

# Managing the DNS Client Resolver Cache

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Updated: May 9, 2008

Applies To: Windows Server 2008

When a Windows-based Domain Name System (DNS) client receives a successful reply for a query from a DNS server, the client temporarily stores the query results in a cache. When an application (such as Windows Internet Explorer®) submits a request to Windows to resolve a DNS name, Windows checks its local cache for a matching name, and if Windows finds the name in the cache Windows replies to the application using the data in the cache. If the DNS name is not in the cache, Windows forwards the application's query to a DNS server, and when it receives a successful reply it passes the results to the application and stores the results in the cache. Checking the cache before sending the query to a DNS server improves performance, locally within the Windows client and by reducing network traffic between the DNS client and the DNS server.

In addition to containing data that it retrieves from DNS servers, the local DNS client cache can be preloaded with name resolution information that is stored in a file on the client computer. The procedures in this task explain how to manage the DNS client cache by preloading the cache, viewing the contents of the cache, and removing dynamic entries from the cache.

To complete this task, you can perform the following procedures:

- [Preload the DNS Client Resolver Cache](#)

## Preload the DNS Client Resolver Cache

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Applies To: Windows Server 2008

You can use this procedure to preload the Domain Name System (DNS) client resolver cache.

Entries that you add with this procedure are always answered first from the client's local resolver cache. They are not sent to the DNS server when queries are made locally to resolve these names to host (A or AAAA) resource records.

Every line in the Hosts file contains an IP address, followed by one or more host names. For example, you can add a line, such as the following line, with an IP address (10.0.0.1) that maps to more than one DNS host name:

```
10.0.0.1 host-a host-a.example.microsoft.com host-b.example2.microsoft.com
```

Likewise, a single DNS host name can correspond to more than one IP address if each of the addresses is mapped and used in separate lines. For example, you can add lines for the following multihomed or multiaddressable DNS host computer:

```
10.0.0.1 host-a.example.microsoft.com
10.0.0.2 host-a.example.microsoft.com
10.0.0.3 host-a.example.microsoft.com
```

When multiple names or IP addresses are used in the Hosts file, the DNS Client service must be running for all entries to be returned or used in answering queries. If the DNS Client service is not running, only the first entry in the file is used to resolve the query.

Membership in **Administrators**, or equivalent, is the minimum required to complete this procedure. Review details about using the appropriate accounts and group memberships at [Local and Domain Default Groups](http://go.microsoft.com/fwlink/?LinkId=83477) (<http://go.microsoft.com/fwlink/?LinkId=83477>).

### [To preload the DNS client resolver cache](#)

1. Open a command prompt. To open an elevated Command Prompt window, click **Start**, point to **All Programs**, click **Accessories**, right-click **Command Prompt**, and then click **Run as administrator**.

At the command prompt, type the following command, and then press ENTER:

```
notepad %systemroot%\system32\drivers\etc\hosts
```

2. Using the default entry in the file (a mapping for the local host to the loopback IP address, 127.0.0.1), add additional host-name-to-address mappings on separate lines to be preloaded into the resolver cache of the client. For example, you might add:

```
10.0.0.1 host-a host-a.example.microsoft.com
```

3. On the **File** menu, click **Save**, and then **Exit**.
4. As an option, you can verify that your changes have been updated in the resolver cache by viewing its contents.

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- [View the DNS Client Resolver Cache](#)

## View the DNS Client Resolver Cache

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You can use the **ipconfig /displaydns** command to view the contents of the Domain Name System (DNS) client resolver cache. The cache includes entries that are preloaded from the local Hosts file, as well as any recently obtained resource records for name queries that were resolved by the system. The DNS Client service uses this information to quickly resolve frequently queried names before it queries its configured DNS servers.

When you use the **ipconfig /displaydns** command to display current resolver cache contents, the resultant output generally includes the local host and loopback IP address (127.0.0.1) mappings. This is because these mappings typically exist in the default (unmodified) contents of the local Hosts file.

You do not need administrative credentials to perform this procedure. Therefore, as a security best practice, consider performing this task as a user without administrative credentials.

### [To view a DNS client resolver cache](#)

- Open a command prompt. To open an elevated Command Prompt window, click **Start**, point to **All Programs**, click **Accessories**, right-click **Command Prompt**, and then click **Run as administrator**.

At the command prompt, type the following command, and then press ENTER:

```
ipconfig /displaydns
```

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- [Flush and Reset the DNS Client Resolver Cache](#)

## Flush and Reset the DNS Client Resolver Cache

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You can use the **ipconfig /flushdns** command to flush and reset the contents of the Domain Name System (DNS) client resolver cache. During DNS troubleshooting, if necessary, you can

use this procedure to discard negative cache entries from the cache, as well as any other dynamically added entries.

Resetting the cache does not eliminate entries that are preloaded from the local Hosts file. To eliminate those entries from the cache, remove them from this file.

Membership in **Administrators**, or equivalent, is the minimum required to complete this procedure. Review details about using the appropriate accounts and group memberships at [Local and Domain Default Groups](http://go.microsoft.com/fwlink/?LinkId=83477) (http://go.microsoft.com/fwlink/?LinkId=83477).

### **To flush and reset a client resolver cache**

- Open a command prompt. To open an elevated Command Prompt window, click **Start**, point to **All Programs**, click **Accessories**, right-click **Command Prompt**, and then click **Run as administrator**.

At a command prompt, type the following command, and then press ENTER:

```
ipconfig /flushdns
```