Deployment Guide

Deploying Microsoft Internet Information Services with the BIG-IP System

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Introducing the Microsoft IIS deployment guide

F5's BIG-IP system can increase the existing benefits of deploying Microsoft's Internet Information Services (IIS) to provide enterprises, managed service providers, and e-businesses an easy-to-use solution for deploying, managing and securing global and local area traffic.

BIG-IP version 9 adds a number of ways to accelerate and optimize Microsoft IIS deployments, with features such as Intelligent Compression and Fast Caching. For general information on these features and the interoperability of F5 products and Microsoft IIS, see the **Microsoft IIS Application Ready Network Guide.**

Prerequisites and configuration notes

All of the procedures in this Deployment Guide are performed on the BIG-IP system. The following are prerequisites for this solution:

◆ We recommend the lastest version of Microsoft IIS. This Deployment Guide has been tested with IIS 6.0.

◆ For this Deployment Guide, the BIG-IP system must be running version 9.0 or later.

  • For certain *optional* optimization features, the appropriate module must be licensed (such as compression and caching) and in some cases (like caching) the BIG-IP system must be running version 9.0.5 or later.

Configuration example

Using the configuration in this guide, the BIG-IP system is optimally configured to direct traffic to and optimize IIS servers. Figure 1 shows a typical configuration with a redundant pair of BIG-IP devices in front of IIS servers. This Deployment Guide contains a number of ways to optimize and accelerate IIS deployments.
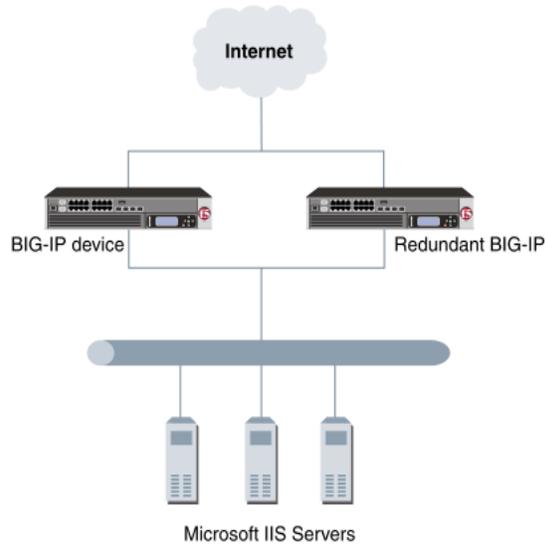
Figure 1 *Example Configuration with a redundant BIG-IP system and Microsoft IIS servers*

Configuring the BIG-IP for load balancing IIS Servers

To configure the BIG-IP product to load balance IIS Servers, you need to complete the following tasks:

- *Creating the HTTP health monitor*
- *Creating the pool*
- *Creating profiles*
- *Creating the virtual server*

Creating the HTTP health monitor

The first step is to set up health monitors for the IIS devices. This procedure is optional, but very strongly recommended. We configure the health monitors first in version 9.0 and later, as health monitors are now associated during the pool configuration.

For this configuration, we use an HTTP Extended Content Verification (ECV) monitor, which checks nodes (IP address and port combinations), and can be configured to use **send** and **recv** statements in an attempt to retrieve explicit content from nodes.

To configure a health monitor from the BIG-IP Configuration utility

1. On the Main tab, expand **Local Traffic**, and then click **Monitors**. The Monitors screen opens.

2. Click the **Create** button. The New Monitor screen opens.

3. In the **Name** box, type a name for the Monitor. In our example, we type **iis_http_monitor**.

4. From the **Type** list, select **http**. The HTTP Monitor configuration options appear.

5. In the Configuration section, in the **Interval** and **Timeout** boxes, type an Interval and Timeout. We recommend at least a 1:3 +1 ratio between the interval and the timeout (for example, the default setting has an interval of **5** and an timeout of **16**). In our example, we use a **Interval** of **30** and a **Timeout** of **91** (see Figure 2).

6. In the Send String and Receive Rule sections, you can add a Send String and Receive Rule specific to the device being checked.
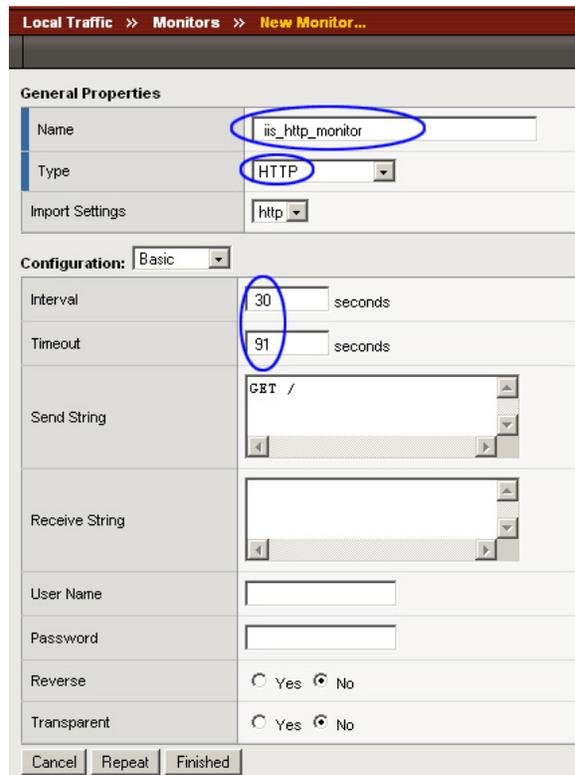
Figure 2 Creating the HTTP Monitor

7. Click the **Finished** button.
    The new monitor is added to the Monitor list.

Creating the pool

The first step is to define a load balancing pool for the IIS servers. A BIG-IP pool is a set of devices grouped together to receive traffic according to a load balancing method. This pool uses the monitor you just created.

1. On the Main tab, expand **Local Traffic**.

2. Click **Pools**.
    The Pool screen opens.

3. In the upper right portion of the screen, click the **Create** button.
    The New Pool screen opens.

    *Note: For more (optional) pool configuration settings, from the Configuration list, select **Advanced**. Configure these settings as applicable for your network.*

4. In the **Name** box, type a name for your pool.
   In our example, we use **Microsoft_http_pool**.

5. In the **Health Monitors** section, select the name of the monitor you created in the *Creating the HTTP health monitor* section, and click the Add (**<<**) button. In our example, we select **iis_http_monitor**.

6. From the **Load Balancing Method** list, choose your preferred load balancing method (different load balancing methods may yield optimal results for a particular network).
   In our example, we select **Least Connections (member)**.

7. In this pool, we leave the Priority Group Activation **Disabled**.

8. In the New Members section, make sure the **New Address** option button is selected.

9. In the **Address** box, add the first server to the pool. In our example, we type **10.0.0.1**

10. In the **Service Port** box, type the **80**, or select **HTTP** from the list.

11. Click the **Add** button to add the member to the list.

12. Repeat steps 9-11 for each server you want to add to the pool.
    In our example, we repeat these steps three times for the remaining servers, **10.0.0.2** and **.3** (see Figure 3).

13. Click the **Finished** button.
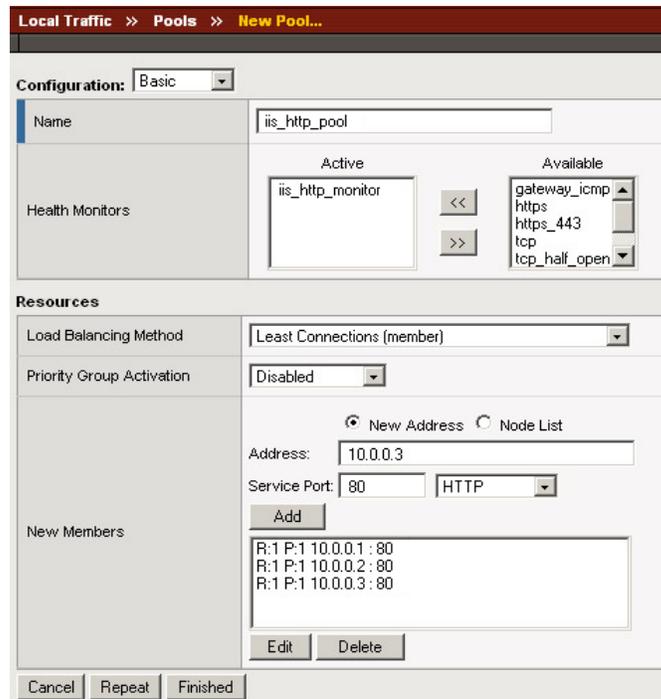
Fig 3

Creating profiles

BIG-IP version 9.0 and later use profiles. A *profile* is an object that contains user-configurable settings, with default values, for controlling the behavior of a particular type of network traffic, such as HTTP connections. Using profiles enhances your control over managing network traffic, and makes traffic-management tasks easier and more efficient.

Although it is possible to use the default profiles, we strongly recommend you create new profiles based on the default parent profiles. Creating new profiles allows you to easily modify the profile settings specific to this deployment, and ensures you do not accidentally overwrite the default profile.

For this configuration, we create two new profiles: an HTTP profile and a cookie persistence profile.

There is an optional profile (TCP) and additional configuration steps if you want to optimize the BIG-IP system for IIS deployments. These optional portions of the configuration will be clearly marked with *Optional Optimization:*

Creating an HTTP profile

The first new profile we create is an HTTP profile. In our example, we leave all the options at their default settings, unless you are configuring the optimized deployment. The HTTP profile is where the optional Intelligent Compression and Fast Cache configuration options are located (modules which must be licensed on your BIG-IP system). If you have not licensed the modules, you will not see the options described in the procedures. Fast Cache is only available in version 9.0.5 and later.

◆ Note

The following procedure shows one way to optimize the Microsoft IIS configuration that has been tested in real-world scenarios by F5 using the Gomez Performance Network, and shown to give the greatest improvement. These procedures and the specific values given in some steps should be used as guidelines, modify them as applicable to your configuration.

To create a new HTTP profile based on the default HTTP profile

1. On the Main tab, expand **Local Traffic**.

2. Click **Profiles**.
   The HTTP Profiles screen opens.

3. In the upper right portion of the screen, click the **Create** button.
   The New HTTP Profile screen opens.

4. In the **Name** box, type a name for this profile. In our example, we type **iis_http_profile**.

5. From the **Parent Profile** list, ensure that **HTTP** is selected.

Optional Optimization: *The following 8 steps are optional and show one way to optimally configure Compression on the BIG-IP system. If your configuration does not contain compression, skip to Step 14.*

6. In the Settings table, from the **Response Chunking** section, click a check in the Custom box. From the list, select **Unchunk**. This allows for more efficient caching and compression.

7. In the Compression table, from the Compression row, click a check in the Custom box, then select **Enabled** from the list.

8. In the Content list section, we leave the settings at the default level, configure as applicable for your deployment.

9. In the Compression Buffer Size section, click a check in the Custom box. In the **Compression Buffer Size** box, type **131072**.

10. In the gzip Compression Level section, click a check in the Custom box. From the list, select a level of compression suitable to your configuration. For the most compression, select **9 - Most Compression (Slowest)**.

11. In the gzip Memory Level section, click a check in the Custom box. From the list, select **16** kilobytes.

12. In the gzip Window size section, click a check in the Custom box. From the list, select **64** kilobytes.

13. In the HTTP/1.0 Requests section, click a check in the Custom box. Click a check in the box to enable HTTP/1.0 requests.

Optional Optimization: *The following 7 steps are optional and show one way to optimally configure Caching on the BIG-IP system. If your configuration does not include caching on the BIG-IP system, click the* **Finished** *button.*

14. In the RAM Cache table, click a check in the Custom boxes for all the settings except Maximum Entries, URI Caching, Ignore Headers, and Aging Rate.

15. In the Ram Cache section, select **Enabled** from the list.

16. In the Maximum Cache Size section, type **10** in the box.

17. In the Maximum Age section, type **86400** seconds.

18. In the Minimum Object Size section, type **0**.

19. In the Maximum Object Size section, type **2,000,000** bytes.

20. In the Insert Age Header section, select Disabled from the list.

21. Click the **Finished** button.

For more information on creating or modifying profiles, or applying profiles in general, see the BIG-IP documentation.

Creating a cookie persistence profile

The next profile we create is a Cookie Persistence profile. We recommend using the default cookie method for this profile (HTTP cookie insert), but modify other settings, such as specifying a cookie expiration, as applicable for your network.

To create a new cookie persistence profile based on the default profile

1. On the Main tab, expand **Local Traffic**.

2. Click **Profiles**.
   The HTTP Profiles screen opens.

3. On the Menu bar, click **Persistence**.
   The Persistence Profiles screen opens.

4. In the upper right portion of the screen, click the **Create** button.
   The New Persistence Profile screen opens.

5. In the **Name** box, type a name for this profile. In our example, we type **iis_cookie**.

6. From the **Persistence Type** list, select **Cookie**.
   The configuration options for cookie persistence appear.

7. Modify any of the settings as applicable for your network.

8. Click the **Finished** button.

For more information on creating or modifying profiles, or applying profiles in general, see the BIG-IP documentation.

Creating an optional TCP profile

The BIG-IP system's TCP Express feature set provides a number of enhancements and optimizations to TCP handling that enhance end user experience. Configuring a TCP profile is an *Optional Optimization*, use the following procedure only if applicable to your deployment.

To create a TCP profile based on the default profile

1. On the Main tab, expand **Local Traffic**.

2. Click **Profiles**.
   The Profiles screen opens.

3. On the menu bar, from the **Protocol** menu, select **TCP**.
   The TCP Profiles screen opens.

4. Click the **Create** button.
   The New TCP Profile screen opens.

5. In the Name box, type a name for the profile. In our example, we type **iis_tcp**.

6. In the **Parent Profile** list, make sure that **tcp** is selected.

7. In the Configuration table, locate **Proxy Buffer Low**, and click a check in the Custom box on the far right. In the Proxy Buffer Low box, type **131072**.

8. In the **Proxy Buffer High** section, click a check in the Custom box, and in the Proxy Buffer High box, type **131072**.

9. In the **Send Buffer** section, click a check in the Custom box, and in the Send Buffer box, type **65535**.

10. In the **Receive Window** section, click a check in the Custom box, and in the Receive Window box, type **65535**.

11. Click the **Finished** button.
The new profile appears in the TCP profiles list.

Creating the virtual server

The next step in this configuration is to define a virtual server that references the pool and the HTTP and cookie persistence profiles you created in the preceding procedures.

To create the HTTP virtual server using the Configuration utility

1. On the Main tab, expand **Local Traffic**.

2. Click **Virtual Servers**.
The Virtual Server screen opens.

3. In the upper right portion of the screen, click the **Create** button.
The New Virtual Server screen opens.

4. In the **Name** box, type a name for this virtual server. In our example, we type **iis_http_vs**.

5. In the **Destination** section, select the **Host** option button.

6. In the **Address** box, type the IP address of this virtual server. In our example, we use **192.168.10.100**.

7. In the **Service Port** box, type the service port, or select it from the list. In our example, we select **HTTP**.

Figure 4 *General Properties of the add virtual server page*

Optional Optimization: If you configured a TCP profile to optimize your configuration, from the Configuration list, select **Advanced**. From the Client Protocol Profile list, select the name of the TCP profile you created in the *Creating an optional TCP profile* section. In our example, we select **iis_tcp**. Continue with Step 8.

8. In the Configuration section, leave the **Type** list at the default setting: **Standard**.

9. In the HTTP profile section, select the name of the profile you created in the *Creating an HTTP profile* section. In our example, we select **iis_http_profile**.
   Configure the rest of the Configuration section as applicable for your environment.

Figure 5 Configuration properties of the add virtual server page

10. In the Resources section, from the **Default Pool** list, select the pool you created in the *Creating the pool* section. In our example, we select **iis_http_pool**.

11. From the **Default Persistence Profile** list, select the name of the profile you created in the *Creating a cookie persistence profile* section. In our example, we select **iis_cookie** (see Figure 6).

   *Note: The cookie used in cookie persistence Insert mode resides in memory, and is not written to disk.*
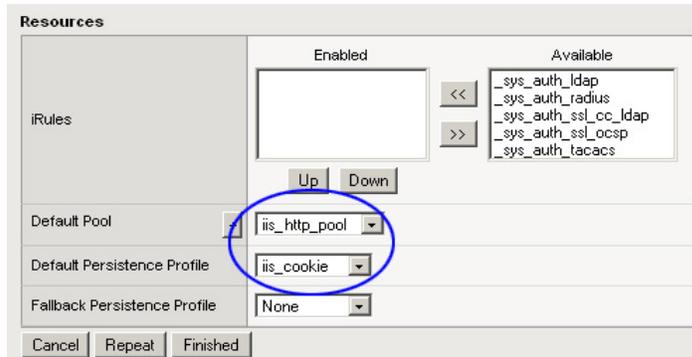
Figure 6 *Resources section of the add virtual server page*

12. Click the **Finished** button.

Synchronizing the BIG-IP configuration if using a redundant system

If you are using a redundant BIG-IP configuration, the final step is to synchronize the configuration to the peer BIG-IP device.

To synchronize the configuration using the Configuration utility

1. On the Main tab, expand **System**.

2. Click **High Availability**.
   The Redundancy screen opens.

3. On the Menu bar, click **ConfigSync**.

4. Click the **Self --> Peer** button.
   The configuration synchronizes with its peer.b