

IIS Load Balancing with Application Request Routing

Overview

Application Request Routing (ARR) is an extension to Internet Information Server (IIS), which enables an IIS server to function as a load balancer. With ARR, an IIS server can be configured to route incoming requests to one of multiple web servers using one of several routing algorithms. By load balancing requests, high availability of web servers can be achieved without incurring the typically-high costs of dedicated load balancing products.

ARR is currently available in version 3.0, released on July 26, 2013. The current version is supported in x86 and x64, and can be installed on IIS 7.0 or later (Windows 2008 or later). ARR is available as a download from Microsoft's download center, or via Microsoft's Web Platform Installer (WebPI).

ARR requires the URL Rewrite extension to function, and uses it for routing requests. ARR can be configured to redirect traffic based on server variables, URLs, cookies and more, and performs full layer 7 load balancing. ARR's functionality can be described as a load balancing and reverse proxy, although it is not as advanced as some dedicated reverse proxy products such as Microsoft UAG and dedicated load balancing solutions.

Installing ARR

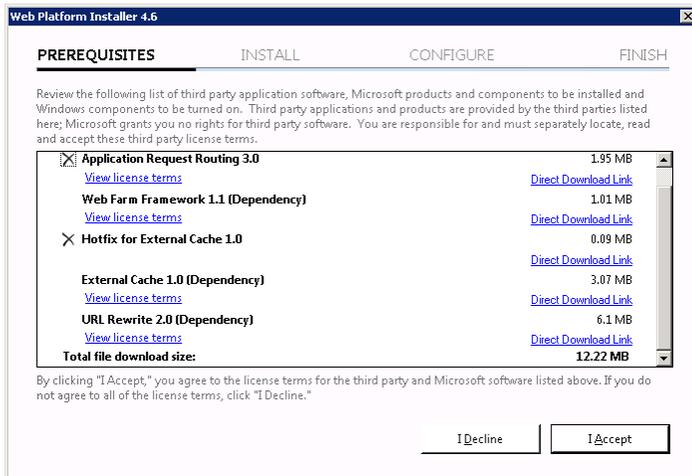
Note that ARR is dependent on several components. Use the Microsoft Web Platform Installer to install ARR and it will install all its dependent components in the appropriate order. The ARR and its dependent components should be installed in the following order if they are being installed manually:

- Web Farm Framework
- External Cache module
- URL Rewrite
- ARR

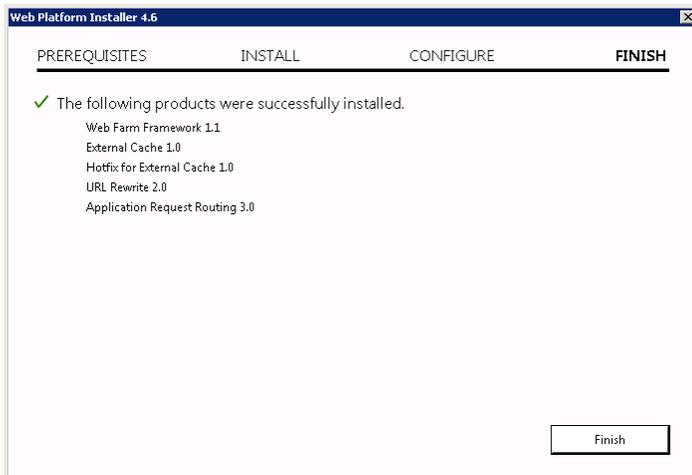
Download and run the Microsoft Web Platform Installer (<http://www.microsoft.com/web/downloads/platform.aspx>).

- Run the download Web Platform Installer (wpilauncher.exe)
- Type 'ARR' in the search area and then click the search icon
- Click **Add** next to 'Application Request Routing 3.0' and then click **Install**
- Click **I Accept** to continue

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Click **Finish** to close the dialog



Click **Exit** to close Web Platform Installer

Example: Setup ARR with 'round robin' load balancing

ARR supports several load balancing options including weighted round robin, weighted total traffic, least current request, least response time, server variable hash, query string hash and request hash. This example illustrates the 'round robin' option.

Prerequisite:

Setup two application servers with the same web applications.

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Configure Default Application Pool process model for ARR

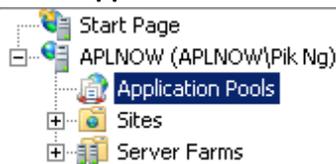
All HTTP requests and responses for the content sites go through Application Request Routing. Given this, you would want the worker process of Default Web Site on Application Request Routing to always be running regardless of whether the worker processes for some of the sites are running or not.

In this step, you will disable the Idle Time-Out under application pool process model for Default Web Site.

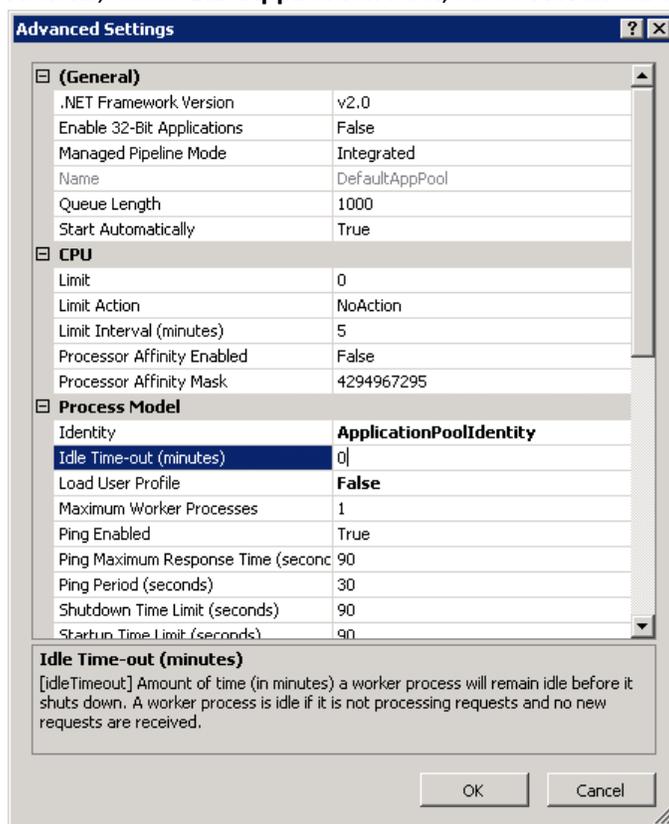
Launch IIS Manager.

Select and expand the root of the server.

Select **Application Pools**.



By default, **DefaultAppPool** is the corresponding application pool for **Default Web Site**. Under **Actions**, under **Edit Application Pool**, select **Advanced Settings....**



Change the **Idle Time-out (minutes)** to 0 to disable the setting. Click **OK** to save the changes.

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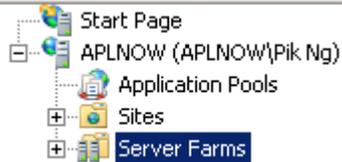
Define and Configure an ARR Server Group

Create a server farm in ARR

Launch IIS Manager.

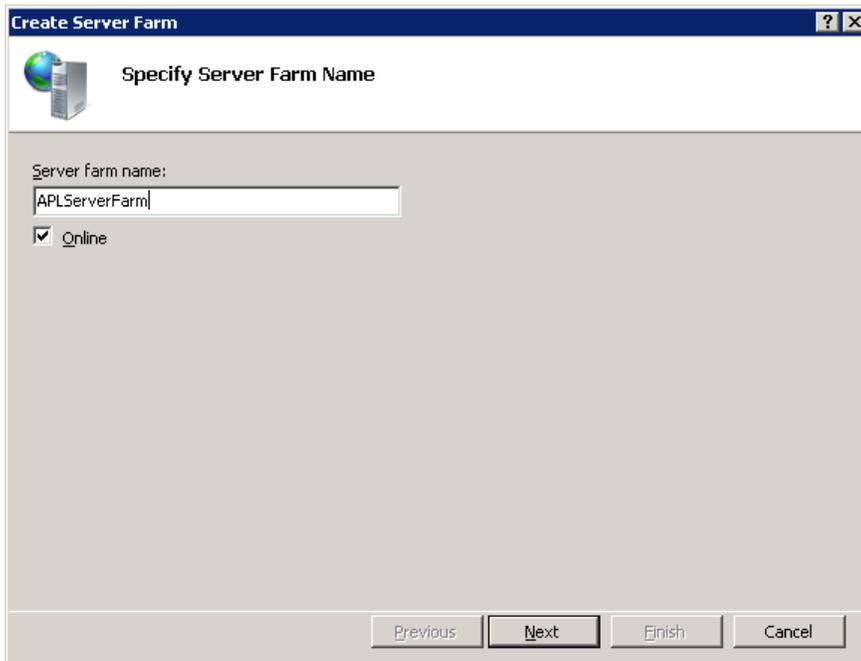
Select and expand the root of the server.

Select **Server Farms**.



Under **Actions**, select **Create Server Farm...**

Enter a name for the server farm. In the example below, **APLServerFarm** is the name of the server farm. Click **Next**.

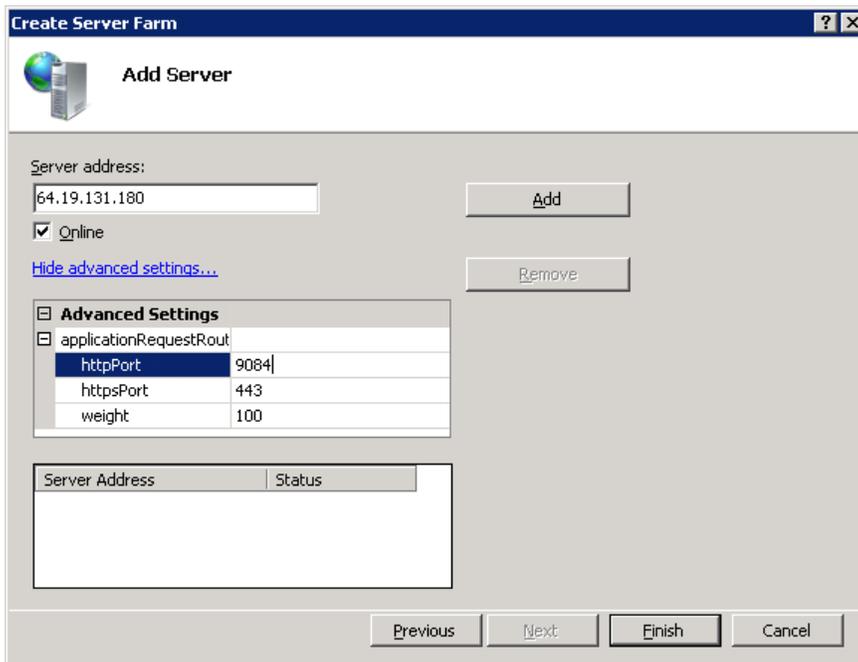


On the Add Server page, you can add as many application servers as needed. Note that the properties of the application server cannot be changed/viewed once it's added. If changes are needed then the application server must be deleted first and then added again.

Enter the server address (it could be the server ip address or domain name).

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Click the [Advanced settings...](#) to configure the HTTP and HTTPS ports to non-standard ports if needed:



Click **Add** to add the server.

Repeat the prior steps to add the additional application servers.

Click **Finish** to create the server farm with the entered application servers as the server farm members.

Click **No** to create a URL rewrite rule.



Configure server farm properties for ARR

Select the server farm, APLServerFarm. The following icons are shown:



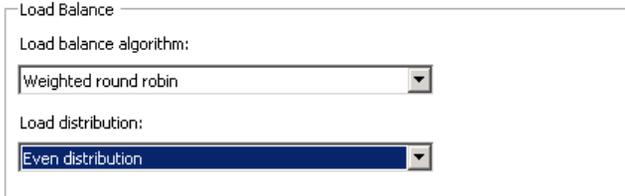
Double click **Load Balance**.

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Select **Weighted round robin** from the Load Balance algorithm drop-down list, and then click **Apply** under **Actions**. Note that there are other Load Balance algorithm options you might want to investigate.

Load Balance

Use this feature to configure which load balance algorithm Application Request Routing should use.

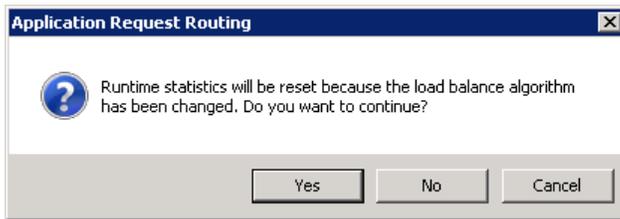


Load Balance

Load balance algorithm:
Weighted round robin

Load distribution:
Even distribution

Click **Yes**.

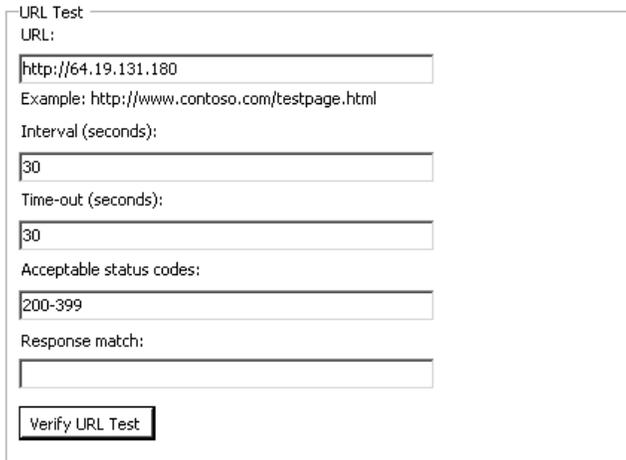


Select the server farm, APLServerFarm, and double click **Health Test**.

ARR can be configured to send a GET request to a URL to determine the health of the servers. Type the **URL** that should be tested by ARR. Click **Apply** under **Actions** to save changes.

Health Test

Use this feature to configure how Application Request Routing should test for the health of content servers.



URL Test

URL:
http://64.19.131.180
Example: http://www.contoso.com/testpage.html

Interval (seconds):
30

Time-out (seconds):
30

Acceptable status codes:
200-399

Response match:

Verify URL Test

Select the server farm, APLServerFarm, and double click **Routing Rules**.

Verify that the **Use URL Rewrite to inspect incoming requests** checkbox is checked.

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Routing Rules

Use this feature to define simple URL Rewrite rules in Application Request Routing. For advanced scenarios, follow the URL Rewrite link.

Routing

Use URL Rewrite to inspect incoming requests

Enable SSL offloading

Requests with the following extensions are not forwarded:

Example: *.jpg, *.css, *.gif

Requests with the following patterns are not forwarded:

Example: /images/*, */templates/*

SSL offloading is enabled by default. When this feature is enabled, all communication between the ARR server and the application servers are done in clear text, even for HTTPS requests from clients to the ARR server. When both the ARR server and the application servers are deployed within a trusted network, such as within the same datacenter, enabling SSL offloading does not sacrifice security. Also, enabling this feature can further help to maximize the server resources on the application servers, since they do not have to spend cycles in encrypting and decrypting requests and responses.

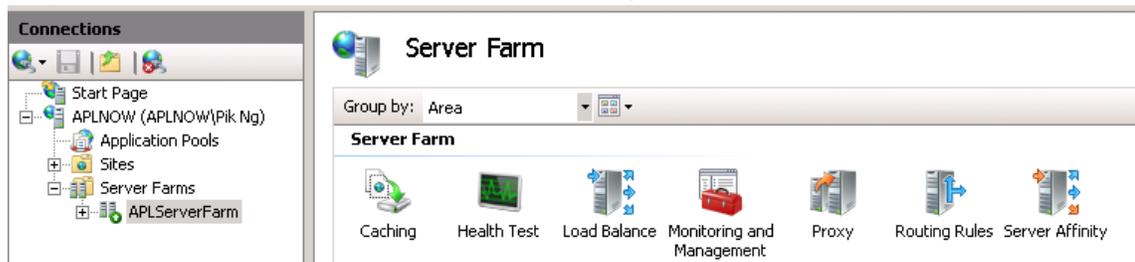
To disable SSL offloading, uncheck the **Enable SSL offloading** checkbox. Click **Apply** under **Actions**.

Monitoring the ARR Server Group

Launch IIS Manager.

Select and expand the root of the server.

Select the server farm, APLServerFarm. The following icons are shown:



Double click **Monitoring and Management**.

View the runtime statistics to verify the requests are being load balanced equally between the application servers.

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Monitoring and Management

Use this feature to view the runtime statistics of Application Request Routing. Use Actions to manage the content servers.

Group by: No Grouping

Server	Availab...	Health...	Req...	Res...	Cur...	Total...	Fail...	Re...	Reques...	Re...	Load B...
64.19.131.179	Available	Healthy	0	59	0	5	0	3.01	50.00 %	2.55	50.00 %
64.19.131.180	Available	Healthy	0	49	0	5	0	3.14	50.00 %	2.61	50.00 %

Since: 2/24/2014 12:53:22 PM

Filter by Host Name: Go Show All

Disk Cache Statistics

Requests (Total: 10)

0.00 % hit ratio

0 cache hit requests

Response Size (Total: 0.01 MB)

0.00 % bandwidth savings

0.00 MB cache hit

Since: 2/24/2014 12:53:22 PM

More Information

- [MSDN ARR Documentation](#)
- [Microsoft ARR Download](#)
- [Wikipedia ARR Info](#)