

Understanding Internet Explorer Caching

This document describes Internet Explorer caching in relation to General Interface. It also discusses how to avoid stale XML data in Internet Explorer and recommends best practices for running General Interface applications and General Interface Builder on Internet Explorer.

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Scope: Version 3.3.0



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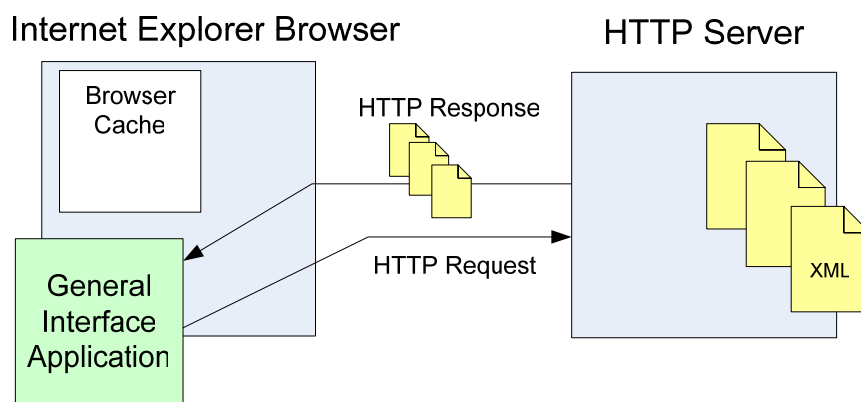
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Overview

When running on some versions of Internet Explorer 6 and 7, General Interface versions prior to 3.3 might never consult the browser cache when retrieving XML files from an HTTP server, as shown in Figure 1. By not utilizing the browser cache, a General Interface application might unnecessarily request a file multiple times. This issue was caused by how the native Internet Explorer MSXML3 object loaded XML documents over HTTP. This inefficiency could cause degradation in application performance, especially when compared with the application running on Firefox, which did not exhibit this behavior.

Figure 1: Caching in General Interface Before Version 3.3



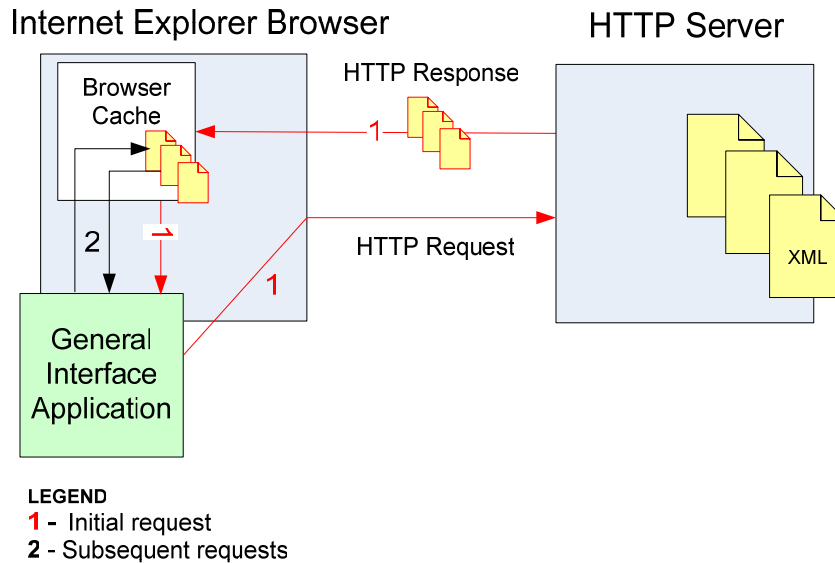
Degradation in application performance could occur in the following cases:

- Reloading of General Interface applications using the Refresh button or leaving and navigating back to the page
- Reloading of application components, depending on how the application was written

General Interface 3.3

To improve application performance, General Interface 3.3 now uses a configuration flag to disable the forced synchronization (re-fetching) of an XML document by the MSXML3 Document object. Therefore, XML files are now retrieved from the browser cache instead of re-fetched from the HTTP server, as shown in Figure 2. This greatly improves performance of General Interface applications when running on Internet Explorer in the situations listed in the bulleted list above.

Figure 2: Caching in General Interface 3.3



Due to this change in functionality, care must be taken to ensure that a General Interface 3.3 application is compatible with the new Internet Explorer caching policy. In particular, when General Interface requests an XML document from an HTTP server and that document already exists in the browser cache, Internet Explorer may not issue a HEAD request, even in cases where Firefox would issue a HEAD request. Therefore, the file is not re-fetched from the server but is retrieved from the browser cache, even if the file has changed since it was last fetched. Use the following best practices when designing General Interface 3.3 applications for Internet Explorer to prevent any issues related to file caching.

Avoiding Stale XML Data in Internet Explorer

There are several best practices to avoid stale XML data when running General Interface applications and General Interface Builder in Internet Explorer:

- [Configure the HTTP Server](#)
- [Other Best Practices](#)

Configuring the HTTP Server

The recommended best practice is to configure the caching policy on the HTTP server. However, only use HTTP server configuration of cache control when long-term caching is **not** desirable. For example, if XML documents on the HTTP server change frequently, set the caching policy on the server, so documents are re-fetched from the server instead of re-fetched from the browser cache. For short-term caching, use the browser cache, which is the default behavior.

Internet Explorer honors the Cache-control and Expires HTTP headers when caching XML documents loaded by General Interface. The following examples show how to append these headers to the HTTP response with the Apache web server.

Figure 3: Cache-control Header Example

```
<Location "/gi/JSXAPPS/">
  Header append Cache-control "no-store, no-cache, must-revalidate"
  Header set Pragma "no-cache"
</Location>
```

Figure 4: Expires HTTP Header Example

```
<Directory "/gi/JSXAPPS/">
  ExpiresActive on
  ExpiresDefault "now plus 30 minutes"
</Directory>
```

Check your HTTP server documentation for instructions.

For more information on how to prevent caching, see "How to prevent caching in Internet Explorer" at <http://support.microsoft.com/kb/234067>.

Other Best Practices

If it's not possible to configure the caching policy on the server, there are other best practices for clearing the browser cache and re-fetching XML documents.

General Interface Applications

When running General Interface applications, use these techniques to ensure that General Interface loads the most recent version of any XML documents fetched from an HTTP server:

- If you're acquiring data as an XML document from an HTTP server and the document changes but the URL remains the same, request the same URL with a random query appended to the end as shown in Figure 5. The unique query causes the browser to re-fetch the document from the server.

Figure 5: Code Example for Random Query

```
var url = objMatrix.getXMLURL();  
if (url.indexOf("?") >= 0)  
    url = url.substring(0, url.indexOf("?"));  
objMatrix.setXMLURL(url + "?ts=" + (new Date().getTime()));  
objMatrix.resetXmlCacheData();  
objMatrix.repaint();
```

- Clear your browser cache manually and reload the page to re-fetch the XML document. Note that Shift+Refresh (Control+F5) in Internet Explorer **won't** clear the relevant cache. For instructions on clearing cache, see the browser documentation.
- Close the browser and load the application in a new browser instance. This causes Internet Explorer to issue HEAD requests for all XML documents and re-fetch any that have changed.

General Interface Builder

When developing General Interface applications in General Interface Builder on Internet Explorer, use these best practices:

- Copy all files, including WSDL files, to the local file system before working with them instead of referencing resources using an HTTP URL. This improves performance, because files aren't fetched from the server. Also, there's no need to configure the server's caching policy or close and restart General Interface Builder to clear the browser cache.
- Clear the browser cache and refresh General Interface Builder or restart Internet Explorer as described above.