

# Using the Visio 2010 Add-in for Operations Manager 2007 R2

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The Visio 2010 Add-in for System Center Operations Manager 2007 R2 combines the strengths of two applications widely used in enterprise IT to simplify the creation of customized dashboards that show the health of an environment. The Visio Add-in lets you create diagrams that show objects by geography on a map, by location in a data center or building, by role in a logical view of an application, or by topology for complex distributed applications such as Microsoft Exchange Server or technologies such as Active Directory Domain Services.

The Visio Add-in has the following features:

- Distributed applications exported from Operations Manager 2007 R2 as Visio documents automatically show live health state information on the exported objects when opened in Microsoft Visio.
- You can easily create new Visio documents and link shapes to any managed object (such as a computer, database, Web site, or perspective) to show the current health state.
- You can automatically link entire existing Visio documents to the computer and to network devices managed by Operations Manager by matching computer names or IP addresses.
- Health states can be automatically refreshed in Visio documents. You can use this option along with Visio's full-screen view to create dashboard views suitable for use as a summary display in a data center control room.
- Predefined data graphics enable you to switch from Operations Manager health icons to the shape color for health state.
- **NEW** - Health states can be automatically refreshed in published Visio documents that are hosted in a SharePoint 2010 document library when the Visio Services data provider for System Center Operations Manager 2007 R2 is installed and configured on the SharePoint 2010 Farm.

The following topics provide information about how to install, configure, and use the Visio Add-in.

- [Install the Visio Add-in](#)
- [Install the Visio Services data provider](#)
- [Configure the Operations Manager Data Source in Visio](#)
- [View a Distributed Application Diagram in Visio](#)
- [Add Links to Operations Manager to a New or Existing Visio Document](#)
- [Change the Way Health State Is Represented](#)
- [Publishing the diagram to SharePoint 2010](#)
- [Building a simple monitoring dashboard using the Visio Web Part](#)

- [Troubleshooting the Visio add-in](#)
- [Troubleshooting the Visio Services data provider](#)

## Install the Visio Add-in

The Visio 2010 Add-in for System Center Operations Manager 2007 R2 has the following prerequisites:

- Operations Manager 2007 R2 Operations console or [Authoring console](#).
- Microsoft Visio 2010 Professional or Premium edition – [Don't have the BETA, get it here](#).
- [The Microsoft .NET Framework 3.5 SP1](#), available from <http://go.microsoft.com/fwlink/?LinkID=131605>

When you run the Setup program for the Visio Add-in, your system is checked against these requirements. If your system does not meet the requirements, a link is provided so that you can download the missing software.

### To install the Visio Add-in

1. If you previously installed the Beta version of the Visio Add-in for Operations Manager 2007 R2, uninstall it. Also, if you have the Visio 2007 version of the add-in, uninstall it as well.
2. In Windows Explorer, double-click **OpsMgrAddinSetup.msi**. This is the setup for the client.

If your computer does not meet the prerequisites, you receive a message that indicates the missing requirements. Install the required software, and then run the Setup program again.

3. On the Welcome page, click **Next**.
4. Read the license agreement, select **I Agree**, and then click **Next**.
5. Specify the installation location, and then click **Next**.
6. Click **Next** to start the installation.
7. Click **Close** when the installation is complete.

The next time you start Visio, you are asked if you want to install the Visio Add-in. Click **Install**. When the installation is complete, the **Operations Manager** tab is now available on the Visio ribbon.

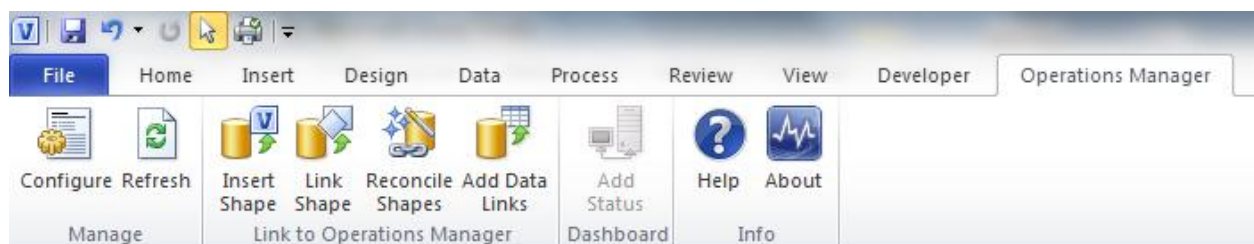


Figure 1 - Operations Manager add-in tab in the Visio 2010 Ribbon

## Install the Visio Services data provider

The Visio Services Data Provider for System Center Operations Manager 2007 R2 has the following prerequisites:

- Operations Manager 2007 R2 Operations console or [Authoring Console](#).
- SharePoint 2010 Enterprise
- [The Microsoft .NET Framework 3.5 SP1](#), available from <http://go.microsoft.com/fwlink/?LinkID=131605>

### To install the Visio Services data provider

1. Run the OpsMgrDataModuleSetup.msi package by double-clicking on the MSI file.
2. Accept the license agreement.
3. Choose a location for the SharePoint deployment package to be unpacked.

Necessary files are unpacked to C:\Program Files\.. by default. This can be changed to any location.

FYI – this MSI does not install or deploy the data provider to the servers in the farm. This MSI just unpacks the SharePoint deployment package to a location specified by the SharePoint administrator.

4. Open the SharePoint 2010 Management Shell as administrator

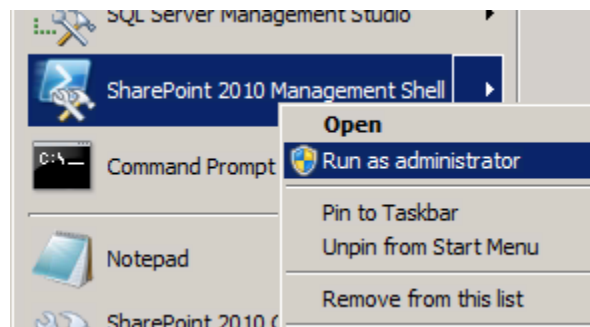


Figure 2 - Open the SharePoint 2010 Management Shell as an administrator

5. Execute the OpsMgrDataModule.ps1 PowerShell script.

This script will install the deployment package to the solution store for the farm and then deploy the data module to each of the servers in your farm.

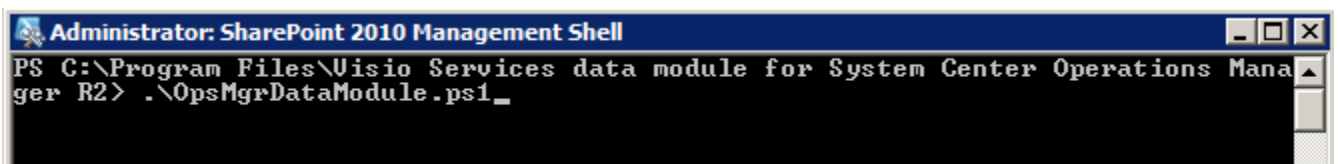


Figure 3 - Executing the deployment script

Example...

```
Administrator: SharePoint 2010 Management Shell

> Adding the Data Module package to the solution store...

Name                               SolutionId                         Deployed
----                               -
opsmgrdatamodule.wsp              a2949aef-49e2-4e92-bd8d-6f7a69d7541e False

> Installing Data Module...

> Configuring Safe Data Provider...

DataProviderId                    : Microsoft.Office.Uisio.Server.OperationsManagerModule.OperationsManagerDataModule, Microsoft.Office.Uisio.Server.OperationsManager, Version=1.0.0.1122, Culture=neutral, PublicKeyToken=2f3fe4cab9a9b878
DataProviderType                  : 6
DataProviderTypeDescription      :

> Deploying Data Module to the farm...

> Data Module deployment successful.

PS C:\Program Files\Uisio Services data module for System Center Operations Manager R2> _
```

Figure 4 - Results from executing the deployment script for the data provider

6. Verify that the package was deployed by executing the **get-spsolution** command. After executing this command you should see the Deployed column marked as True.

```
Administrator: SharePoint 2010 Management Shell

PS C:\Program Files\Uisio Services data module for System Center Operations Manager R2> get-spsolution

Name                               SolutionId                         Deployed
----                               -
opsmgrdatamodule.wsp              a2949aef-49e2-4e92-bd8d-6f7a69d7541e True

PS C:\Program Files\Uisio Services data module for System Center Operations Manager R2> _
```

Figure 5 - Results from executing the get-spsolution command

7. Verify the data provider was listed as a Trusted Data Provider for Visio Services using Central Administration.

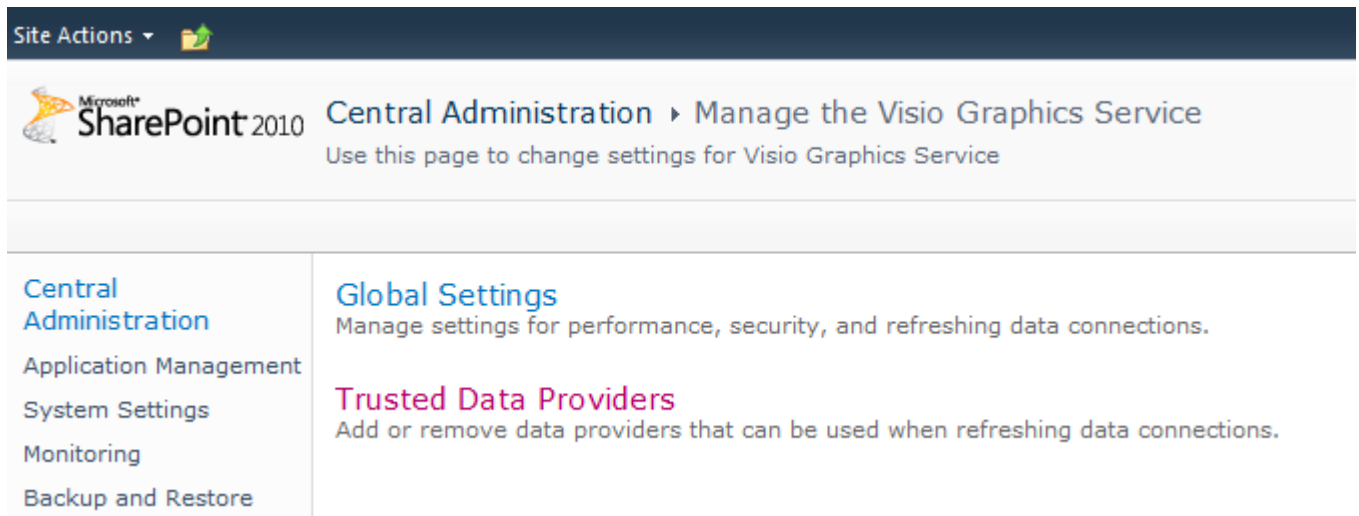


Figure 6 - Managing the Visio Services service application from Central Administration

Microsoft.Office.Visio.Server.OperationsManagerModule.OperationsManagerDataModule, Microsoft.Office.Visio.Server.OperationsManager, Version=1.0.0.1122, Culture=neutral, PublicKeyToken=2f3fe4cab9a9b878

Figure 7 - Visio Services data provider listed in Central Administration

## To configure Visio Services for Read-Only Operator permissions on the RMS

In order for Visio Services to refresh the diagrams that are published and connected to Operations Manager data, the Visio Services service application must be configured with credentials that have access to the RMS. This is because the Visio Services service application is executing the data provider which is responsible for returning the updated dataset from the RMS.

The easiest way to configure this is to make the account that Visio Services is running as a Read-Only Operator on the RMS.

To do this...

1. Run the Operations Manager console.
2. From the **Administration** tab click on **User Roles**.
3. In the User Roles list **double-click** on the **Read-Only Operators** role.
4. Add the account that is configured for Service Application Pool.

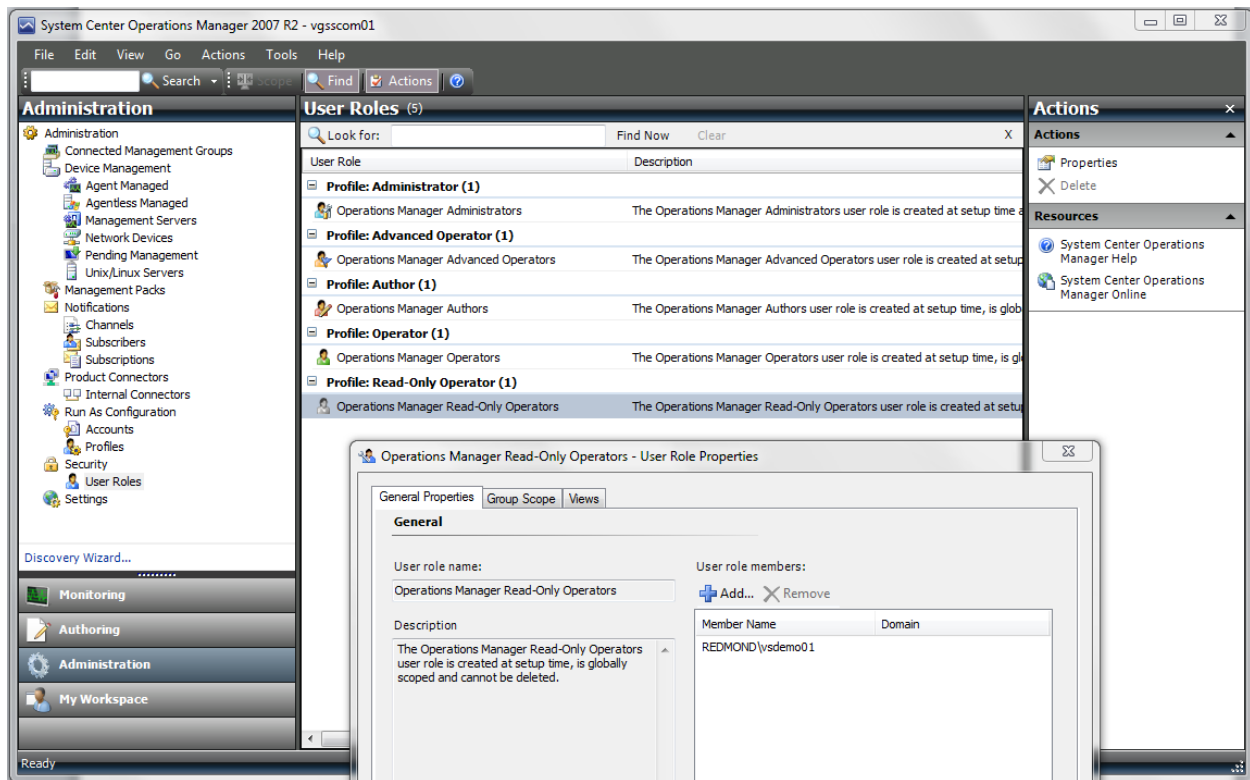


Figure 8 - Configure the Visio Services account as a Read-Only Operator

If you need to determine the account that is configured for Visio Services you can view this using Central Administration.

1. **Open** the **Central Administration** site.
2. **Click** on the **Configure Service Accounts** from the Security section.
3. In the list of Service Accounts choose **Service Application Pool – SharePoint Web Services Default**.
4. Make note of the account that is configured for this service application.
5. **Click Cancel** or close the Central Administration site.

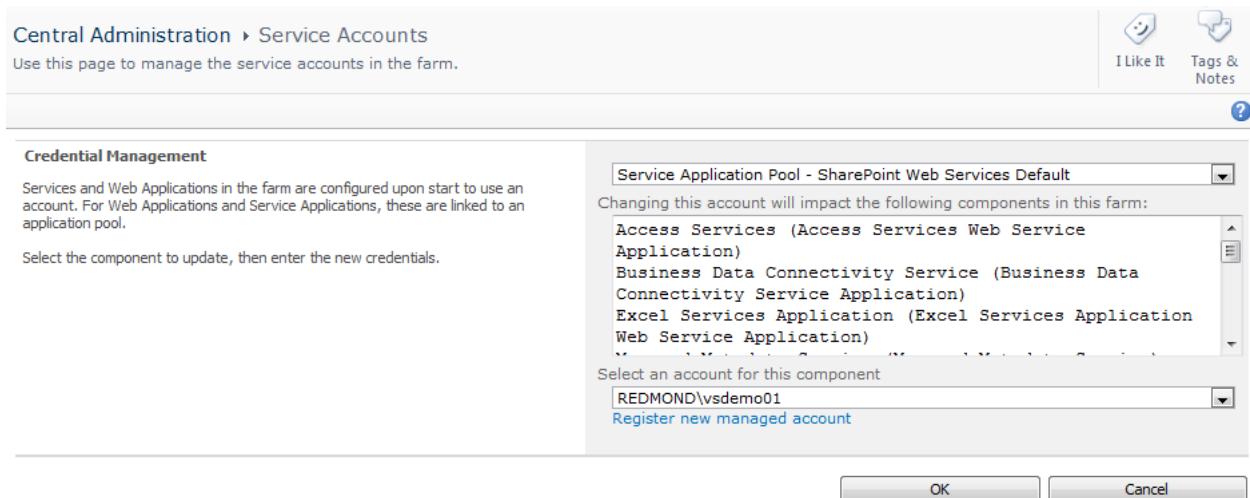


Figure 9 - Configure Service Accounts

## Configure the Operations Manager Data Source in Visio

Before Visio can interact with Operations Manager 2007 R2, you need to configure Operations Manager as a data source for your Visio document. You also need to configure the Operations Manager Web console address to enable opening the Health Explorer or Alert view directly from Visio. You need to configure these items for each Visio document you create.

### To configure the Operations Manager data source and Web console address in Visio

1. Open a new drawing in Visio.
2. On the ribbon, click on the **Operations Manager** tab, and then click on the **Configure** button.
3. In the **Name** field, type the name of the root management server (RMS).
4. In the **Address** field, type the address for the Web console. This is the console that is used to launch the Health Explorer and Alert view from Visio.

If you do not know the address, and you have Operations Manager administrator privileges, click **Look up web console address**. If you do not know the address, and you are not an Operations Manager administrator, contact the administrator for the address, and then type it in the **Address** field.

5. If you want to receive regular updates of state information from the RMS, select **Automatically refresh data**, and then specify a refresh interval in seconds.
6. Click **OK**.

The screenshot shows the 'Configure Data Source' dialog box. It contains the following fields and controls:

- Root Management Server**
  - Name:
- Web console address (ex. http://myserver:51908)**
  - Address:
  -
- Automatic data refresh**
  - ☐ Automatically refresh data
  - Refresh interval:  seconds
- 

Figure 10 - Configuring the add-in options

## View a Distributed Application Diagram in Visio 2010

When you export a distributed application from the System Center Operations Manager 2007 R2 Operations console and then open it in Microsoft Visio 2010 with the Visio 2010 Add-in for Operations Manager 2007 R2 installed, the Visio diagram contains information about the health state of each object. This information is provided through an automatic connection to Operations Manager.

### To view a distributed application as a Visio diagram

1. In the Operations console, open your diagram.
2. On the toolbar, click the **To Visio** icon.



Figure 11 - Export from the console to the Visio file format

3. Open the folder in which you want to save the diagram, type a file name, and then click **Save**.
4. In Visio, open the exported diagram.

The add-in automatically contacts the root management server (RMS) when the diagram is opened.

5. If you are prompted, type the user credentials for the RMS, and then click **OK**.

When the diagram opens, the External Data window appears in the lower pane of Visio. This window contains detailed information about the objects in the diagram, including the health state and the last time the object state was refreshed in the diagram.

You can drill into the status of any object by opening the Health Explorer or Alert view in the Operations console. To do this, right-click the object and click the **Health Explorer** or **Alert View** hyperlinks. Before you can do this, make sure you have configured the address for the Web console or these links will not be available. See [Configure the Operations Manager Data Source in Visio](#) for more information.

Now that you have the initial diagram in Visio, you can customize it by adding new shapes. You can add links to Operations Manager components by dragging an object from the External Data window to an image or drawing in the diagram. The data is automatically linked to the image.



## Add Links to Operations Manager to a New or Existing Visio Document

The Visio 2010 Add-in for System Center Operations Manager 2007 R2 lets you create a new Microsoft Visio document that you can link to Operations Manager objects. The Visio Add-in also lets you add live health state information to an existing Visio document.

To do this, you first specify the Operations Manager root management server (RMS) from which the Visio add-in will get information about the managed objects and their health state. Then, you add the links by using one of the following methods:

- Link a single shape to a managed object. You can quickly link a few shapes to any object managed by Operations Manager.
- Add multiple links to the document and then associate these to Visio shapes later. This option works best for large documents that have many different types of managed object.
- Automatically link shapes in the document to computers and to network devices. This option uses a single wizard to automatically add health state information to large and complex network or topology diagrams.
- Insert a new shape that is linked to an Operations Manager object and that uses the Operations Manager icons.

### To link a single Visio shape to an object managed by Operations Manager

1. In a Visio document, select a shape, click the **Operations Manager** tab from the ribbon, and then click the **Link Shape** button.
2. Select the Operations Manager class of the object, such as **Windows Computer**, to display a filtered list of available Operations Manager objects.
3. Select the object that you want to link to this shape, and then click **Link**.

The shape in the diagram now includes a state indicator in the upper-right corner of the image.

### To add multiple links to objects managed by Operations Manager

1. Click **Operations Manager** tab from the ribbon, and then click the **Add Data Links** button.
2. Select the class from the RMS.
3. Select the managed objects you want to link to this diagram, and then click **Insert**.

This will add the selected managed objects to the dataset in the Visio diagram which can be viewed from the External Data window.

4. In the External Data window, select the row for the managed object that you want to connect to a shape in the diagram.
5. Drag the managed object row and drop it on the shape, this will establish the link between the shape and that managed object's record.

### To automatically link multiple Visio shapes to Operations Manager managed computers and network devices

1. Open the Visio document.

Ensure that each shape has defined shape data, such as the Network Name or IP address properties, or shape text (such as the IP address of the object).

To view the shape data for a specific shape, right-click the shape, click **Data**, and then click **Shape Data**.

This opens the Shape Data window that displays the Shape Data fields and values for the selected shape in the diagram.

2. Select all the shapes in the document.
3. Click **Operations Manager** tab from the ribbon, and then click **Reconcile Shapes**.
4. In the Automatically Link wizard, select **Selected shapes** or **All shapes in the document**, and then click **Next**.
5. Match the Visio shape property to the Operations Manager property. For example, match the Visio network name to the Operations Manager display name. The following Operations Manager classes are matched automatically:
  - Windows Computer (Microsoft.Windows.Computer)
  - Unix Computer (Microsoft.Unix.Computer)
  - SNMP Network Device (Microsoft.SystemCenter.NetworkDevice)

Click **Next**.

6. Review the list of matches. Click to clear any objects you do not want to link, and then click **Next**.

If more than one match is found, click **Select** to choose the object you want to link to. If no matches are found, click **Browse** to search for the object.

7. Review the list of links to define, and then click **Finish**.

Shapes are automatically connected to the managed objects they represent from the RMS.

### To insert a shape that is linked to an Operations Manager object

1. In your Visio diagram, click **Operations Manager** tab from the ribbon, and then click **Insert shape**.
2. Select the class of the object you want to insert. This filters the available objects to only those of the specified class. You can also search for a specific object.
3. Select the specific object, and then click **Insert**.

The new shape is added to the diagram. The shape icon matches those of other Operations Manager objects of the same class, and the shape data is populated with information from the RMS.

## Change the Way Health State Is Represented

By default, health state is depicted by using the Systems Center Operations Manager health icons (such as the green check mark for a healthy state). You can customize the way that health state is shown by changing the Data Graphic associated with the Visio shape. For example, you can show the health state by filling the shape with red, yellow, green, or grey color to represent the three health states and to represent a managed object in maintenance mode.

### To change the way that health state is represented

1. Select the shape or shapes that you want to change.
2. On the **Data** tab in Microsoft Visio 2010, click **Data Graphics**.
3. In the Data Graphics gallery, click the data graphic that you want to use for the selected shape(s). The Visio 2010 Add-in for System Center Operations Manager 2007 R2 includes two data graphics to choose from. The **SCOM IconSet** data graphic shows health state using icons as in Operations Manager. The **SCOM Color by Value** data graphic uses red, yellow, green, or grey color to represent the three health states and to represent a managed object in maintenance mode.

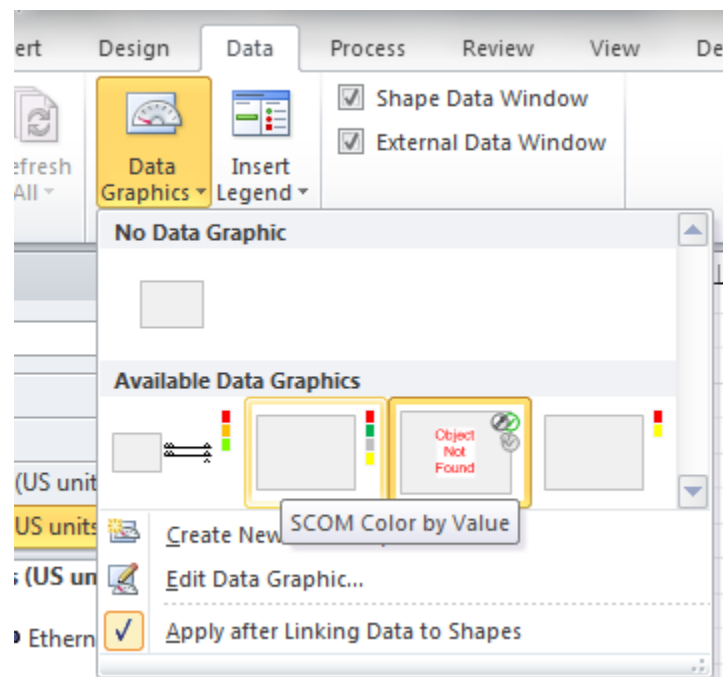


Figure 12 - Choosing from the list of Data Graphics

## Publishing the diagram to SharePoint 2010

With the add-in installed on the client and the data provider installed on the SharePoint server you can now publish diagrams that you have connected to Operations Manager data to a SharePoint document library to share them with others in your organization.

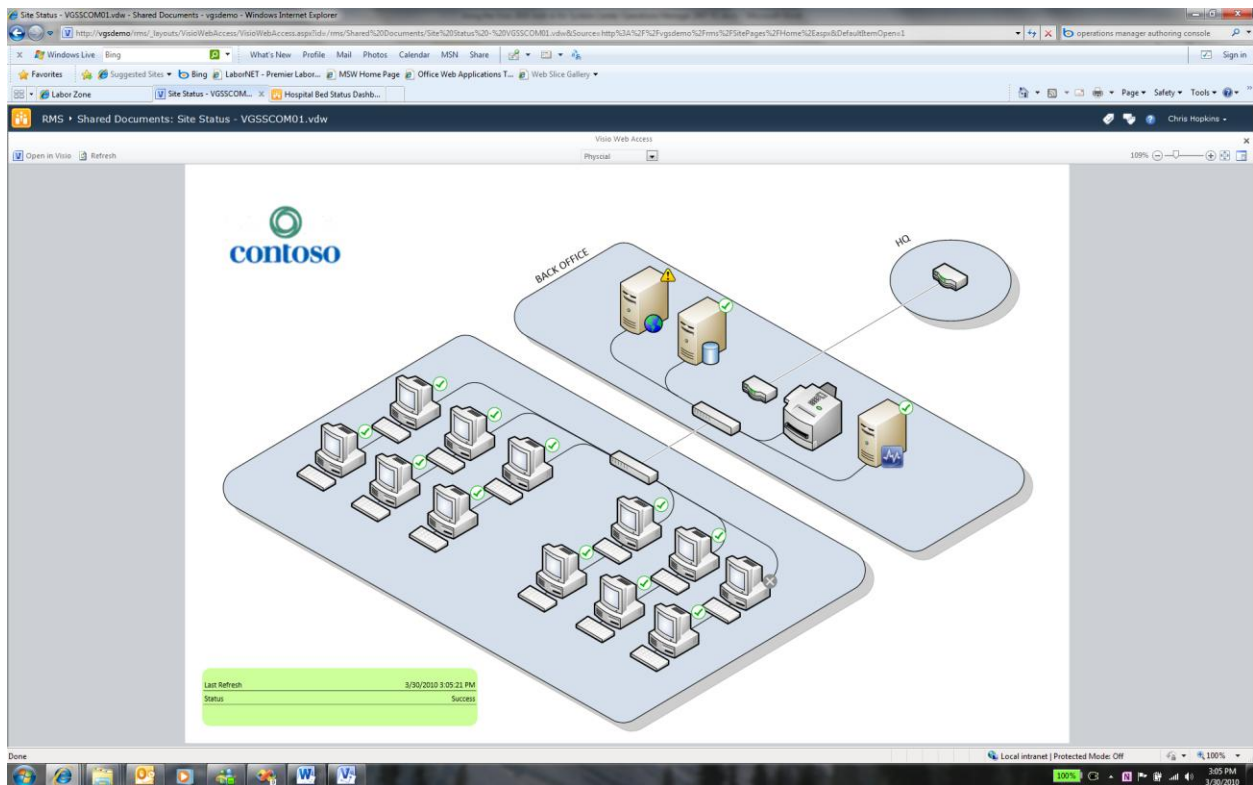


Figure 13 - Example of a diagram published to Visio Services

### To publish to a document library

1. From the **File** tab on the Visio 2010 ribbon, click on the **Save & Send** option.
2. Click on the **Save to SharePoint** button.
3. Click on the **Browse for a location** option under Locations.
4. Under File Types make sure to choose the Web Drawing (\*.vdw) option.

If you do not choose this option the drawing will not be visible using the browser, only the client.

5. Click on the **Save As** button.

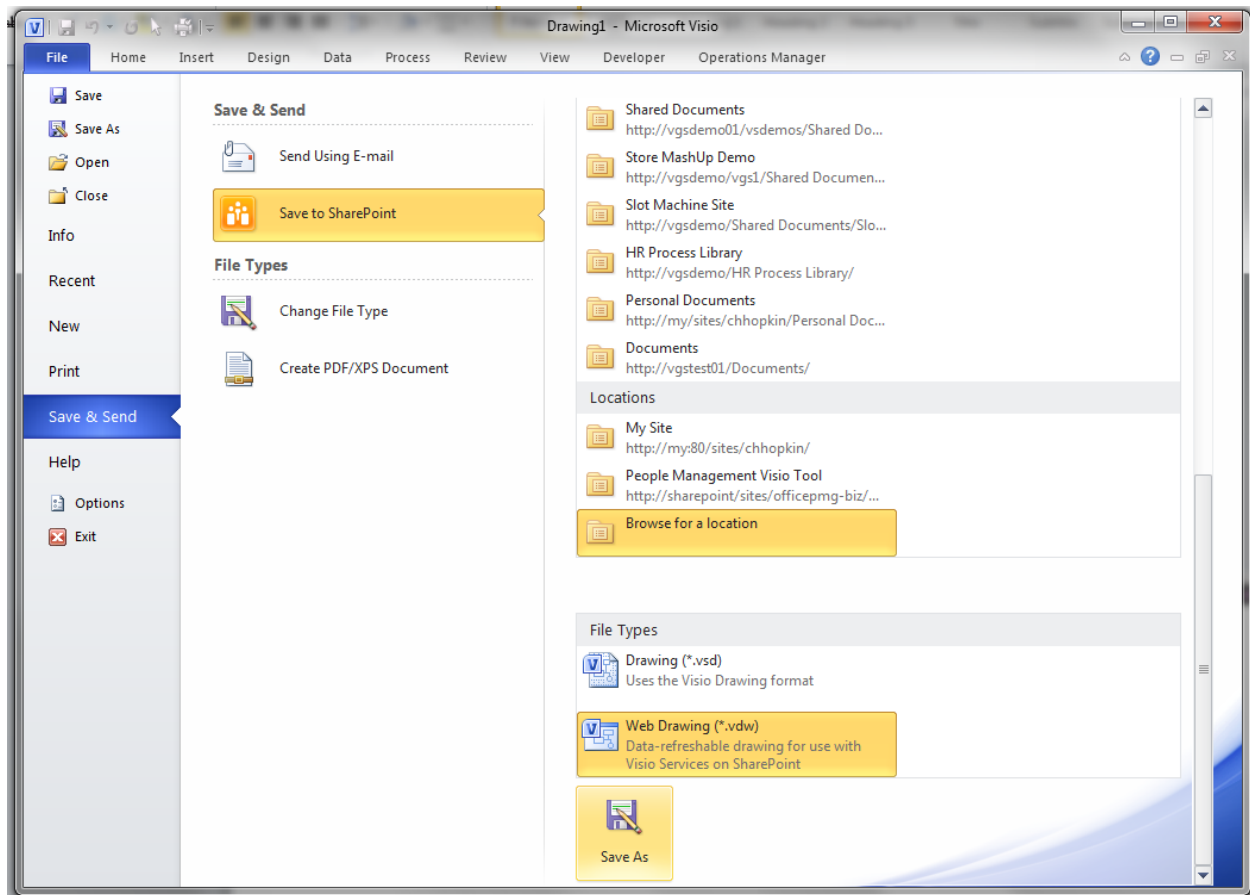


Figure 14 - Publishing to a document library

- In the Save As dialog, choose the name and location for the file. To browse to a SharePoint server simple enter the name of the SharePoint server in the address box and press the Go To button.

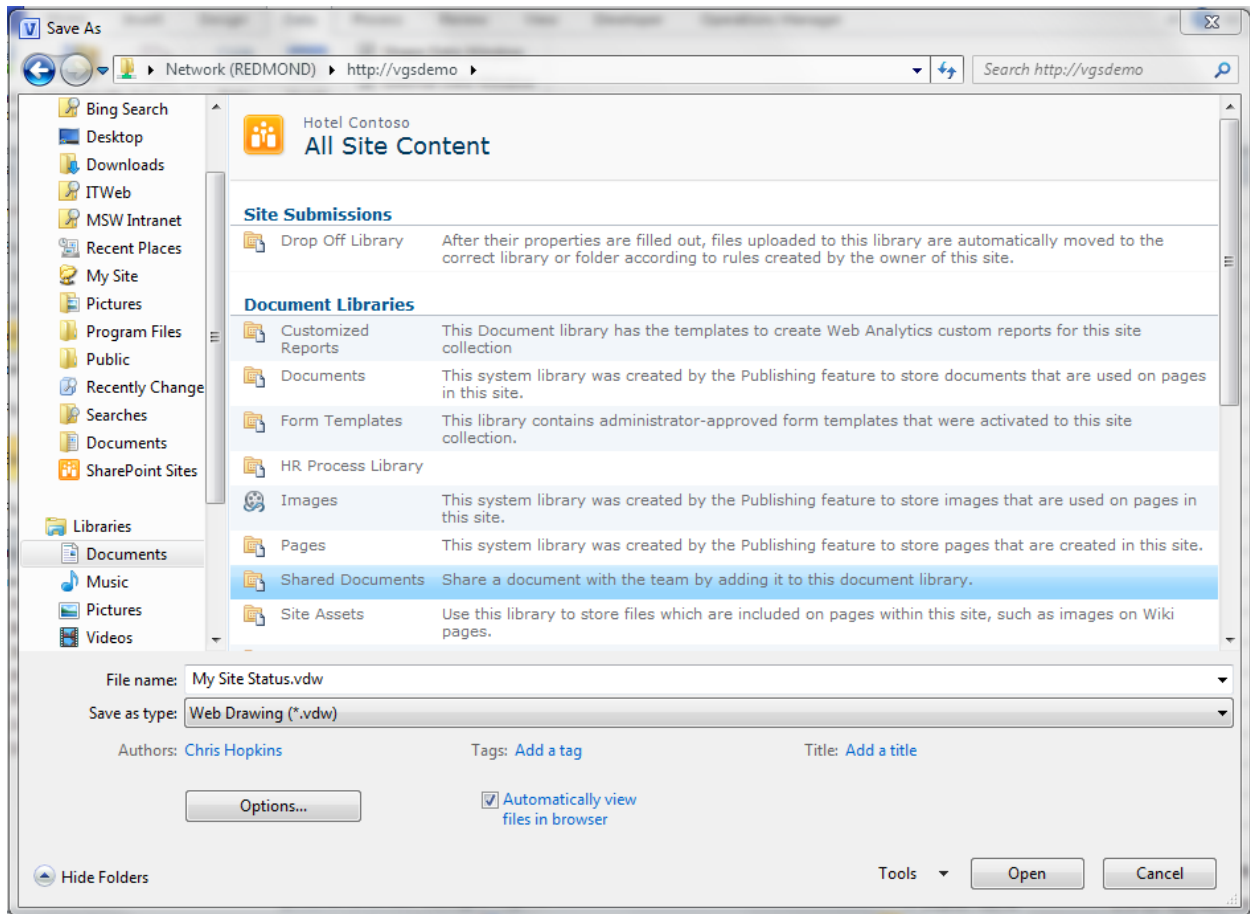


Figure 15 - Publishing to a document library

Once the diagram is saved to a document library using the VDX file format you can simply browse to the document library in your browser and click on the link to the document and the Visio diagram will render in the browser. With the data provider installed the data will also be refreshed directly from the RMS.

## Building a simple monitoring dashboard using the Visio Web Part

SharePoint 2010 Enterprise edition also includes a Web Part for Visio Services called the Visio Web Access Web Part. This Web Part can be included on any SharePoint Web Part Page allowing you to build a dashboard that includes visualizations using published Visio diagrams.

### To build a monitoring dashboard for your published Visio diagram

1. Open Internet Explorer.
2. Navigate to your SharePoint 2010 site.
3. Navigate to the Shared Documents document library.
4. Click on the Site Actions menu above the ribbon.
5. Click on the More Options menu item.
6. Choose the Web Part page and click the Create button.
7. Enter a name for this new page.

**Name**

Type a file name for your Web Part Page. The file name appears in headings and links throughout the site.

**Layout**

Select a layout template to arrange Web Parts in zones on the page. Multiple Web Parts can be added to each zone. Specific zones allow Web Parts to be stacked in a horizontal or vertical direction, which is illustrated by differently colored Web Parts. If you do not add a Web Part to a zone, the zone collapses (unless it has a fixed width) and the other zones expand to fill unused space when you browse the Web Part Page.

**Choose a Layout Template:**

- Full Page, Vertical
- Header, Left Column, Body
- Header, Right Column, Body**
- Header, Footer, 3 Columns
- Header, Footer, 2 Columns, 4 Rows
- Header, Footer, 4 Columns, Top Row
- Left Column, Header, Footer, Top Row, 3 Columns
- Right Column, Header, Footer, Top Row, 3 Columns

Create Cancel

Figure 16 - Creating the Web Part Page

8. Choose the Header, Right Column, Body layout template.
9. Click Create to create the new Web Part Page.  
The new Web Part page is opened in edit mode.
10. Select the Body zone by clicking once on the Body zone. You should see a new Insert tab displayed on the ribbon when you have a zone selected.
11. Select the Insert tab on the ribbon and click on the Web Part button.

- From the Categories list choose Office Client Applications and then from the Web Parts list choose Visio Web Access.

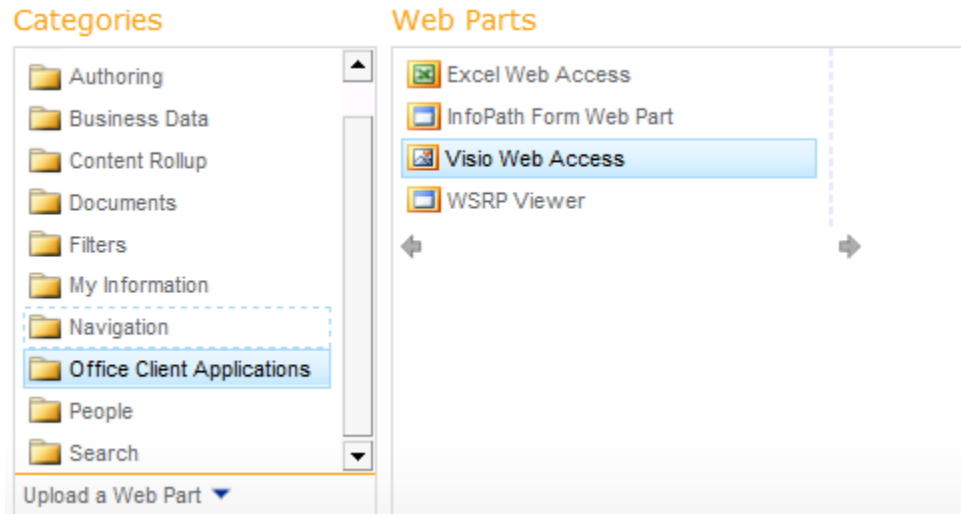


Figure 17 - Choosing the Visio Web Access Web Part

- Click on the Add button and the Visio Web Access Web Part should be added to the Body zone of the Web Part page.
- Edit the properties of the VWA Web Part by selecting Edit Web Part from the Edit menu on the Web Part toolbar.



Figure 18 - Edit Web Part property pane

- Set the Web Drawing URL property of the VWA Web Part by clicking on the Browse button (...) and navigating to the document library where you published a Visio diagram that is connected to Operations Manager data. Select the published diagram and click OK.

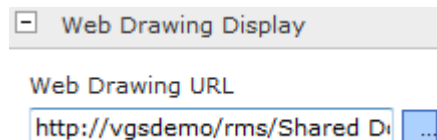


Figure 19 – Web Drawing URL property

- Set the Automatic Refresh property to 1 minute (1 minute is the minimum value supported). This allows the dashboard to automatically refresh the diagram every 1 minute from the connected RMS.



Automatic Refresh Interval (in minutes)

1

Figure 20 - Setting the Automatic Refresh Interval

17. Hide the Open in Visio button by unchecking the Show Open in Visio property in the Toolbar and User Interface section.

☐ Toolbar and User Interface

☒ Show Refresh

☐ Show Open in Visio

☒ Show Page Navigation

☒ Show Zoom

Figure 21 - VWA UI options

18. Click on OK and the changes to the properties of this Web Part will be applied.
  - a. You should see the published Visio diagram rendered at this time.
19. Exit edit mode for this page by clicking on the Stop Edit button on the Edit tab of the ribbon.

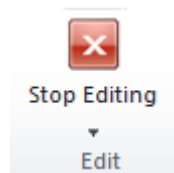


Figure 22 - Stop Editing

At this point your Web Part page should be displayed and your published diagram should be rendered within the VWA Web Part. You should also notice that the default Open in Visio button is no longer available from the VWA toolbar.

## Troubleshooting the Visio Add-in

You might see the following issues when you use the Visio 2010 Add-in for System Center Operations Manager 2007 R2.

### The font size of inserted shapes might appear too small

When you insert a new graphic by using the **Insert Shape** option, the font size for the shape text might appear too small. The size is determined by the default font size set for a template.

You can change the font size by selecting the shape and then choosing a different font size in the Visio toolbar.

### Hyperlinks on sub-shapes are not available

Health Explorer and Alert View hyperlinks might not be available in Edit mode or Full Screen mode if you have grouped your shapes or added links to any shapes that were already contained within groups.

### You receive a ConfigurationErrorsException error message

You might see the following error message:

```
System.Configuration.ConfigurationErrorsException: Configuration system
failed to initialize --->
System.Configuration.ConfigurationErrorsException: Unrecognized configuration
section userSettings.
   (C:\Documents and Settings\asttest\Local Settings\Application
Data\Microsoft_Corporation

\OpsMgrAddin.vsto_vstoloca_Path_logwdvddmizljsrbc2bvt5gtm5juzdix\12.0.6325.50
00\user.config
   line 3)
.
.
.
```

To work around this problem, delete the configuration file identified at the top of the error message. For example, delete the following file:

\OpsMgrAddin.vsto\_vstoloca\_Path\_logwdvddmizljsrbc2bvt5gtm5juzdix\12.0.6325.5000\user.config

### You receive a MissingMethodException error message

You might see the following error message:

```
System.MissingMethodException: Method not found:
'System.Security.SecureString
System.Windows.Controls.PasswordBox.get_SecurePassword()'.
   at
Microsoft.EnterpriseManagement.VisioAddin.EnterCredentials.get_Password()
   at
Microsoft.EnterpriseManagement.VisioAddin.SCOMHelpers.EnterCredentials(Manage
mentGroupConnectionSettings& connectSettings)
   at
Microsoft.EnterpriseManagement.VisioAddin.Document.ConnectToManagementGroup()
   at Microsoft.EnterpriseManagement.VisioAddin.Document.AddDataLinkToShape()
```

To resolve this problem, install [Microsoft .NET Framework 3.5 SP1](http://go.microsoft.com/fwlink/?LinkID=131605), available from <http://go.microsoft.com/fwlink/?LinkID=131605>.

### **The state graphic is not displayed**

The state graphic does not appear on a stencil even though you have linked the shape with the **Link Shape to Data** option.

Some stencils in Visio are not defined with a wrapping group. To resolve this problem, create a group for the shape, and then use the **Link Shape to Data** option again. To create a group, right-click the shape, and then click **Shape** and **Group**.

### **You see security warnings when you open a diagram**

When you open a document that you previously linked to Operations Manager, you receive multiple security warnings.

This problem occurs because the status of the document components is set to refresh automatically. To suppress the warnings, select **Don't show this message again**.

### **You cannot re-install the Visio Add-in**

If you delete the Operations Manager Add-in by using the Visio Trust Center, you cannot add it again later.

This behavior occurs by design in Visio. Before you can add the Operations Manager Add-in again, uninstall it by using Add/Remove Programs (or Programs and Features) in the Control Panel, and then reinstall it.

## Troubleshooting the Visio Services data provider

If you run into issues using the Visio Services data provider for System Center Operations Manager 2007 R2 you can enable a trace log that will be generated for each user and each of their sessions for only published Visio diagrams that are linked to Operations Manager data using the add-in.

### To enable the trace log for the data provider

1. Edit the config file in notepad and change the location of the log files that will be generated to a location on the server or the network that the SharePoint application pool account has write access.

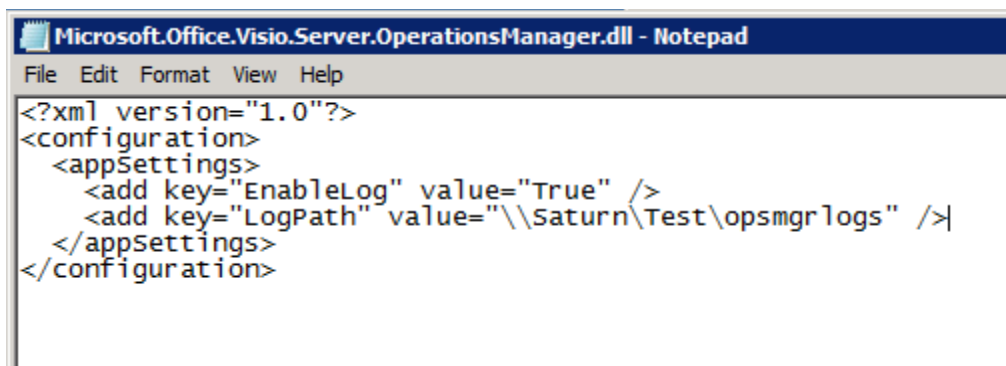


Figure 23 - Microsoft.Office.Visio.Server.OperationsManager.dll.config in NotePad

2. Copy the config file to the GAC to the same location as the data provider assembly on each server in the farm that has the data provider assembly installed.

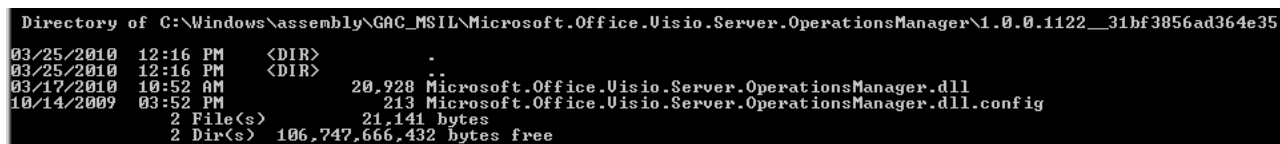


Figure 24 - Copy the config file to the GAC

The next time a diagram is refreshed this config file will be checked and logs will be written to the location that you specified in the config file.

Each refresh operation will be recorded in a separate log file with the name of the file reflecting the user that attempted a refresh and the date and time of the refresh request.

Name	Date modified	Type	Size
chhopkin_3-25-2010_12-23-18_PM.log	3/25/2010 12:23 PM	Text Document	5 KB
chhopkin_3-25-2010_12-23-37_PM.log	3/25/2010 12:23 PM	Text Document	5 KB

Figure 25 - Example log files

The log file contains the following items:

- The user name for the user that initiated the request including the date and time
- The version of the assembly installed on the server
- The command string that was configured in the diagram before publishing to the server
- Details about the dataset to be refreshed including table count, row count and IDs for each row.
- Any error conditions or exceptions that occur within the data module for each session.

## The data provider will not deploy or hangs during deployment

The deployment script requires that the SharePoint Timer service be started and running. This service is used to queue the deployment jobs to the machines in the farm.

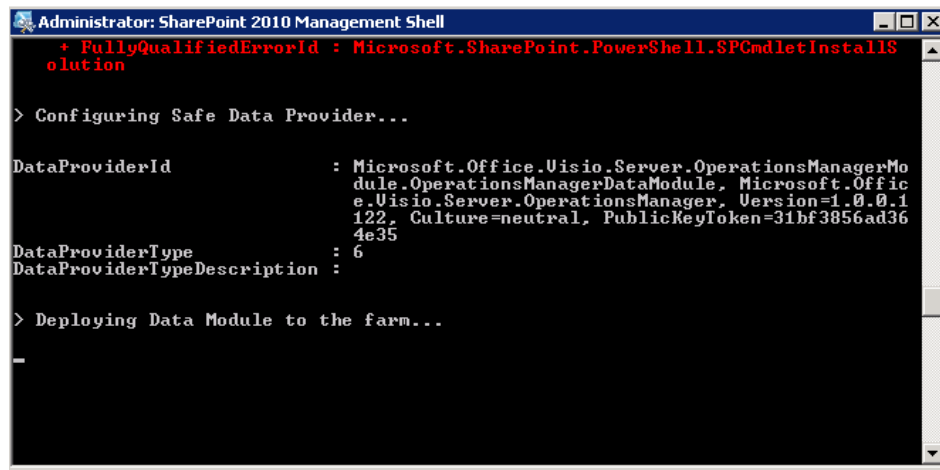


Figure 26 - Deployment seems to hang at this step in the script

If this is stopped the Deployment step in the deployment script could hang indefinitely or return with an error. If this occurs check to make sure that the SharePoint Timer service is started and running.

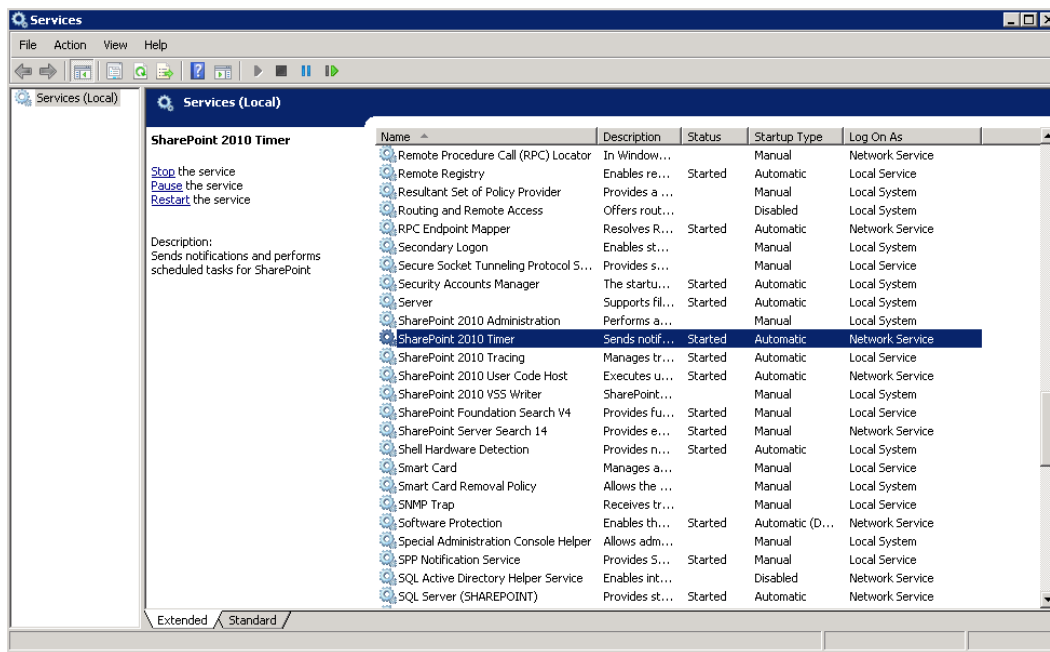


Figure 27 - SharePoint 2010 Timer service

### **An error occurred running the deployment script**

Make sure that you run the SharePoint 2010 Management Shell as an administrator or the script will fail.

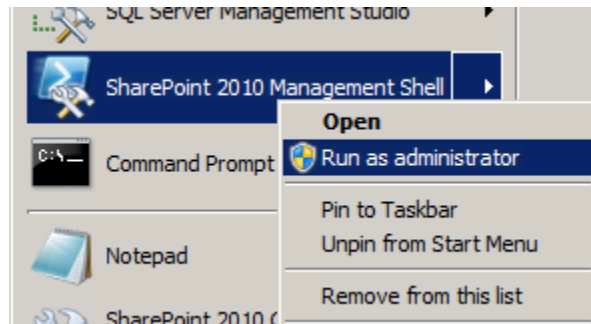


Figure 28 - Running the SharePoint 2010 Management Shell as administrator