

# **Deltek Vision® 6.1**

## **Creating a Reverse Proxy for SQL Reporting Services Using IIS 7.0 Application Request Routing (ARR)**

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## Why do I need a Reverse Proxy?

Deltekh Vision 6.0 utilizes the Microsoft SQL Reporting Services WinForm report viewer control to render reports. This control requires a direct connection to the server running the SQL Reporting Services web service (<http://<server>/reportserver>). Due to the nature of the Deltek Vision and SQL Reporting Services logical tier architectures and the available editions and licensing requirements of SQL Reporting Services, it is likely that the SQL Reporting Services web service will not be installed on the Vision web/application server in your deployment of Deltek Vision 6.0.

Typically this will not be a problem when Vision is deployed inside the Intranet. However, when Vision is deployed where it is accessible directly via the Internet the infrastructure requirements needed to support the configuration become complex as it is now necessary to have multiple points of entry (one each for the Vision web server and SQL Reporting web service), multiple firewall configurations and potentially the need to have multiple public DNS records with your Internet Service Provider (ISP). To complicate matters, if you have a two tier deployment of Deltek Vision 6.0, this may require that the server hosting your database is made accessible to the Internet which adds additional security risks. The architecture diagrams in the next section depict the Deltek Vision 6.0 logical tier diagrams with and without a reverse proxy.

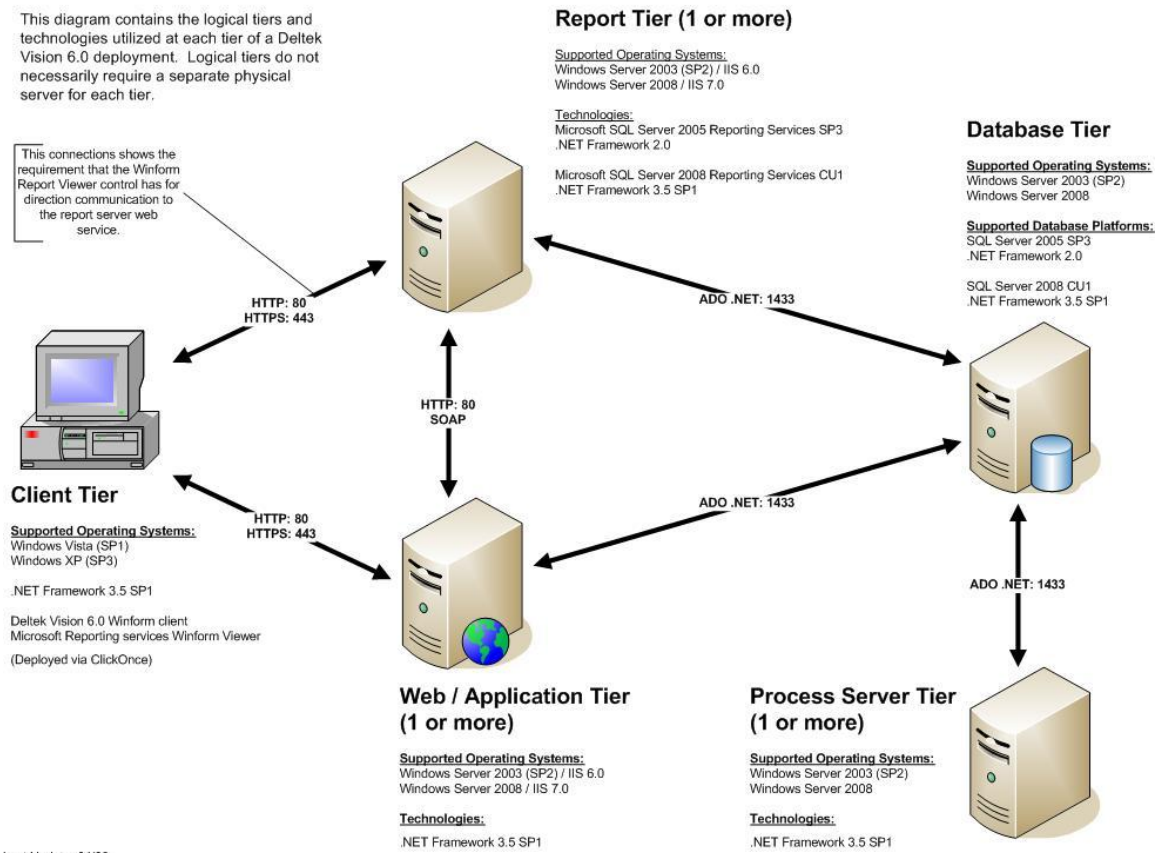
A reverse proxy utilizing Microsoft's Application Request Routing (ARR) extension for IIS 7.0 allows the direct forwarding of requests through the Vision web server to the reporting services web service with responses back to your Internet clients. This configuration resolves all of the issues identified in the previous paragraph but does require that the server hosting the Vision web/application server be running Windows Server 2008 with IIS 7.0.

## Deltek Vision 6.0 Architecture

### Deltek Vision 6.0 Logical Tier Model (Core Application Tiers only)

This diagram contains the logical tiers and technologies utilized at each tier of a Deltek Vision 6.0 deployment. Logical tiers do not necessarily require a separate physical server for each tier.

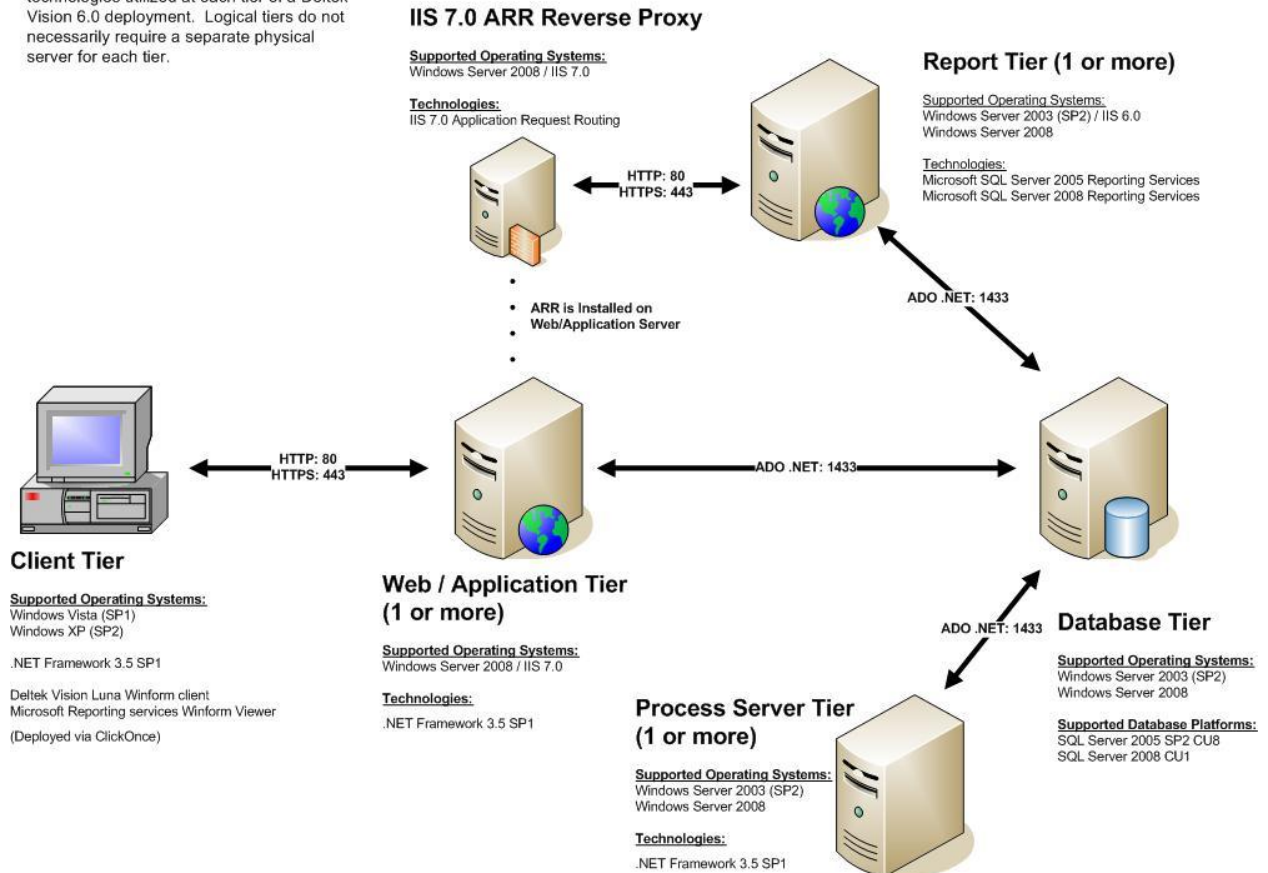
This connections shows the requirement that the Winform Report Viewer control has for direction communication to the report server web service.



## Revised Deltek Vision 6.0 Architecture with Reverse Proxy

### Deltek Vision 6.0 *Logical* Tier Model (Core Application Tiers only)

This diagram contains the logical tiers and technologies utilized at each tier of a Deltek Vision 6.0 deployment. Logical tiers do not necessarily require a separate physical server for each tier.



## Installation Steps

This section outlines the installation steps you will need to follow.

### Pre-requisites

The following pre-requisites must be met before installation:

1. The Vision Web/Application server must be running Windows Server 2008 / IIS 7.0.
2. Deltek Vision 6.0 must be installed.
3. SQL Reporting Services 2005 or 2008 must be installed and configured.
4. The IIS 7.0 configuration must include the IIS role service "Management Service".

### Download the Application Request Routing Module

X86 - <http://www.microsoft.com/downloads/details.aspx?FamilyID=ecd52702-d850-4a18-b18e-d46128967462&displaylang=en>

X64 - <http://www.microsoft.com/downloads/details.aspx?familyid=497E9910-CA94-4771-AF08-751420FAB5F0&displaylang=en>

### Install the Application Request Routing Module

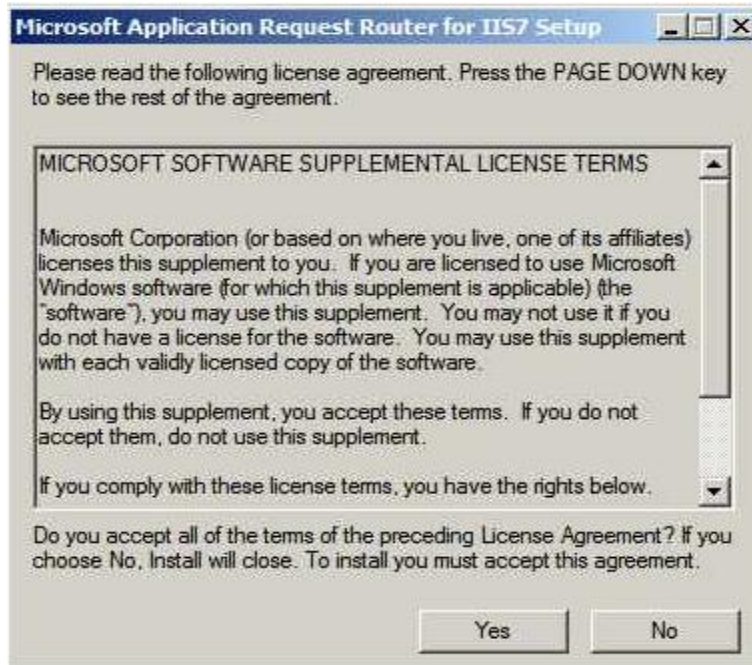
Complete the following steps before installation:

1. Stop the Windows Process Activation Service (net stop WAS from a command prompt).  
This will also stop the World Wide Web Publishing Service.
2. Stop the Web Management Service (net stop WMSVC from a command prompt).
3. Start the ARR setup, the following displays:

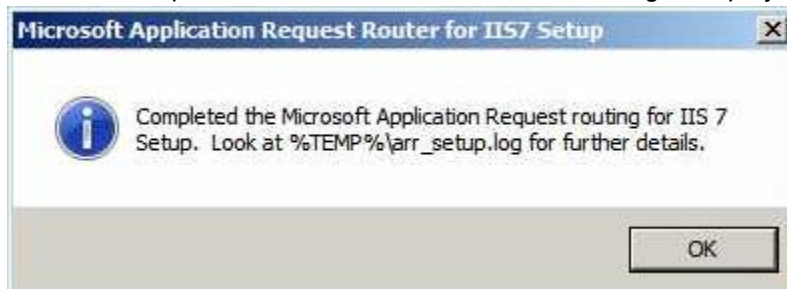




- Click **Yes** to proceed with the installation, the license agreement is displayed.



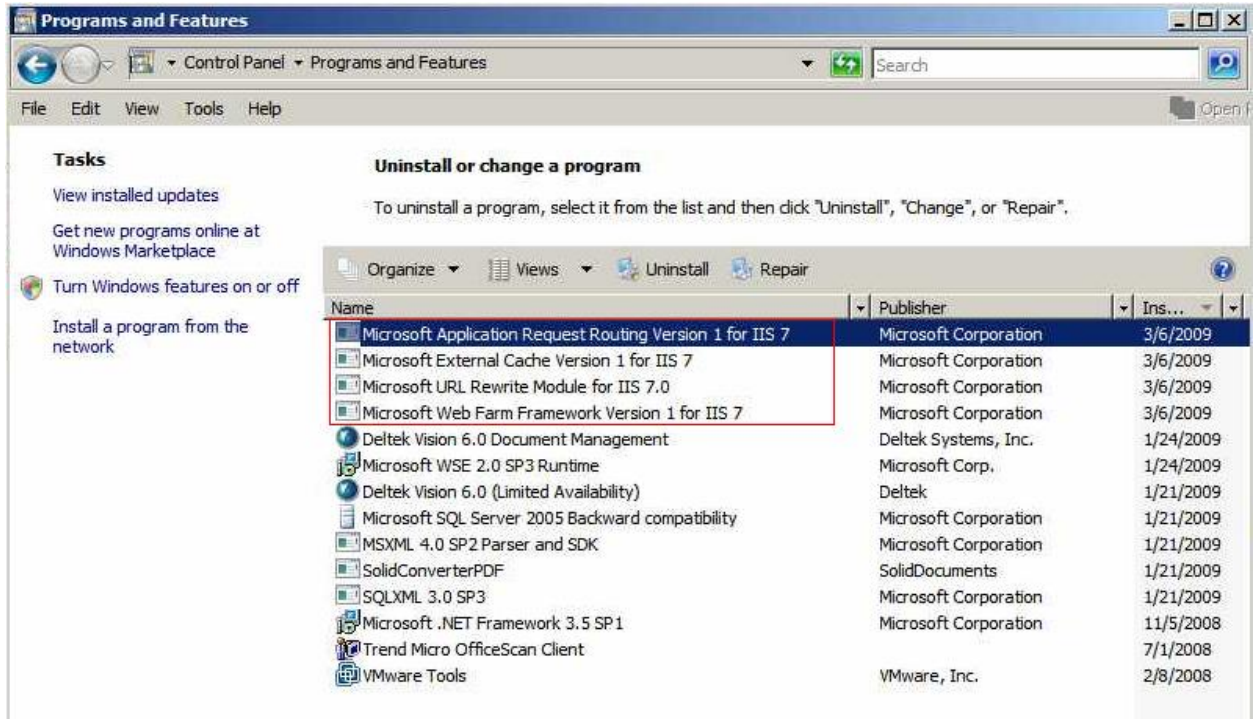
- Click **Yes** to accept the license agreement.
- The ARR components will be installed and the following is displayed.



- Click OK to exit.

## Verify the installation

In order to verify that the necessary components have been installed, open Control Panel and then Programs and Features. All four components outlined in red must be installed.



## Troubleshoot the installation

Complete the following step to troubleshoot the installation process.

1. Open a command prompt
2. Type: `cd %temp%`
3. Open the `arr_setup.log` with notepad to identify which components failed to install. Each components installation log is also in this folder.

Make sure that the pre-requisite IIS components were installed and that the services were stopped. Then, retry the installation. You can also extract and install the individual modules by entering the following from the Run command:

`<Path to ARR Setup File>\ARR_x86_Version1.exe /T:<path to extract> /C`

## Configure Application Request Routing

1. Open **Internet Information Services (IIS Manager)** from Administrative Tools. Note the new Server Farm menu:



2. Click **Create Server Farm** in the Actions menu.



3. Enter **SSRS Proxy** for the name of the Server Farm and click Next.

4. Enter the names of both your Vision Web/Application Server (ARR Proxy Server) and the server hosting SSRS:

**Create Server Farm**

**Add Server**

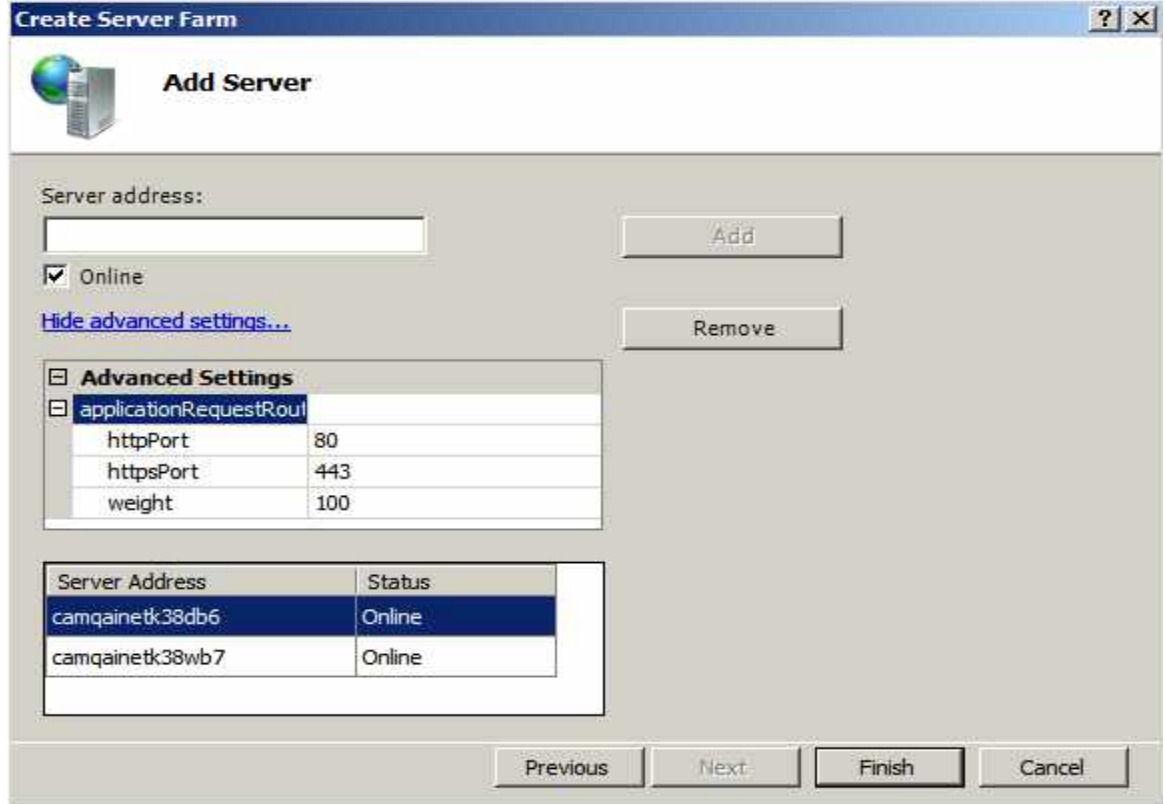
Server address:

☒ Online

[Advanced options ...](#)

Server Address	Status
camqainetk38db6	Online
camqainetk38wb7	Online

5. If your Vision Web/Application server is listening on a non-standard port, click the Advanced Options and modify the ports appropriately:



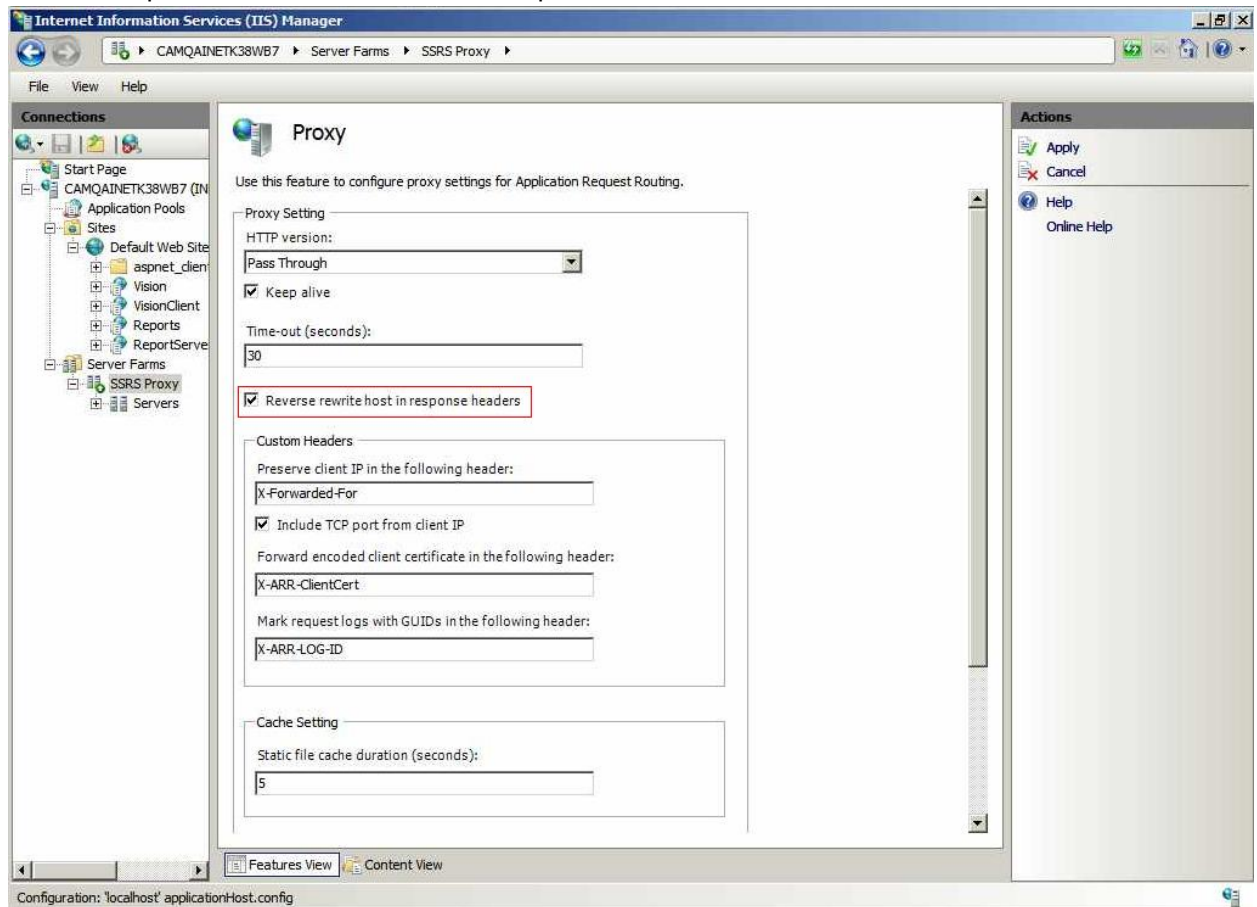
6. Click Finish. The Rewrite Rules dialog displays.



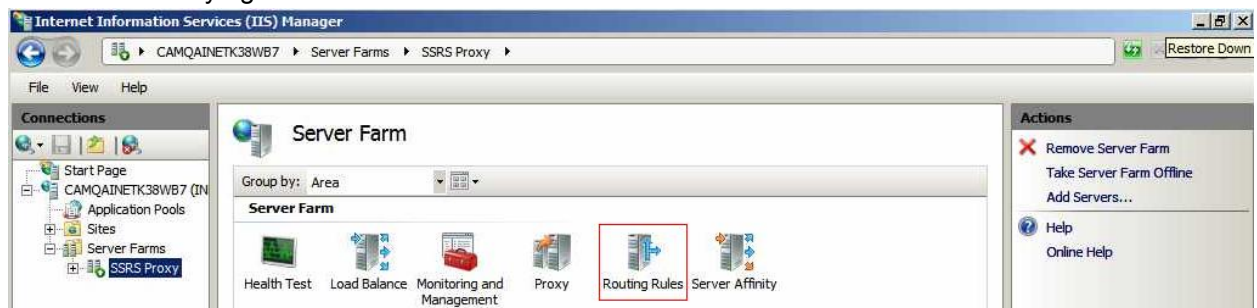
7. Click Yes to create the rule.
8. Expand Server Farms and click SSRS Proxy.
9. Double-click Proxy.



10. Check the option “Reverse rewrite host in response header” checkbox.

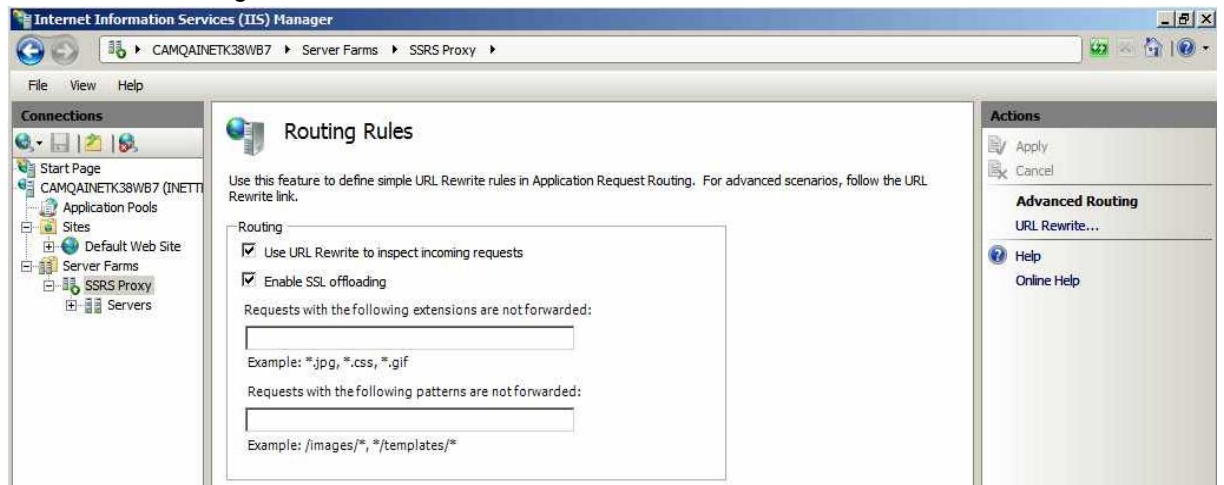


11. Click Apply in the Actions menu.
12. Click SSRS Proxy again.

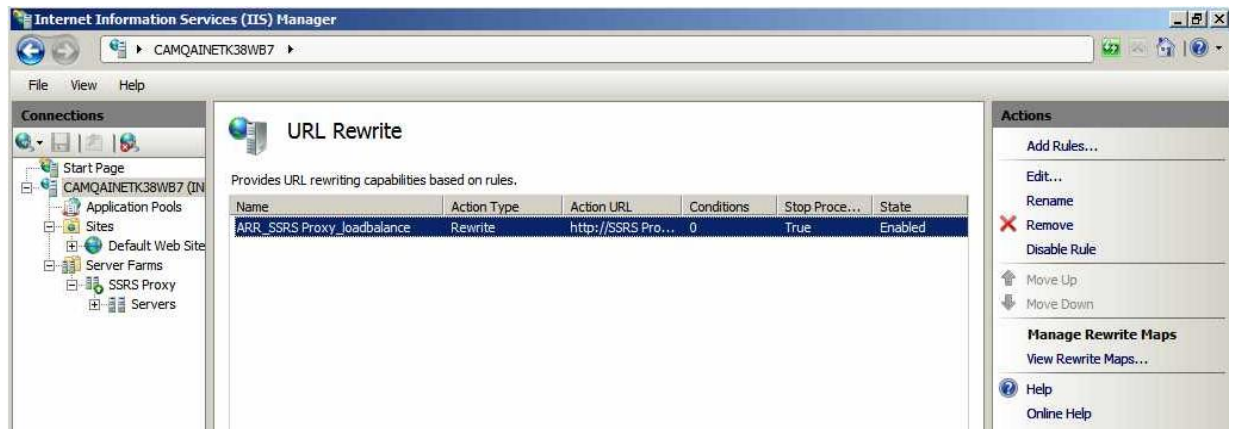




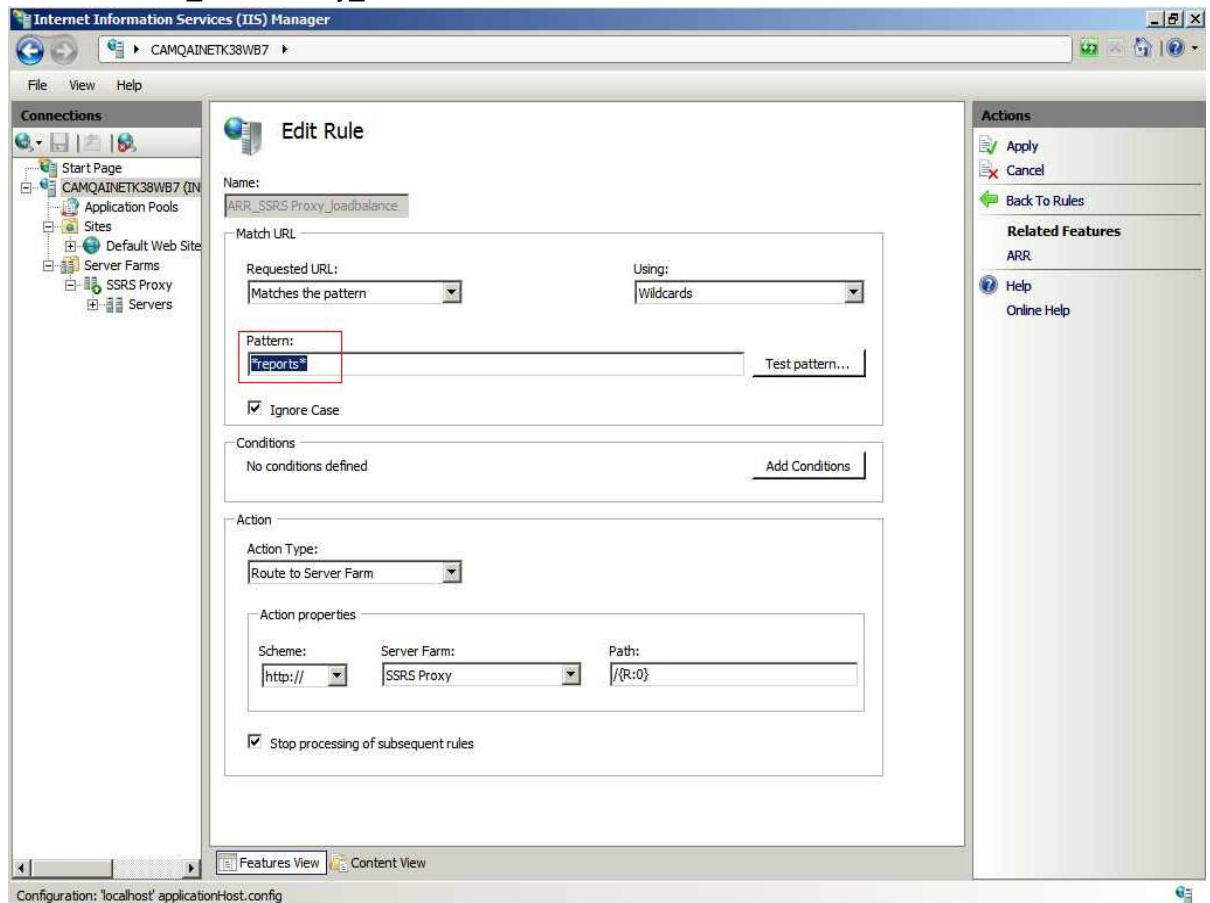
13. Double-click Routing Rules.



14. Click URL Rewrite in the Actions menu.



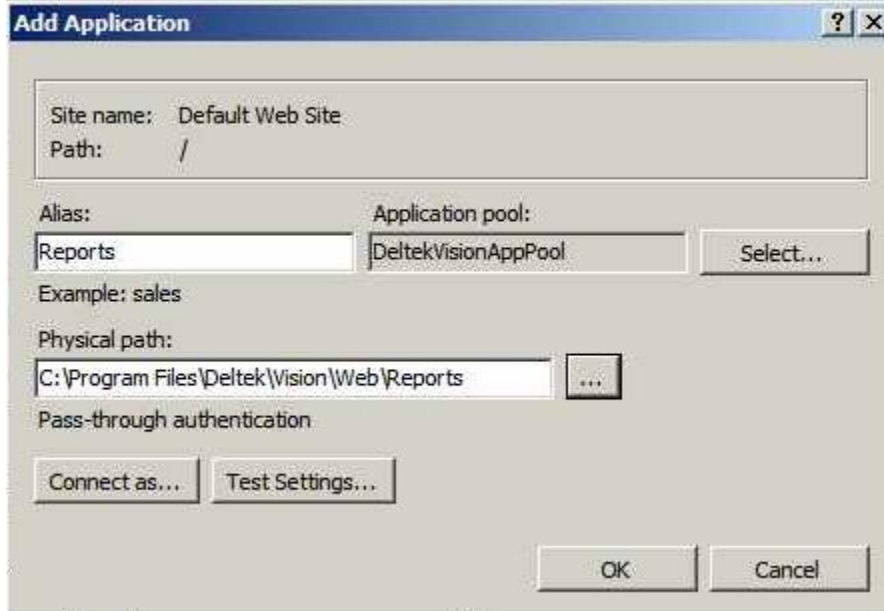
15. Select the ARR\_SSRS Proxy\_loadbalance rule and then click Edit in the Actions menu.



16. Modify the Pattern from \* to **\*reports\*** and click Apply. This will ensure that only requests to the “Reports” and “ReportServer” virtual directories will be proxied (you’ll create these virtual directories in the next steps).
17. Open Windows Explorer and create two folders under <drive>:\Program Files\Deltek\Vision\Web named **Reports** and **ReportServer** (e.g. c:\Program Files\Deltek\Vision\Web\Reports)
18. Next we need to create IIS Applications (virtual directories) to act as the Proxy for the Reports (SQL RS Report Manager) and ReportServer (SQL RS web service).
- In IIS Manager, expand Sites.
  - Right click Default Web Site and select Add Application.

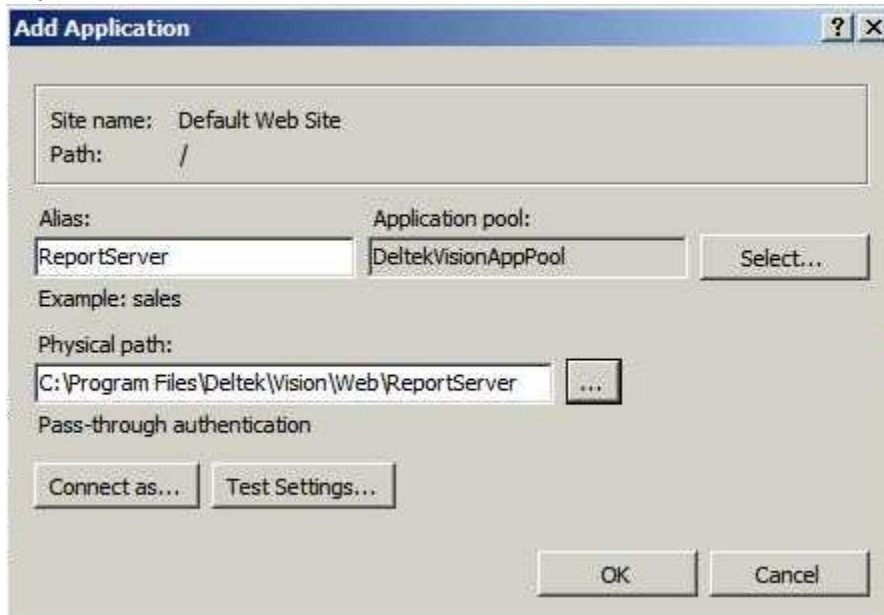


- c. Enter Reports for the Alias, then configure it to use the DeltekVisionAppPool and enter (or browse to) the physical path you created in step 17.



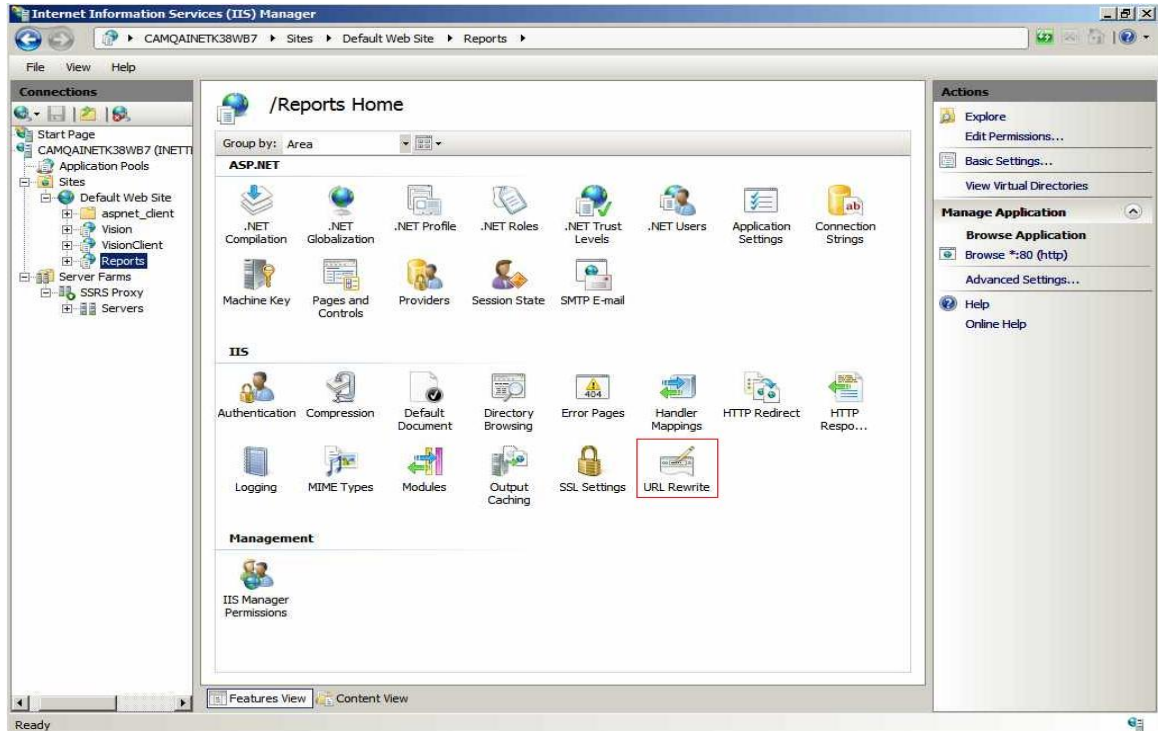
The screenshot shows the 'Add Application' dialog box. The 'Site name' is 'Default Web Site' and the 'Path' is '/'. The 'Alias' field contains 'Reports'. The 'Application pool' is set to 'DeltekVisionAppPool'. The 'Physical path' is 'C:\Program Files\Deltek\Vision\Web\Reports'. There are buttons for 'Connect as...', 'Test Settings...', 'OK', and 'Cancel'.

- d. Click OK to create the Reports Application.
- e. Create an IIS Application to act as the Proxy for Report Manager.
- f. In IIS Manager, expand Sites.
- g. Right click Default Web Site and select Add Application.
- h. Enter ReportServer for the Alias, then configure it to use the DeltekVisionAppPool and enter (or browse to) the physical path you created in step 17.

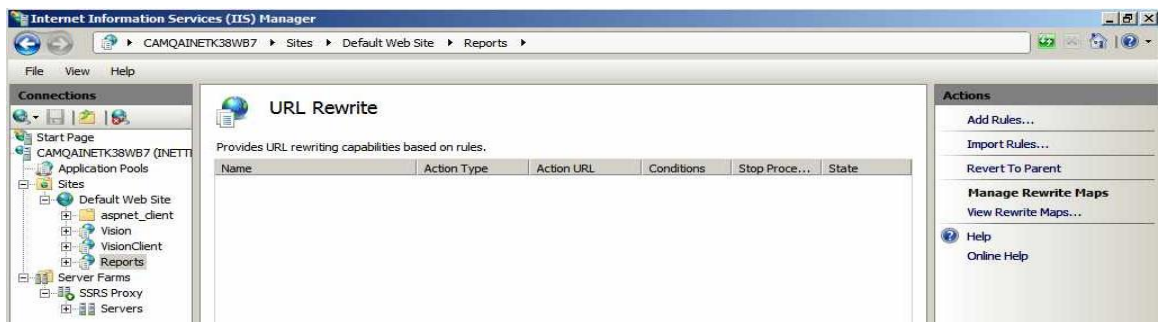


The screenshot shows the 'Add Application' dialog box. The 'Site name' is 'Default Web Site' and the 'Path' is '/'. The 'Alias' field contains 'ReportServer'. The 'Application pool' is set to 'DeltekVisionAppPool'. The 'Physical path' is 'C:\Program Files\Deltek\Vision\Web\ReportServer'. There are buttons for 'Connect as...', 'Test Settings...', 'OK', and 'Cancel'.

19. Next, we need to add Rewrite Rules for each virtual directory.
  - a. Click the Reports Application under Default Web Site.

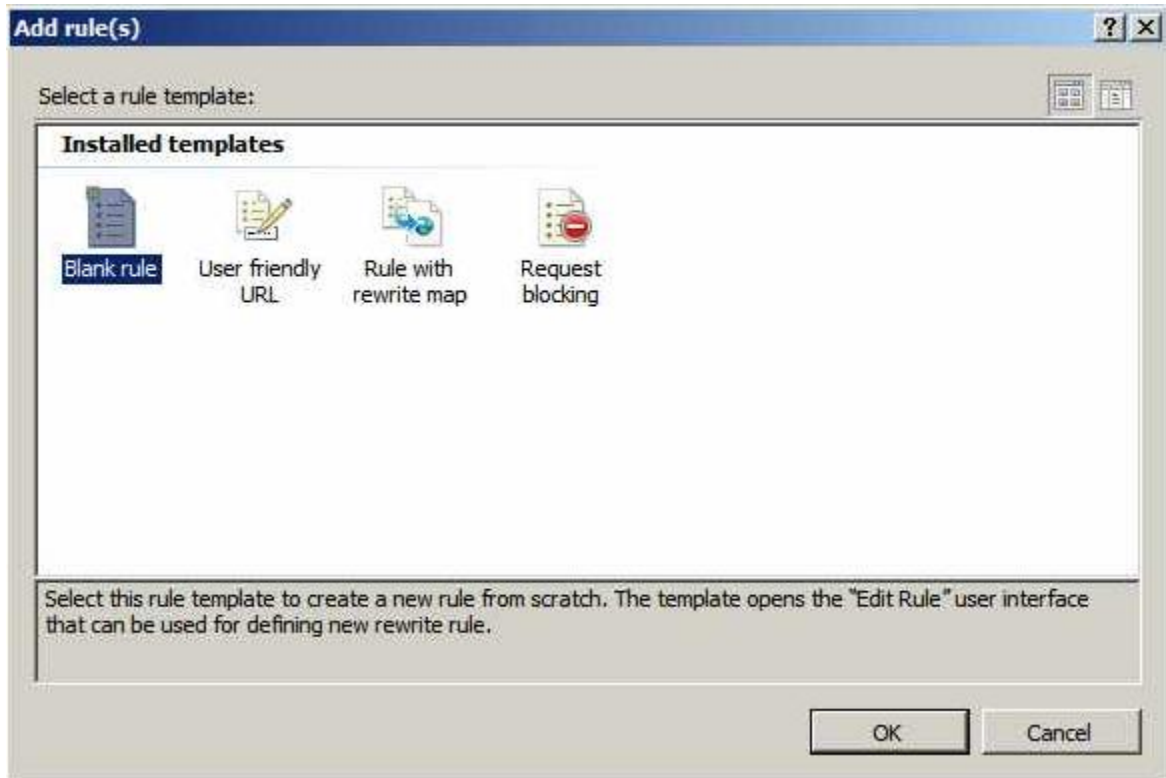


- b. Double click URL Rewrite.



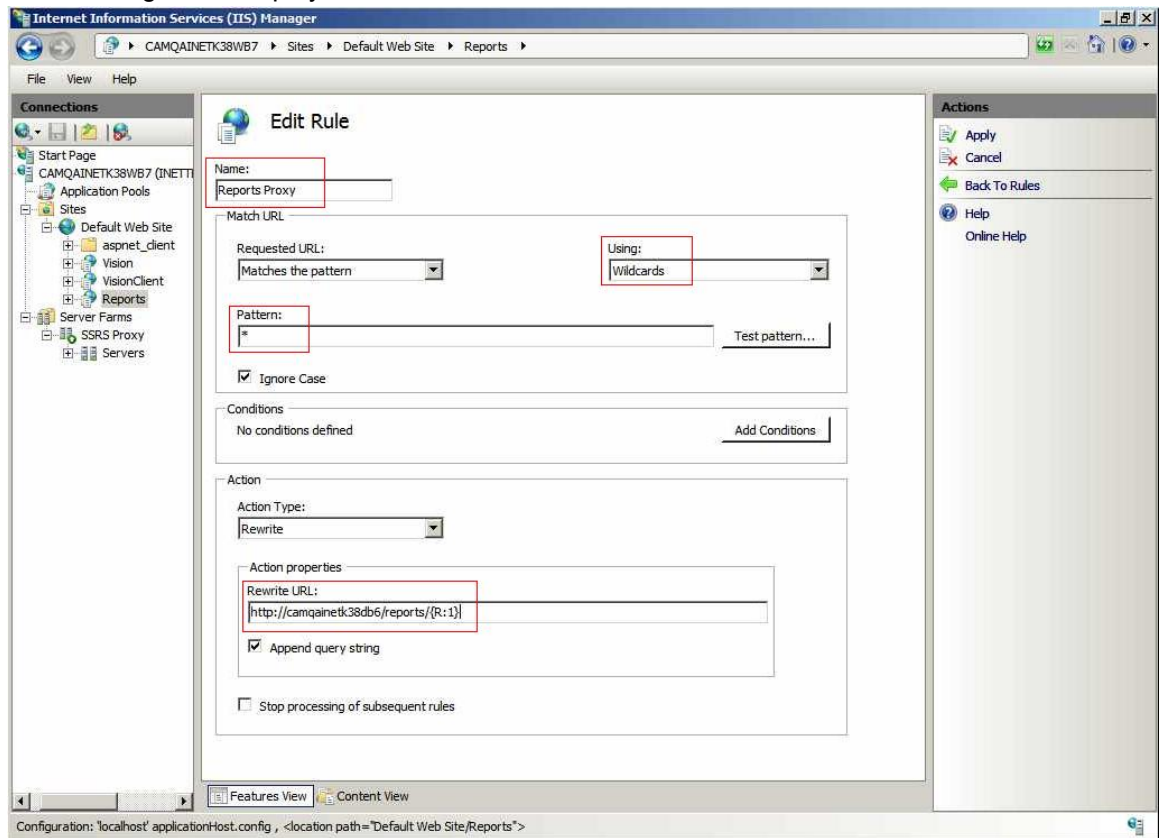
- c. Click Add Rules in the Actions menu.

- d. Select Blank Rule and click OK.



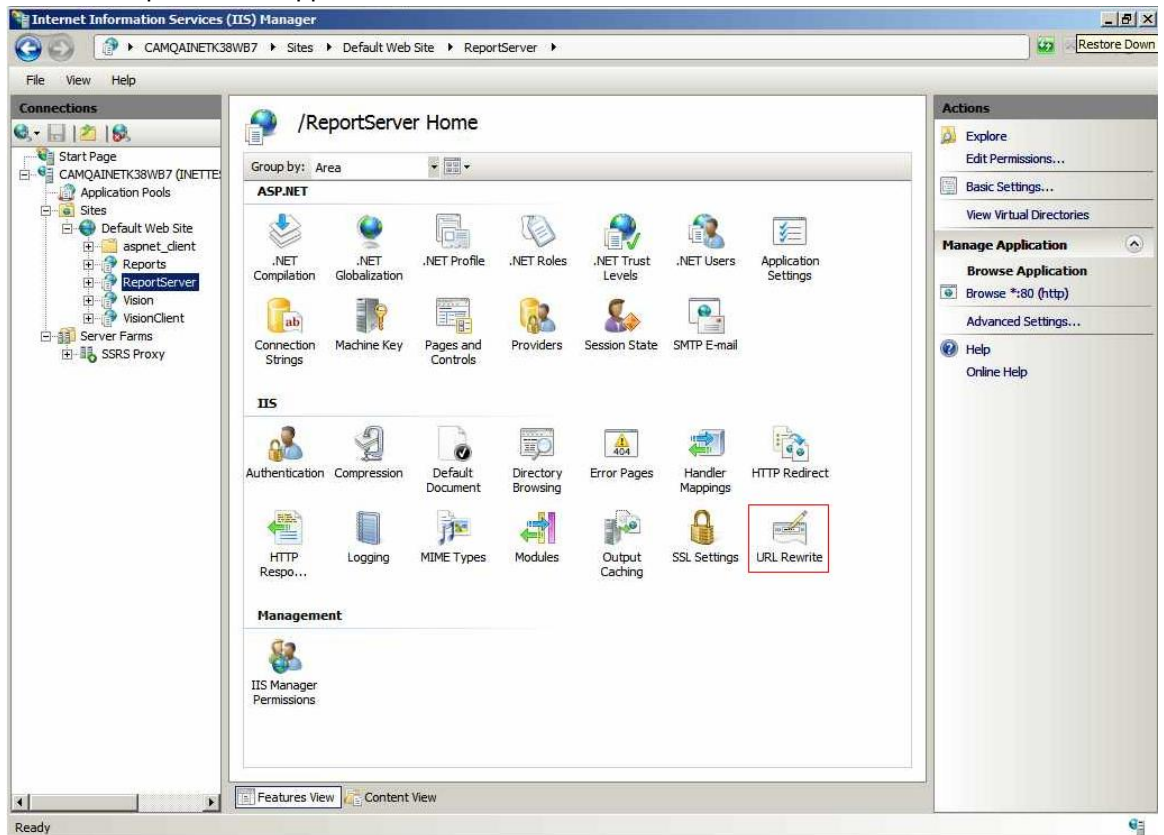
- e. Enter the following information in the Edit Rule dialog:
- Name** – Reports Proxy
  - Match URL Using** – Wildcard
  - Pattern** - \*
  - Rewrite URL** – <http://<ReportServer>/Reports/{R:1}> (Replace <ReportServer> with the name of the server hosting your SQL Reporting Services instance).

These changes are displayed in the screenshot below:

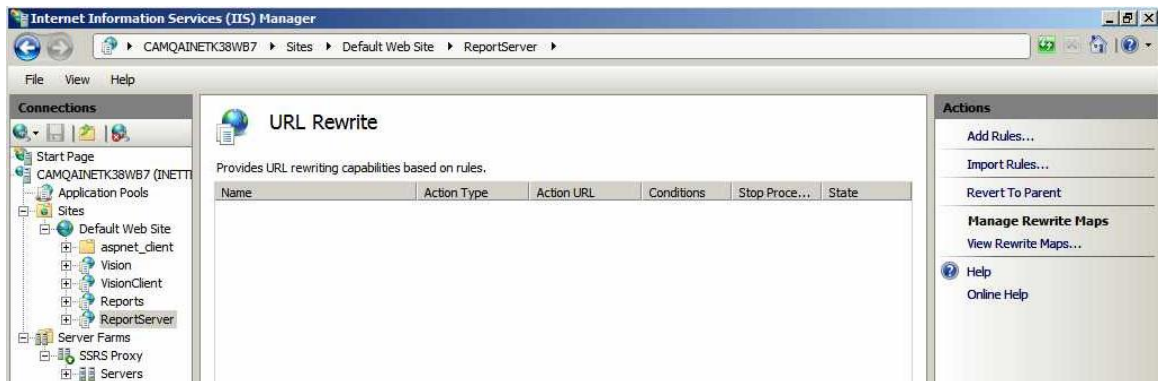


- f. Click Apply when edits are complete.
- g. Repeat steps 27 to 32 for the ReportServer virtual directory.

- h. Click the ReportServer Application under Default Web Site.

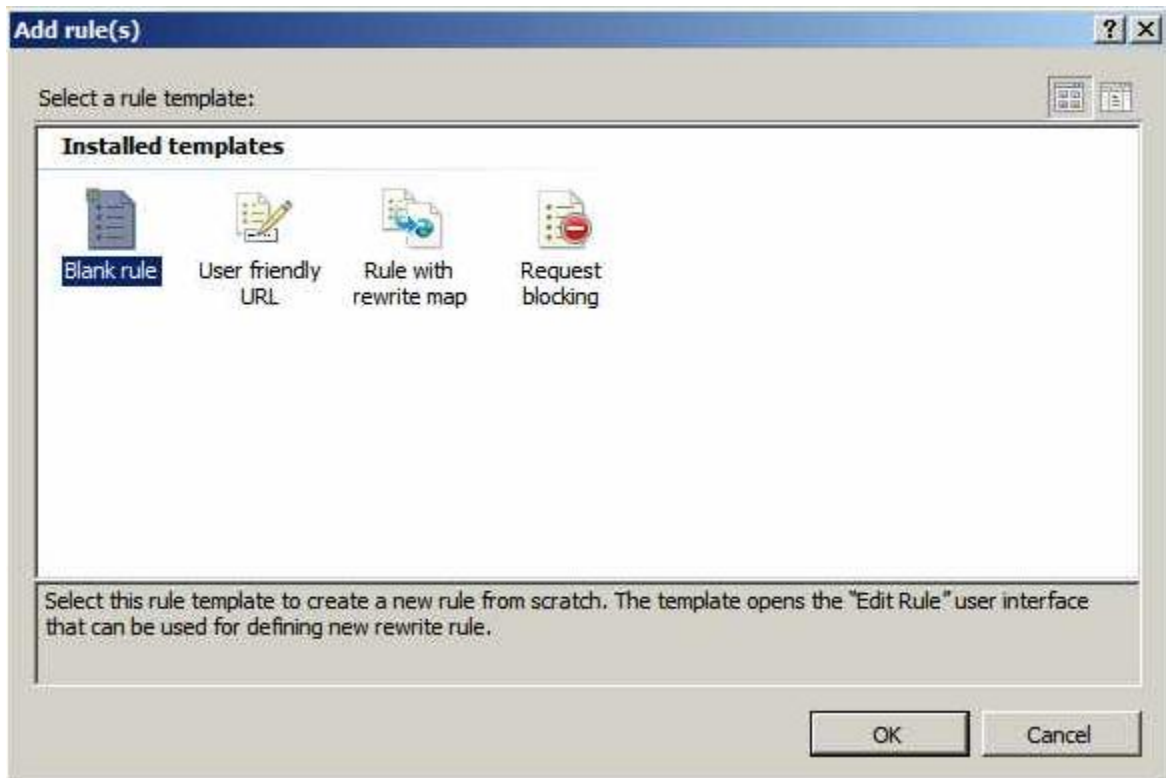


- i. Double click URL Rewrite.



- j. Click Add Rules in the Actions menu.

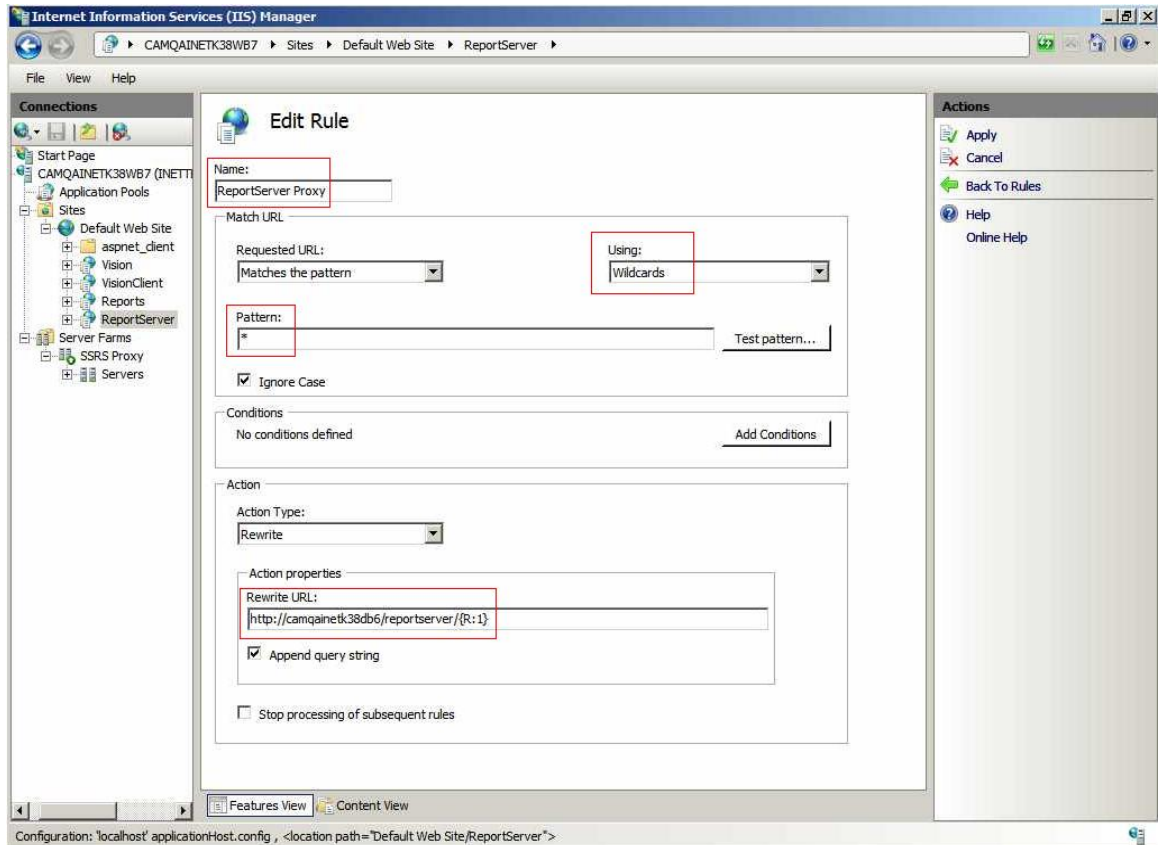
- k. Select Blank Rule and click OK.



- l. Enter the following information in the Edit Rule dialog:
- Name** – ReportServer Proxy
  - Match URL Using** – Wildcard
  - Pattern** - \*
  - Rewrite URL** – <http://<ReportServer>/ReportServer/{R:1}> (Replace <ReportServer> with the name of the server hosting your SQL Reporting Services instance).

These changes are displayed in the screenshot below:

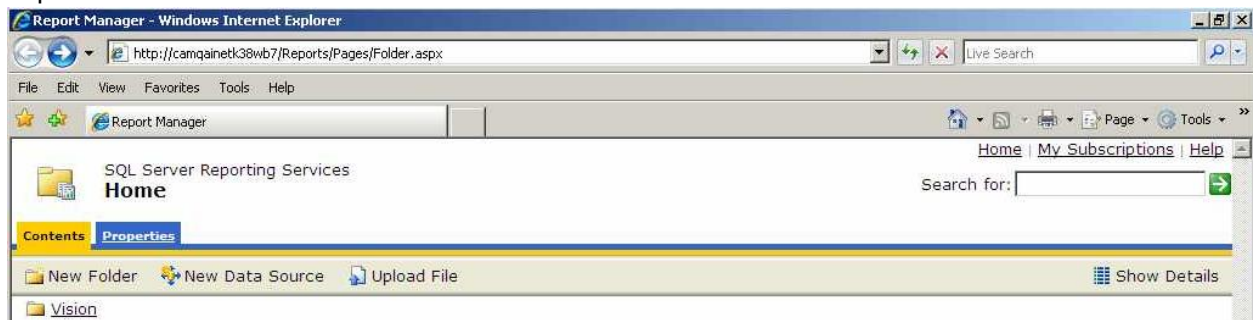




20. At this point you should be able to test the proxy server as follows:

Open Internet Explorer and browse to the following URLs. If ARR has been configured properly your request will be proxied to the SQL Reporting Services server:

<http://<VisionServer>/Reports> (replace <VisionServer> with the name of your Vision Web/Application Server). You should see the Report Manager web application on your Report Server:



<http://<VisionServer>/ReportServer> (replace <VisionServer> with the name of your Vision Web/Application Server). You should see the Report Server web application on your Report Server:





## Configure Vision to Use the Reverse Proxy

Once ARR is configured, complete the following steps to modify Weblink to use the Reverse Proxy.

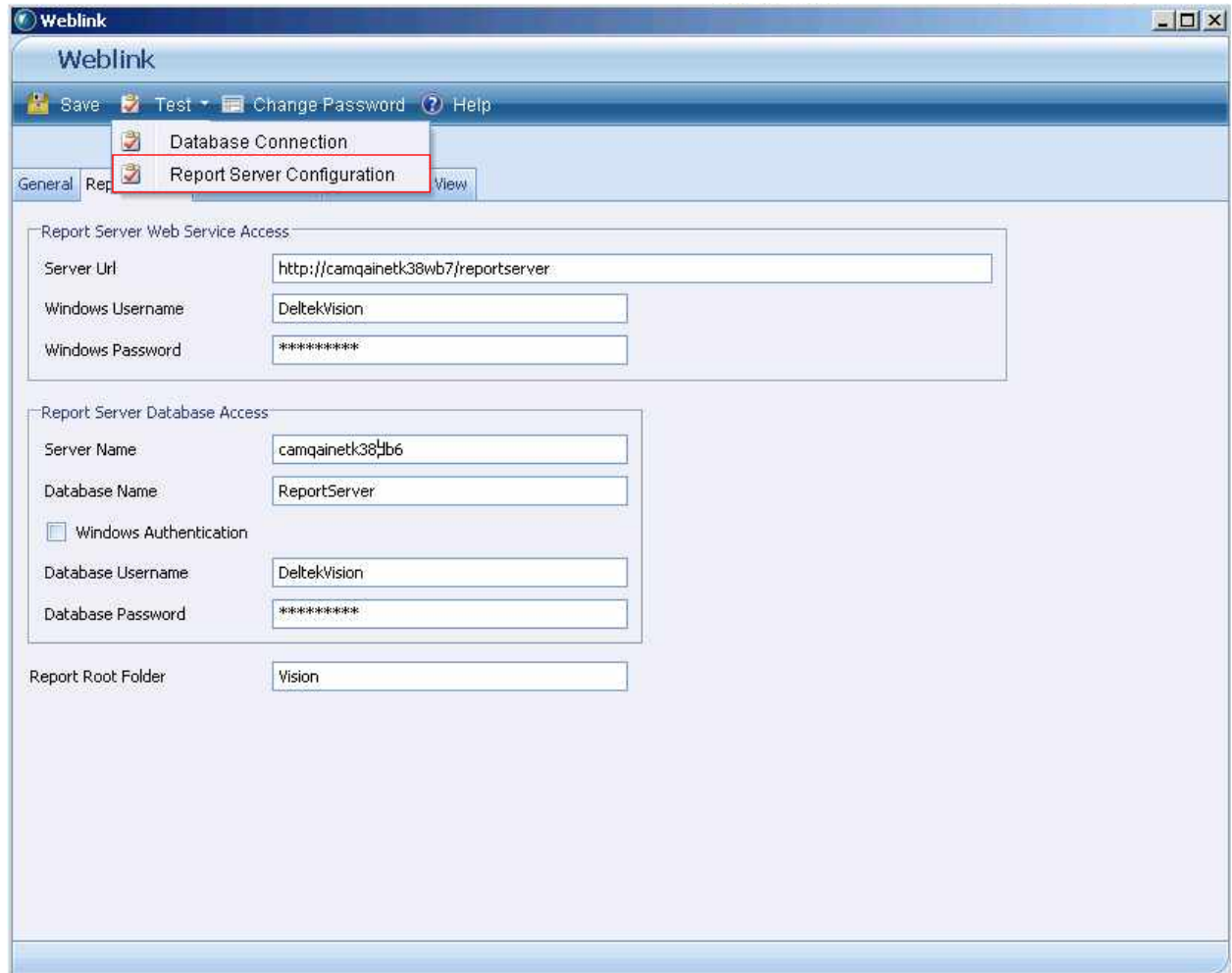
1. Open Weblink via Start -> All Programs -> Deltek Vision if on the Web/Application server or via <http://<VisionWebServer>/Vision/Weblink.htm>
2. Enter the password to access Weblink.
3. Click the Report Server tab and modify the Server URL to be the URL to access the new ReportServer virtual directory you created on the Vision Web Server in step 26 above.
4. Typically, the Server URL is in the form <http://<ReportServer>/ReportServer> - change this to <http://<VisionServer>/ReportServer>. No additional changes are necessary to the Weblink configuration. Make sure to change all databases that will use the reverse proxy.

The screenshot shows the 'Weblink' application window with the 'Report Server' tab selected. The 'Report Server Web Service Access' section has the 'Server Url' field highlighted with a red box, containing the value 'http://camqainetk38wb7/reportserver'. Below this, the 'Windows Username' is 'DeltekVision' and the 'Windows Password' is masked with asterisks. The 'Report Server Database Access' section shows 'Server Name' as 'camqainetk38wb6', 'Database Name' as 'ReportServer', and 'Windows Authentication' is unchecked. The 'Database Username' is 'DeltekVision' and the 'Database Password' is masked. The 'Report Root Folder' is 'Vision'.

**NOTE:** It is expected that you will be securing the Vision Web server with an SSL certificate. In this configuration, it is not necessary to secure the SQL Reporting Services server with an SSL certificate so the URL entered above should be http, not https. The

proxy server will handle the forwarding of the https traffic to http.

5. Test the Report Server configuration by clicking Test -> Report Server Configuration.



The screenshot shows the Weblink application window. The title bar says 'Weblink'. The menu bar includes 'Save', 'Test', 'Change Password', and 'Help'. The 'Test' menu is open, showing 'Database Connection' and 'Report Server Configuration'. The 'Report Server Configuration' option is highlighted with a red box. The 'Report Server Configuration' dialog box is open, showing the following fields:

- Report Server Web Service Access:
  - Server Url:
  - Windows Username:
  - Windows Password:
- Report Server Database Access:
  - Server Name:
  - Database Name:
  - ☐ Windows Authentication
  - Database Username:
  - Database Password:
- Report Root Folder:

6. Once the configuration tests successfully, save your changes.

## Troubleshooting

### Configuration Issues

The following provide common errors and their solutions:

#### **HTTP 404 when accessing Vision**

Make sure Load Balancing rule is configured to only work with \*reports\*

#### **HTTP 400 – The request cannot be routed because it has reached the Max-Forwards limit.**

Make sure SSRS server has been added to the Server Farm configuration

#### **HTTP 502 - Web server received an invalid response while acting as a gateway or proxy server.**

Make sure the Proxy configuration under Server Farm has the “Reverse rewrite host in response headers” is checked.

## Resources

### Application Request Routing (ARR) Documentation

See the following Websites to obtain more AAR Documentation:

<http://www.iis.net/extensions/ApplicationRequestRouting>

<http://technet.microsoft.com/en-us/library/dd443531.aspx>

<http://learn.iis.net/page.aspx/482/install-application-request-routing/>

