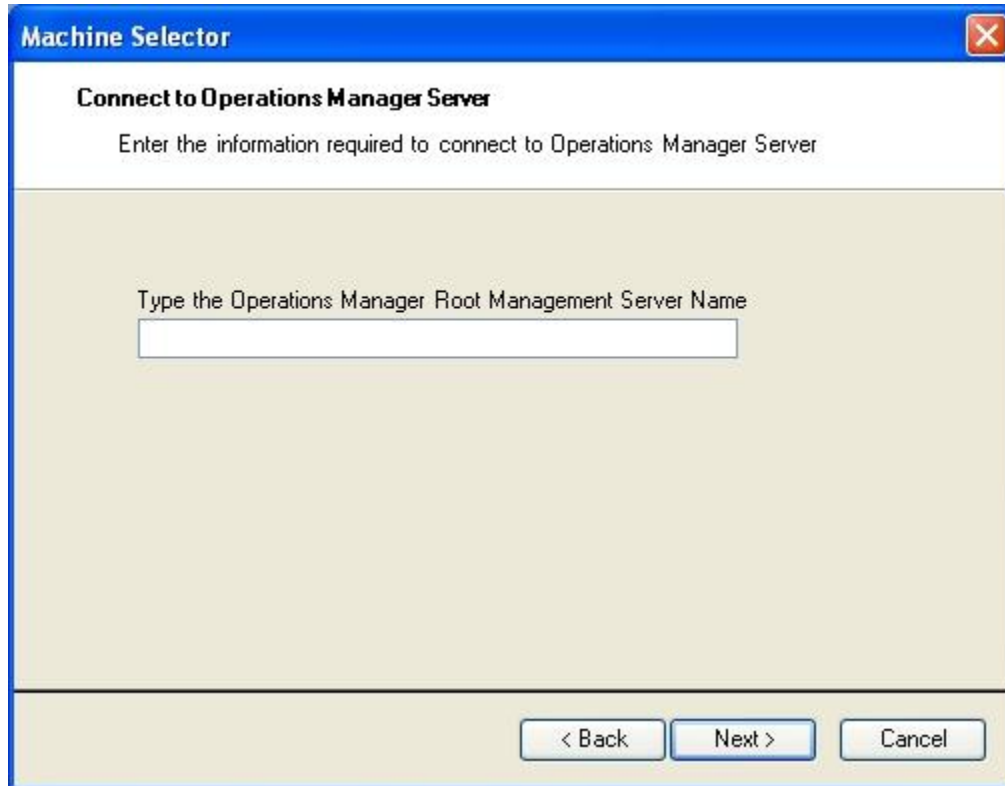
The image shows a Windows-style dialog box titled "Machine Selector". It has a blue title bar with a close button (X) in the top right corner. The main area has a light beige background. At the top, it says "Connect to Operations Manager Server" in bold, followed by the instruction "Enter the information required to connect to Operations Manager Server". Below this is a text input field with the placeholder text "Type the Operations Manager Root Management Server Name". At the bottom of the dialog, there are three buttons: "< Back", "Next >", and "Cancel".

Figure 14: Machine Selector: Operations Manager Root Management

2. Type a valid **Operations Manager Root Management Server Name** and click **Next**.
3. All the machines that are monitored by **Operations Manager Server** are displayed in the Machine List Box.
4. The user can select the machines which are to be monitored by checking against the check box.
5. To select all, check the box **Check/Uncheck All**.
6. To undo the selection, check the box **Check/Uncheck All**

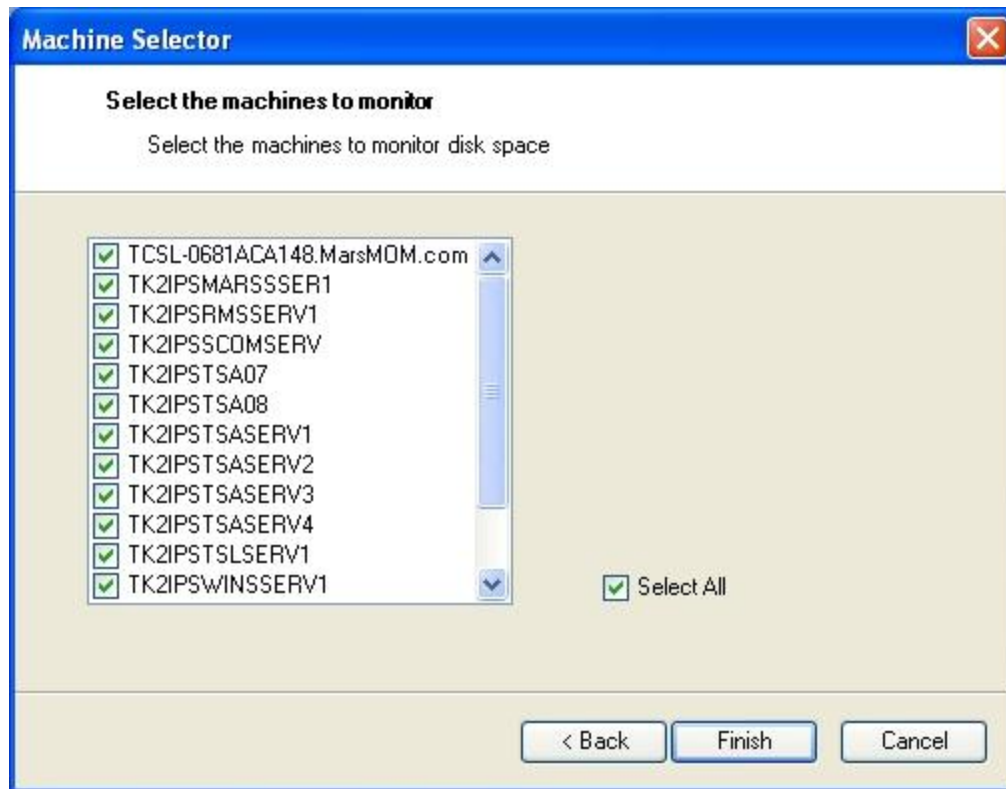


Figure 15: Machine Selector: Selection of Machines to Monitor Disk Space

7. Click **Finish**.
8. Once the user clicks **Finish**, a diagram is auto-generated for all the machines that were selected by the user.
 - All the Shapes in the Diagram will be Disk Space Monitoring configured that is Machine Name and IP Address will be added to the shape.
 - Each Page can contain up to 102 machines, if the number of shapes exceed 102, a new page will be added to the drawing.
 - During the Diagram Generation, the Status window is displayed. From this window you can also cancel the current diagram generation by pressing the **Cancel** button

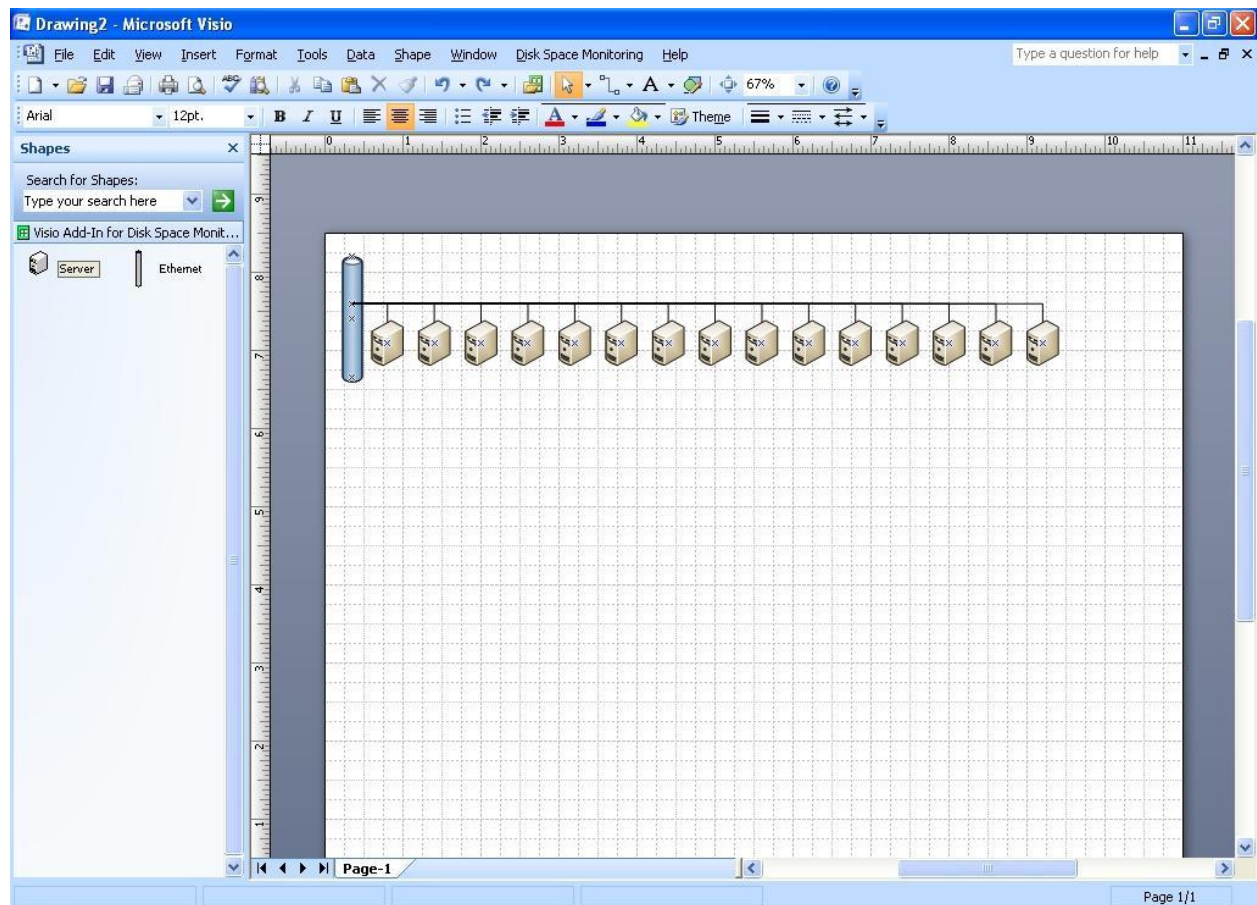


Figure 16: Auto-Generated Diagram of the Selected Machines

3.2.2.2 Selecting the Microsoft Office Excel Workbook

1. Select the **Microsoft Office Excel Workbook** radio button and click **Next**.

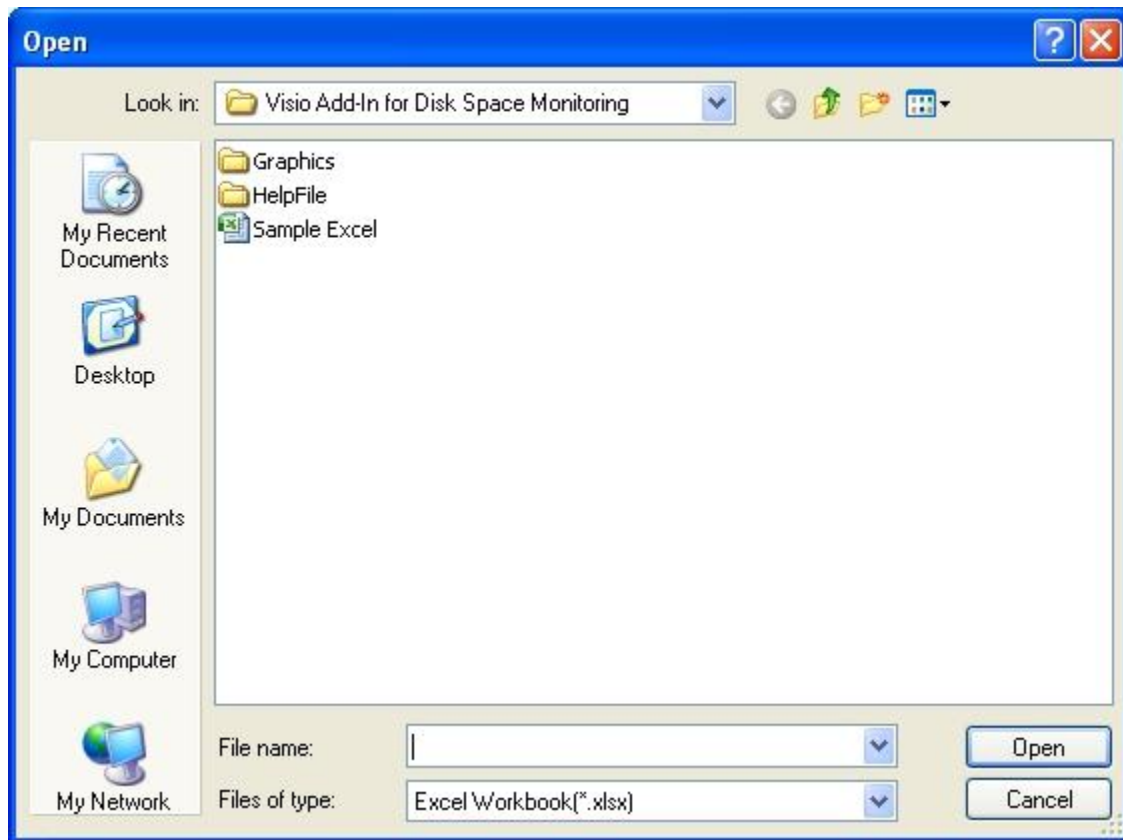


Figure 17: Open Excel Workbook

2. Select the Excel Workbook which contains the Machine List User wants to monitor.

You can find a Sample Excel Workbook under the Installation Path.

The Excel work book should be in the following format.

Column Name1 Heading: Network Name

Column Name2 Heading: IP Address

Either of the two Columns must be present

3. Click **Open** after selecting the Excel Workbook
4. All the machines that are listed in Excel Sheet are displayed in the Machine List Box

5. The user can select the machines which are to be monitored by checking against the check box.
6. To select all, check the box **Check/Uncheck All**
7. To undo the selection, check the box **Check/Uncheck All**

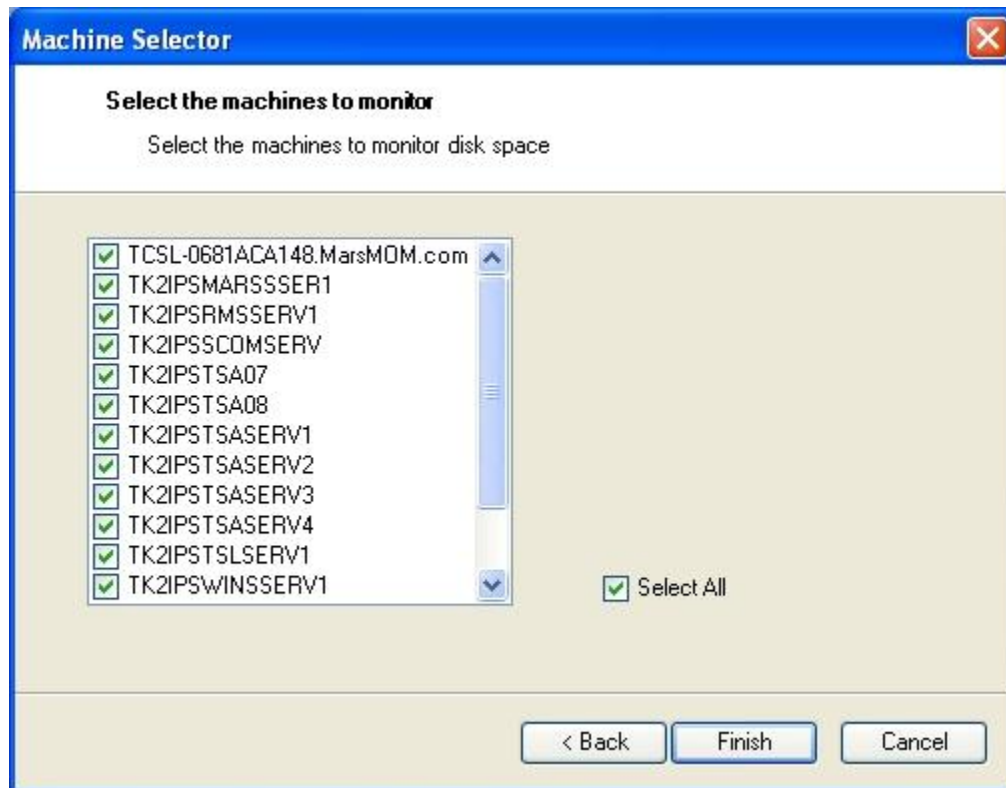


Figure 18: Machine Selector: Selection of Machines to Monitor Disk Space

8. Click Finish.
9. Once the user clicks **Finish**, a diagram is auto-generated for all the machines that were selected by the user.
 - All the Shapes in the Diagram will be Disk Space Monitoring configured that is Machine Name and IP Address is added to the shape.
 - Each Page can contain up to 102 machines, if the number of shapes exceed 102, a new page will be added to the drawing.
 - During the monitoring the status window is displayed. From this window you can also cancel the current diagram generation by clicking **Cancel**

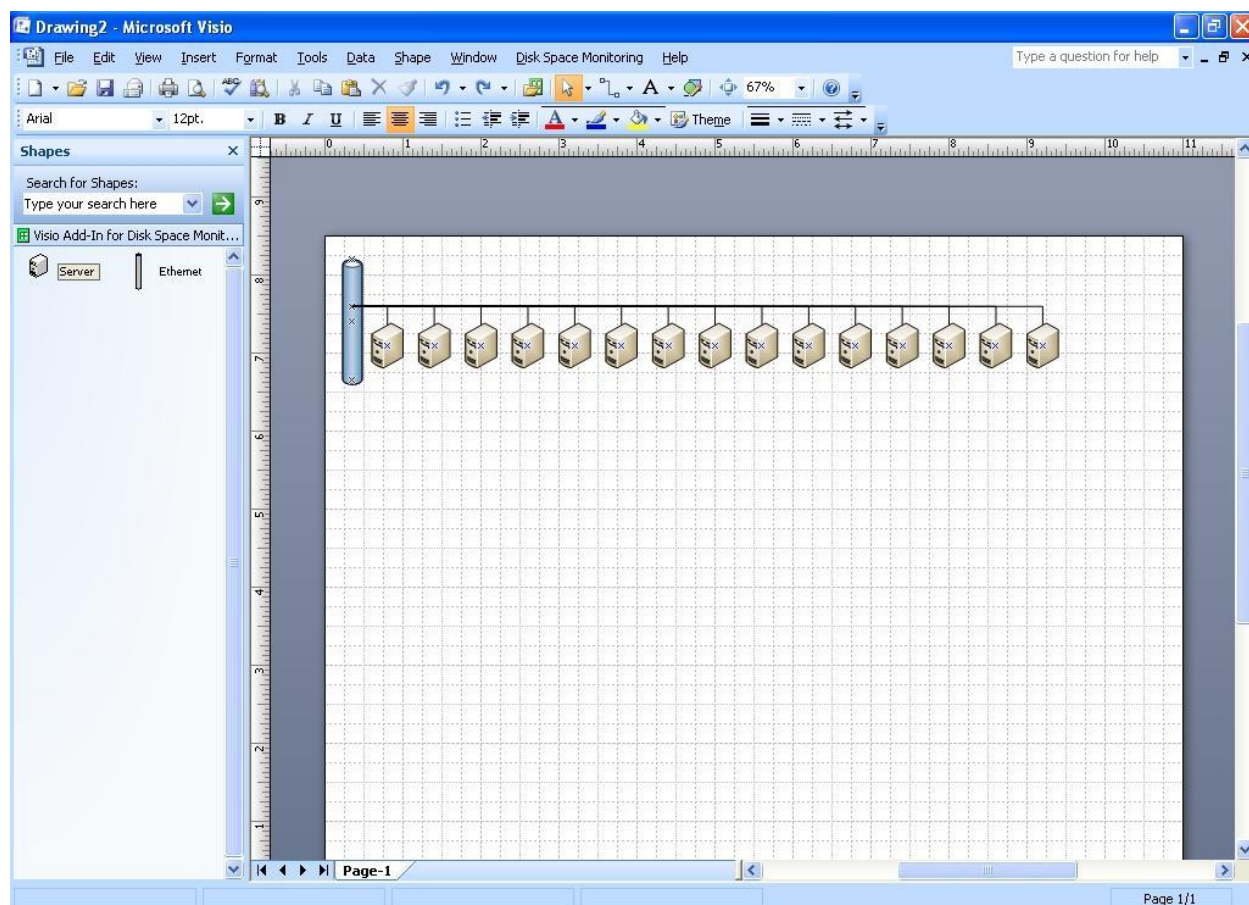


Figure 19: Auto-Generated Diagram of the Selected Machines

3.2.2.3 Selecting the machines from the Active Document

1. Start Visio 2007 and from the **Choose Drawing Type** dialog, choose the **Network category** and the **Basic Network Diagram** template.
2. From the Network and Peripherals stencil, drag and drop a Server shape onto the drawing page.
3. With the Server shape still selected right click on shape and select **Properties**. The Shape Data dialog box is displayed.

Shape Data - Server	
Asset Number	
Serial Number	
Location	
Building	
Room	
Manufacturer	
Product Number	
Part Number	
Product Description	
Network Name	Localhost
IP Address	
Subnet Mask	
Administrative Interface	
Number of Ports	
Community String	
Network Description	
MAC Address	
CPU	

Figure 20: Server Shape Properties

4. In the dialog enter either a valid Network Name or IP Address (or both) and click **OK**.
5. The Server shape is now configured for use with Disk Space Monitoring.

3.3 Monitoring

Before Starting the Monitoring process, user can change the Data Graphics according to the % threshold value of Disk Space.

1. Click **Options** from the **Disk Space Monitoring** Menu.
2. User can change the **Threshold Value** of **Min Value (%)** and **Max Value (%)** for which the Server shape color changes to red, amber, or green. If any machines data is unavailable or access is denied the machine color will change to black.

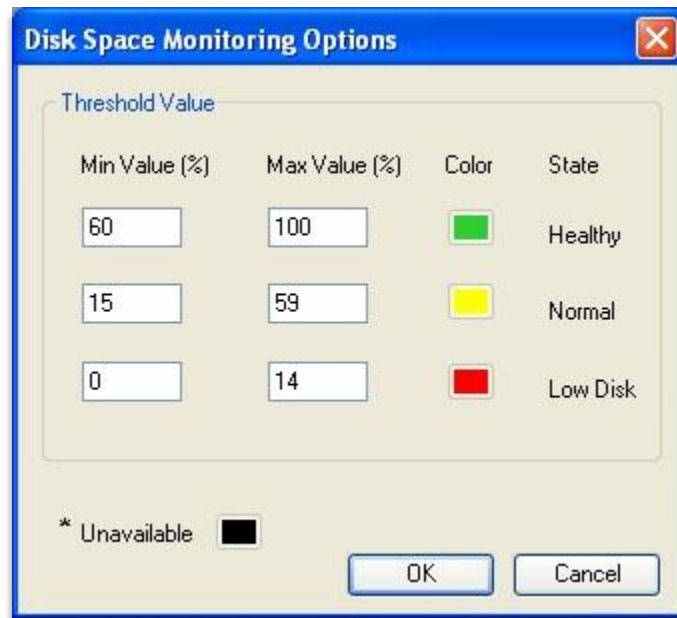


Figure 21: Options for changing the color by % Threshold Values

Start Monitoring:

1. Users can now Start Monitoring the machines selected. If user has not selected the machine or no machine on Active Document is configured for Disk Space Monitoring, **Start** Menu under **Perform Monitoring** on Disk Space Monitoring Menu will be disabled.
2. If user hover the cursor over the Server shape a smart tag will be visible. This smart tag contains the **Start Disk Space Monitoring** menu item that **the same as Start Menu under Perform Monitoring** in **Disk Space Monitoring** menu on the Visio menu bar.

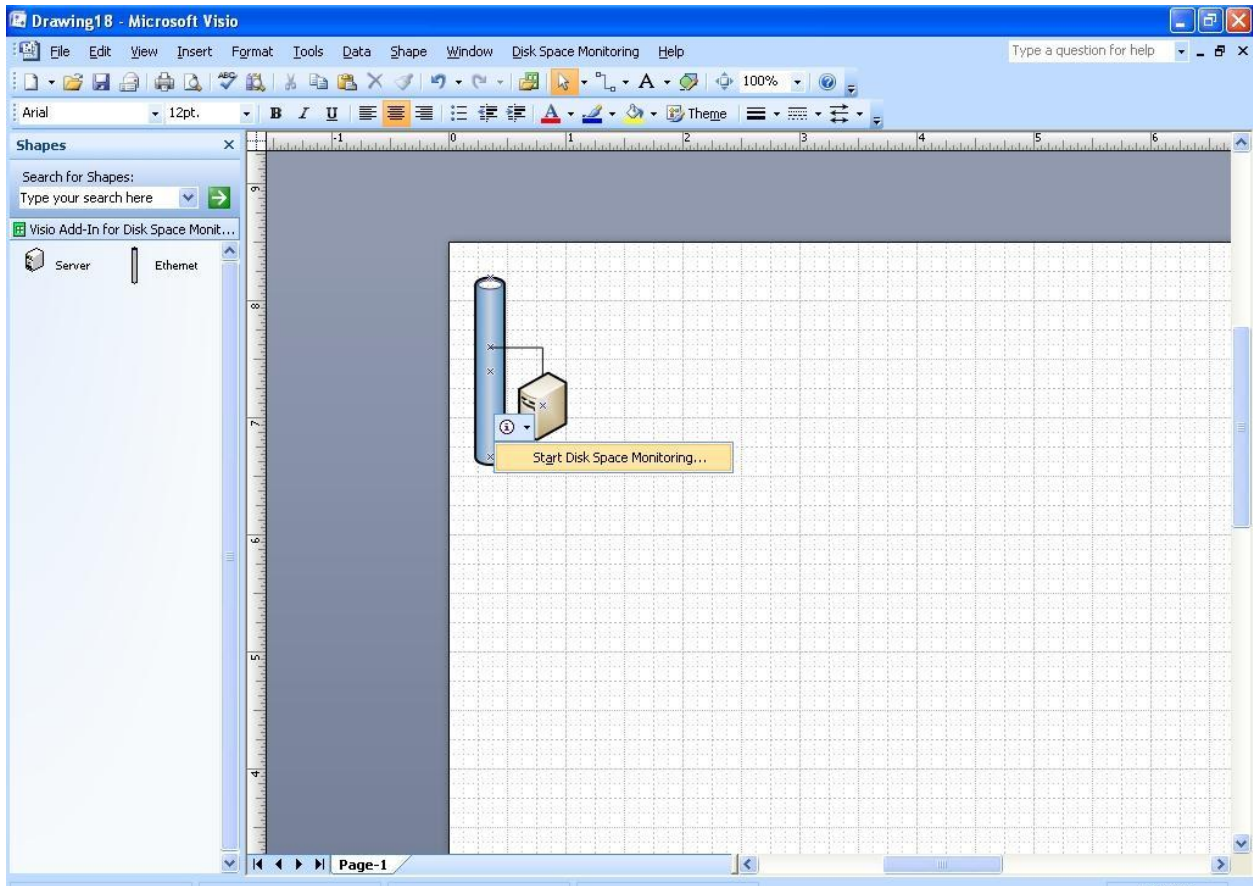


Figure 22: Smart Tag to Start Disk Space Monitoring

3. By selecting the **Start Disk Space Monitoring** menu item from the **smart tag** menu or the **Disk Space Monitoring** menu will start monitoring the Disk Space Monitoring configured machines on the drawing.

Note: Disk information for machines with Vista operating system will not be available while using the **System Center Operations Manager** option to **Select Network Machines**.

4. During the monitoring the Status window is displayed showing the current status of the monitoring. From this window you can also cancel the current scan by clicking **Cancel**.

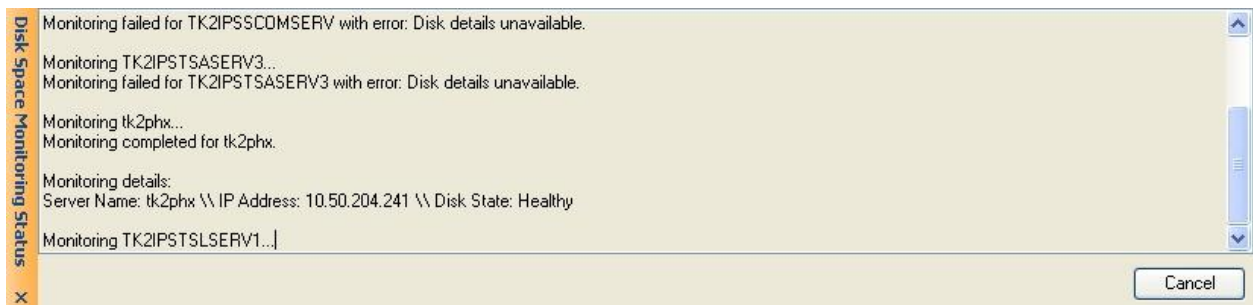


Figure 23: Status Window

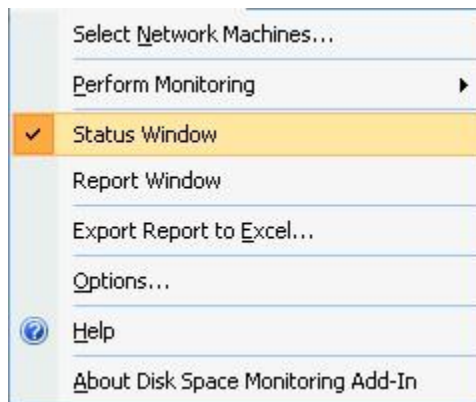


Figure 24: Status Window Menu Item

3.4 Reporting

1. After successfully completing the monitoring, the report window displays the disk space details of each drive of each machine selected by the user.

Network Name	IP Address	Disk Name	Total Space(MB)	Free Space(MB)	Used Space(MB)	File System	Type
TCSL-0681ACA1...	NA	NA	NA	NA	NA	NA	NA
TK2IPSMARSSS...	10.50.204.238	C:	20465	13554	6911	NTFS	Local Fixed Disk
TK2IPSRMSSER...	10.50.204.245	C:	20465	7366	13099	NTFS	Local Fixed Disk
TK2IPSSCOMSE...	10.50.204.246	C:	20465	NA	NA	NTFS	Local Fixed Disk
TK2IPSTSA07	10.50.204.252, 1...	NA	NA	NA	NA	NA	NA
TK2IPSTSA08	10.50.204.252, 1...	NA	NA	NA	NA	NA	NA
TK2IPSTSA09	10.50.204.253	C:	20465	NA	NA	NTFS	Local Fixed Disk

Figure 25: Report Window

2. The User can close the Report Window and Open it again from the **Show Report Window Menu** in **Disk Space Monitoring** Menu in the Visio Menu Bar.

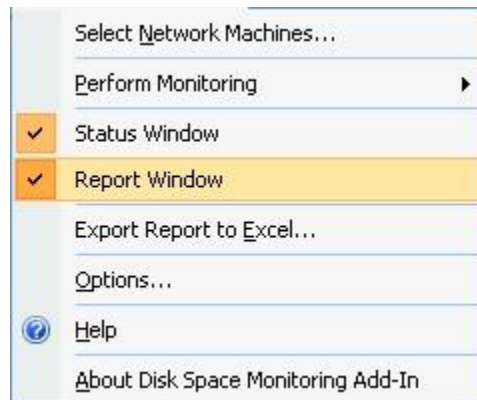


Figure 26: Report Window Menu Item

3. If User moves the cursor on a particular machine, the status of the machine is visible.

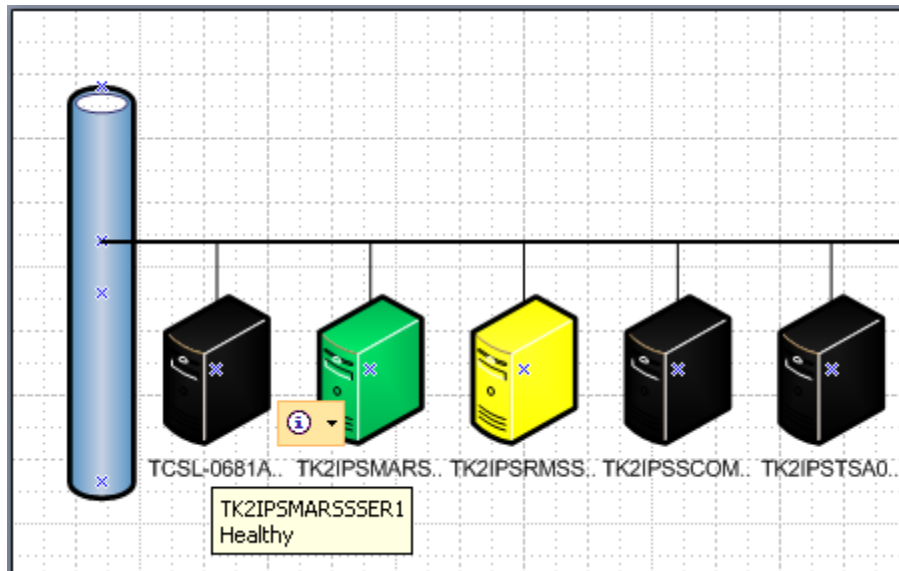


Figure 27: State of machine

4. The user can also see the disk details of each machine by right clicking on each machine and clicking **View Disk Details**.

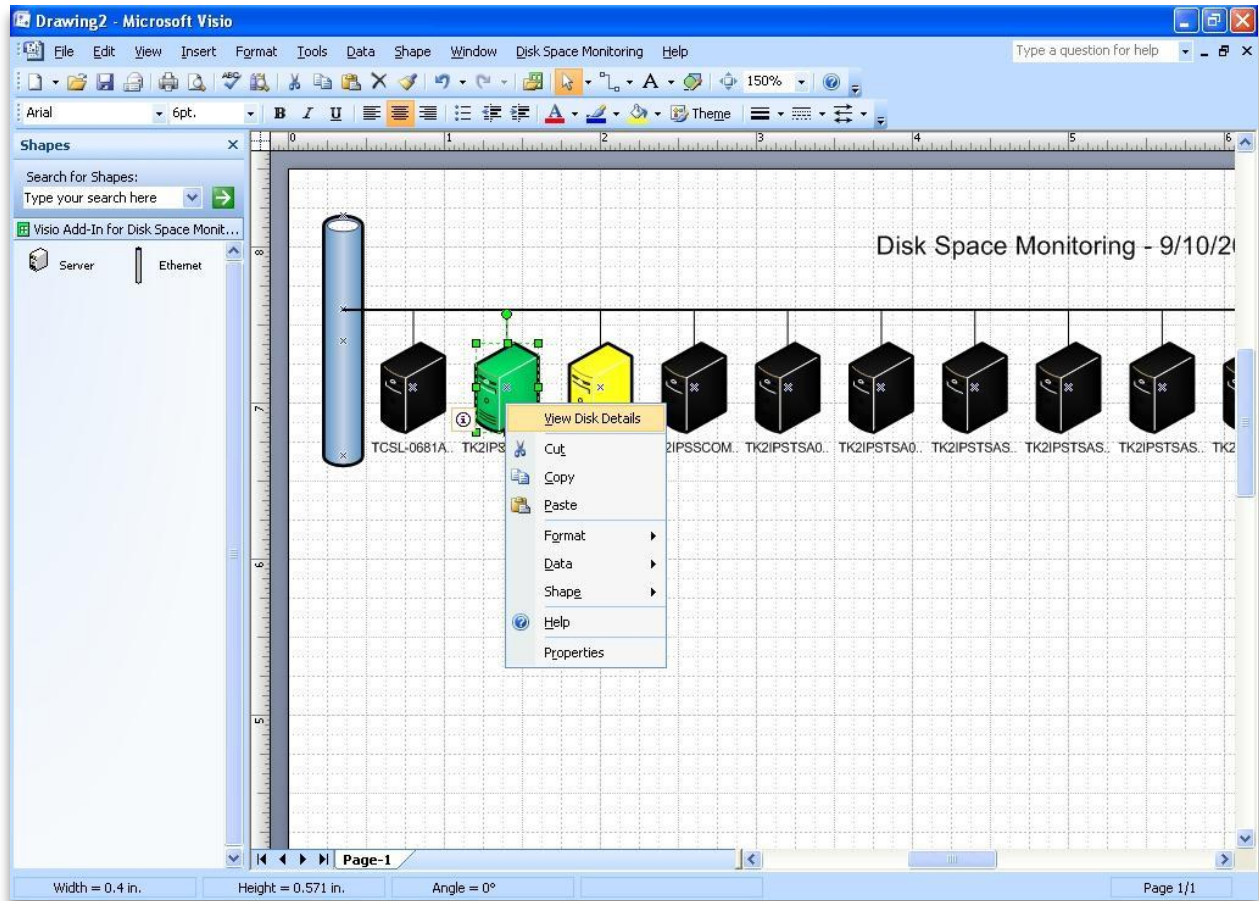


Figure 28: View Disk Details Action Item

5. User can view the below mentioned details of each drive of the machine monitored:

- Type
- File System
- Used Space (Bytes and GB)
- Free Space (Bytes and GB)
- Capacity (Bytes and GB)

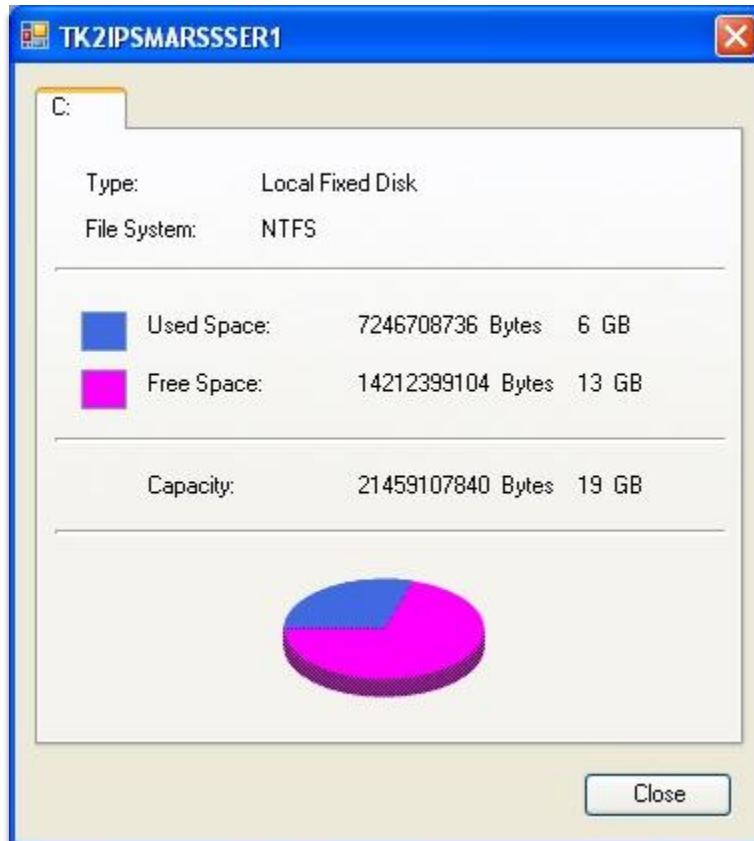


Figure 29: View Disk Details

6. User can save the generated report generated to an Excel File. This is done by clicking **Export Report to Excel** from the **Disk Space Monitoring** Menu.

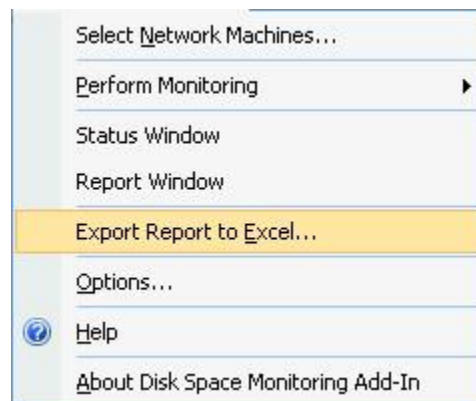


Figure 30: Export Report to Excel

7. User can save the report by selecting the desired path. Default path will be Installation Path. Default Report Name will be Disk Space MonitoringReport-Date-Time.xlsx.

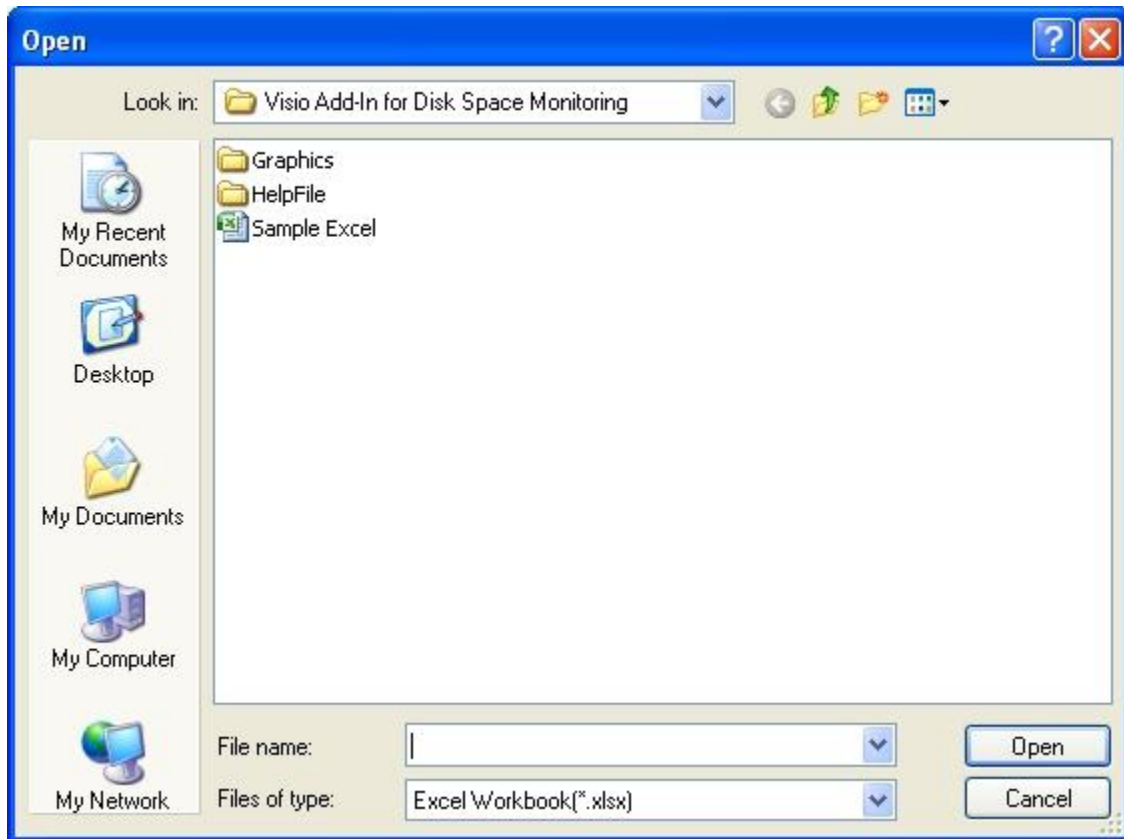


Figure 31: Path to Export Report to Excel

8. The saved Report is in the following format

DiskSpaceMonitoringReport-10-09-2008 3:49:08 PM - Microsoft Excel

	A	B	C	D	E	F	G	H	I
	Network Name	IP Address	Disk Name	Total Space(MB)	Free Space(MB)	Used Space(MB)	File System	Type	State
1	TKSL-0681ACA148.Mar								Disk details unavailable.
2	sMOM.com	NA	NA	NA	NA	NA	NA	NA	
3	TK2IPSMARSSER1	10.50.204.238	C:	20465	13554	6911	NTFS	Local Fixed Disk	Healthy
4	TK2IPSRMSSERV1	10.50.204.245	C:	20465	7366	13099	NTFS	Local Fixed Disk	Normal
5	TK2IPSSCOMSERV	10.50.204.246	C:	20465	NA	NA	NTFS	Local Fixed Disk	Disk details unavailable.
6	TK2IPSTA07	10.50.204.252, 10.50.204.250, fe80::1808:2172:2936:60f6	NA	NA	NA	NA	NA	NA	Disk details unavailable.
7	TK2IPSTA08	10.50.204.252, 10.50.204.251, fe80::ed6c:dd27:3e46:e24f	NA	NA	NA	NA	NA	NA	Disk details unavailable.
8	TK2IPSTSASERV1	10.50.204.248	C:	20465	NA	NA	NTFS	Local Fixed Disk	Disk details unavailable.
9	TK2IPSTSASERV2	10.50.204.249, 10.50.204.253	C:	20465	NA	NA	NTFS	Local Fixed Disk	Disk details unavailable.
10	TK2IPSTSASERV3	10.50.204.240, 10.50.204.253	C:	20465	NA	NA	NTFS	Local Fixed Disk	Disk details unavailable.

Figure 32: Format of Excel saved

4. Troubleshooting

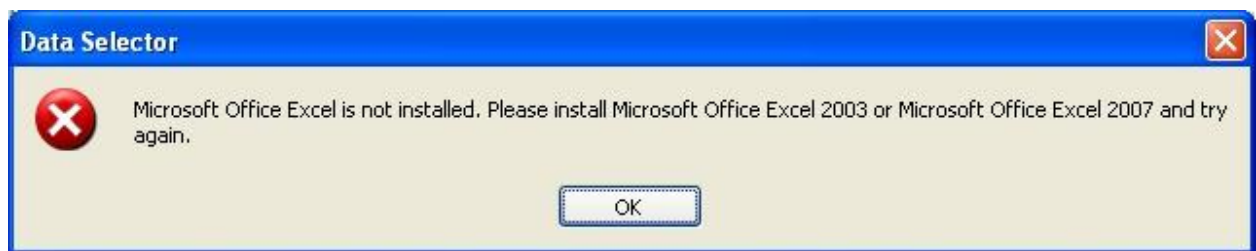
This section describes the errors user may get.

4.1 Error while Machine Selection

Error scenario 1:

On the first form of machine selector when user selects **Microsoft Office Excel Workbook** option and the following error appears:

Microsoft Office Excel is not installed. Please install and try again.



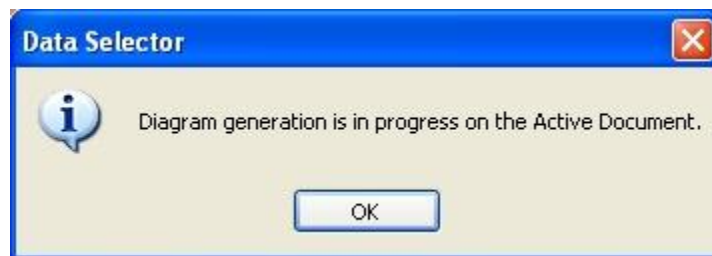
Error Description:

The selected option requires either Microsoft Office Excel 2003 or Microsoft Office Excel 2007 installed on the user machine.

Error scenario 2:

On the first form of machine selector when user selects **Machines on Active Document** option and the following error appears:

Diagram generation is in progress for the active document.



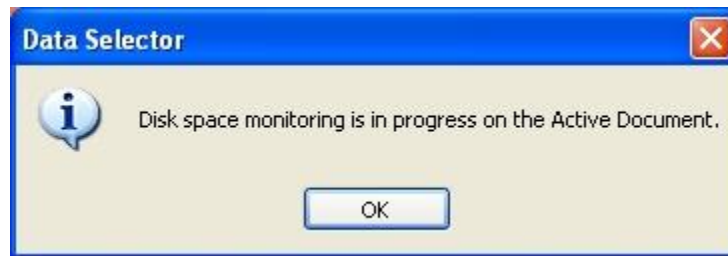
Error Description:

Diagram is being created on the active document. Try using this option after the diagram generation process is complete.

Error scenario 3:

On the first form of machine selector when user selects **Machines on Active Document** option and the following error appears:

Disk space monitoring is in progress for the active document.



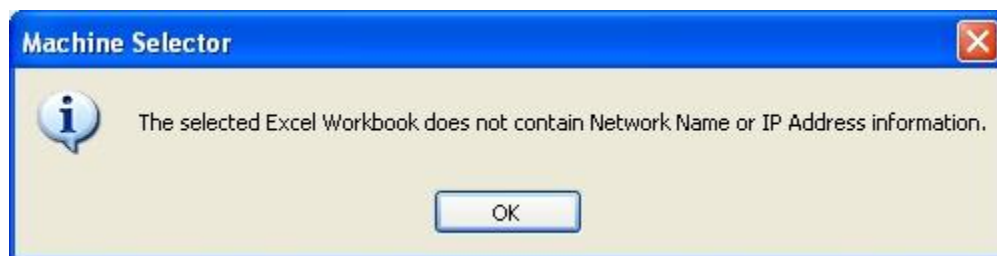
Error Description:

Disk monitoring is already in progress for the active document. Try using this option after the monitoring process is complete.

Error scenario 4:

On the first form of machine selector when the user selects **Microsoft Office Excel Workbook** option and the following error appears:

Selected Excel Spreadsheet is not in the required format.



Error Description:

The input excel used for this option must satisfy the following requirements:

- Machine data must be present in the first sheet of the excel document.
- First column header should be **NETWORK NAME** and second column header should be **IP ADDRESS**.

Error scenario 5:

On the first form of machine selector when user selects **Microsoft Office Excel Workbook** option and the following error appears:

Machine details not found in the selected excel.

Error Description:

The input excel document used does not contain any data after the header row. First blank line is considered as end of data.



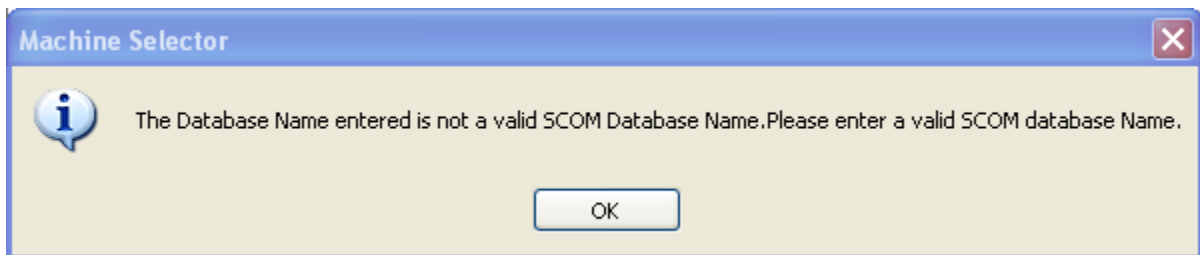
Error scenario 6:

On the first form of machine selector when user selects **Operations Manager Database** option and the following error appears:

The Database Name entered is not a valid SCOM Database Name.

Error Description:

In this scenario, the error occurred due to invalid SCOM Database Name. Please ask your administrator for a valid SCOM database name.

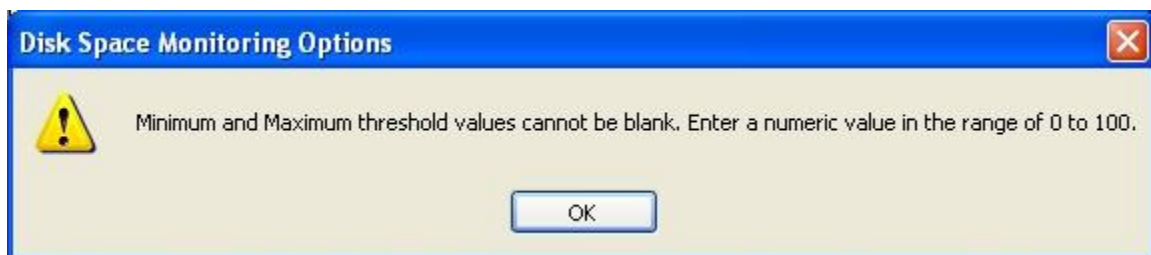


4.2 Error while updating Disk Space Monitoring Options

Error scenario 1:

On the **Disk Space Monitoring Options** form after clicking **OK** if the following error message appears:

Minimum and Maximum threshold values cannot be blank. Please enter a valid numeric value.



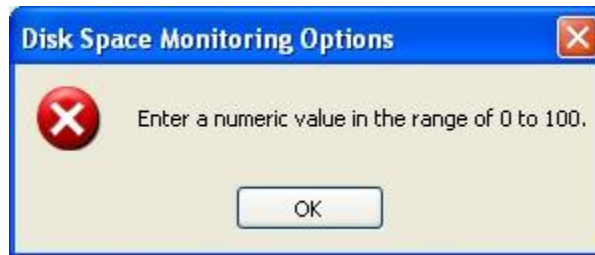
Error Description:

The threshold values cannot be blank. Valid numeric value must be provided for each threshold value.

Error scenario 2:

On the **Disk Space Monitoring Options** form if the following error message appears:

Please enter a numeric value.



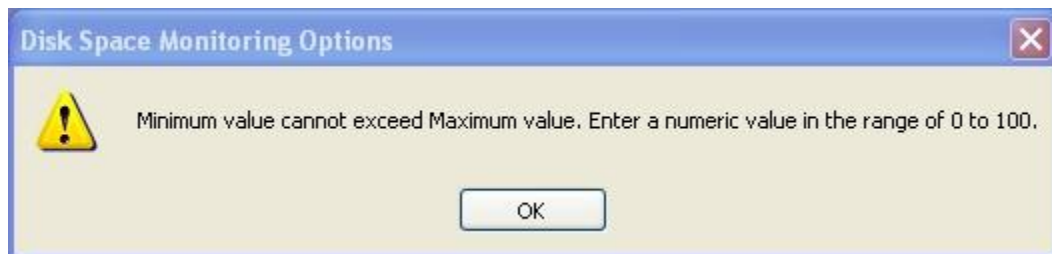
Error Description:

The threshold value should be numeric. No characters are allowed. The incorrect characters entered are cleared and cursor will be placed in the text box with incorrect value.

Error scenario 3:

On the **Disk Space Monitoring** Options form after **OK** is clicked the following error message appears:

Minimum value cannot exceed Maximum value. Please enter correct values.



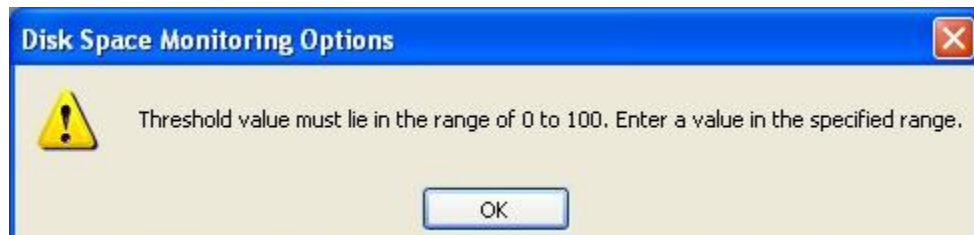
Error Description:

Minimum threshold value should always be less than maximum threshold value for all three disk states (Low disk, Normal and Healthy).

Error scenario 4:

On the **Disk Space Monitoring** Options form after **OK** is clicked the following error message appears:

Threshold value must lie in the range of 0 to 100. Please enter a value in the specified range.



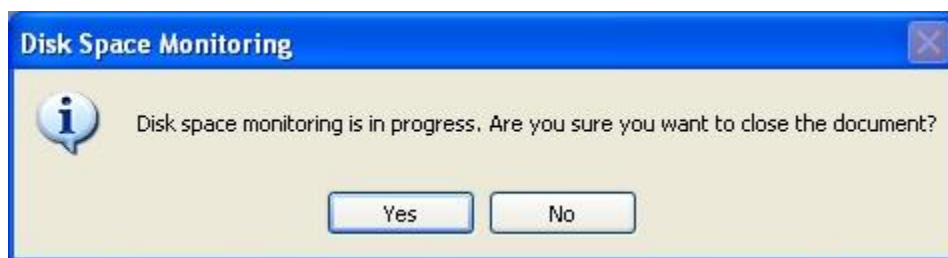
Error Description:

All the threshold values must be between 0 and 100.

4.3 Error while Diagram Generation

Error scenario 1:

During the diagram generation process when the user tries to close the document on which the diagram is being generated. The following error message appears.

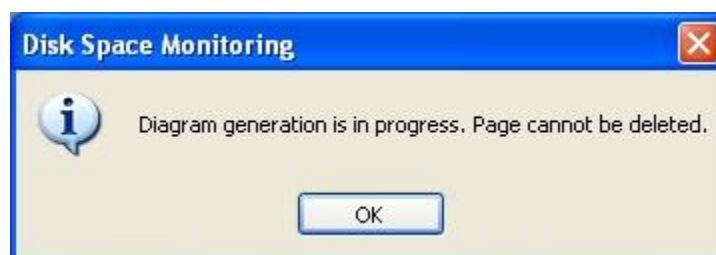


Error Description:

The diagram generation process needs to be terminated if user wants to close the document. Click **Yes** to stop the diagram generation process and close the document, click **No** to continue the diagram generation without closing the document.

Error scenario 2:

During the diagram generation process user tries to delete a page from the document on which the diagram is being generated, the following error message appears.

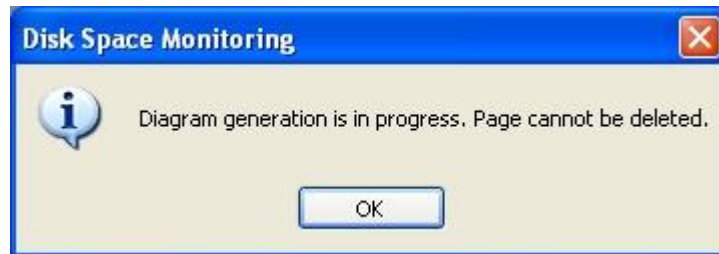


Error Description:

Page cannot be deleted until the diagram generation process is complete.

Error scenario 3:

During the diagram generation process, if user tries to delete shape(s) from the document on which the diagram is being generated, the following error message appears.



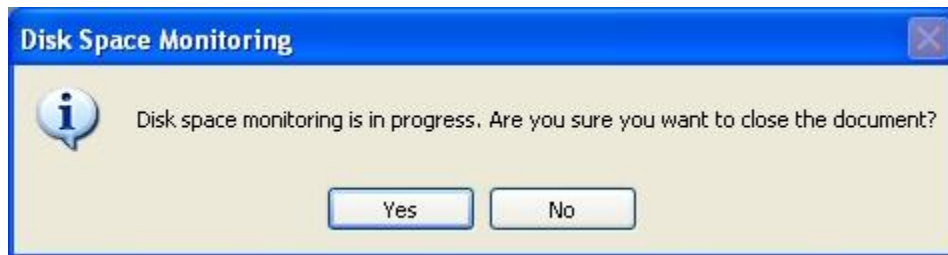
Error Description:

Shape(s) cannot be deleted until the diagram generation process is complete.

4.4 Error while Disk Space Monitoring

Error scenario 1:

During the monitoring process user tries to close the document on which the monitoring is in progress. The following error message appears.



Error Description:

The monitoring process need to be terminated if user wants to close the document. Click **Yes** to stop the monitoring process and close the document, click **No** to continue the monitoring without closing the document.

Error scenario 2:

During the monitoring process user tries to delete a page from the document on which the monitoring is in progress. The following error message appears.



Error Description:

Page cannot be deleted until the monitoring process is complete.

Error scenario 3:

During the monitoring process user tries to delete shape(s) from the document on which the monitoring is in progress. The following error message appears.

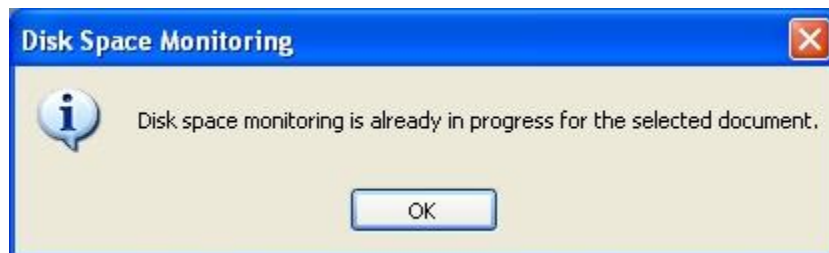


Error Description:

Shape(s) which are configured for Disk Space Monitoring disk space monitoring (contains **Network name** or **IP address**) cannot be deleted until the monitoring process is complete.

Error scenario 4:

During the monitoring process user tries to start the monitoring process again for the same document. The following error message appears.

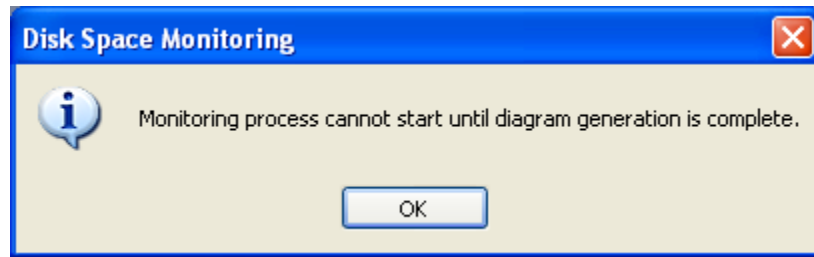


Error Description:

Only one monitoring session allowed at any given point of time for a particular document. To restart monitoring process, stop the current monitoring session and start new monitoring session.

Error scenario 5:

During the diagram generation process user tries to start the monitoring process for the same document. The following error message appears.



Error Description:

Monitoring process cannot start until diagram generation is complete.

4.5 Error while Saving Report to Excel

Error scenario 1:

From Disk Space Monitoring menu user clicks on **Export Report to Excel** and if following error message appears:

Microsoft Office Excel is not installed. Please install and try again.



Error Description:

The selected option requires either **Microsoft Office Excel 2003** or **Microsoft Office Excel 2007** installed on the user machine.