Understanding - Common HTTP Status Codes

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Agenda

- RFC 2616 section 10 - **Status Code Definitions**
- Common Status Codes observed in WebSphere Application Server environments (e.g 200, 302, 304, 400, 404, 500, etc..)
  - ▶ What they mean
    - Description of each common status code
    - Applicable headers associated with certain status codes
    - Examples of HTTP response headers containing status codes
  - ▶ Where they are logged
    - Packet Traces
    - Web server access logs
    - HTTP plug-in Trace log
    - WebSphere Application Server Trace log

RFC 2616 – Section 10

- Google **key word** search *"http status codes"*
- Direct link to *section 10* of the *RFC 2616*
  - http://www.w3.org/Protocols/rfc2616/rfc2616-sec10.html#sec10
    - **1xx - Informational**
      - o note: HTTP/1.0 does not support 1xx status codes
      - **2xx - Successful**
  - o client's request was successfully received, understood, and accepted
  - **3xx - Redirection**
  - o further action is needed to fulfill the request
  - **4xx - Client Error**
  - o server is unable to fulfill the request due to problem with client's request
  - **5xx - Server Error**
  - o server is "aware" it erred fulfilling the client's request

Common Status Codes

- **100 - Continue**
  - o The client should continue with it's request.
  - o Seen when HTTP plug-in is submitting POST data to the WebSphere Application Server
- **200 - OK**
  - o The request was fulfilled "successfully" by the server and the response sent to the client
  - o The response will typically contain a *content-length* header to inform the client of the number of bytes to expect in the body of the response

    example: Content-Length: 3495
  - **302 - Found**
- o The server found what the client requested but it is in a different location
- o The response will contain a *Location* header with the new location

  example: Location: http://example.com/newuri

Common Status Codes

- **304 - Not Modified**
  - o The document requested has not been modified since last time the client requested the same document
  - o This response is returned if the client sends an *If-Modified-Since* header with the request and the document has not been modified since the date indicated in the header

    example: If-Modified-Since: Sat, 29 Oct 1994 19:43:31 GMT
  - o The response will not contain a message body
  - o The document will be served from client's cache
  - **400 - Bad Request**
- o The request could not be understood by the server due to malformed syntax
- o Possible causes:
  - ✓ Client issued POST with *content-length* header and did not send all the data
  - ✓ Malformed or missing header in request for the method used
  - ✓ Client closed the connection before the complete request was sent

Common Status Codes

- **404 - Not Found**
  - The server has not found anything matching the Request-URI
  - **401 - Unauthorized**
- The request requires user authentication
- The response MUST contain the *WWW-Authenticate* header containing a challenge to the client to supply suitable credentials to access the resource requested

  example: WWW-Authenticate: Basic realm=www.example.com
  - The client MAY repeat the request with a suitable *Authorization* header field

  example: Authorization: NTLM=TlRMMSVNTUDADAAAAHAAYAGg
  - **403 - Forbidden**
- The server understood the request, but is refusing to fulfill it
- Client authorization at this point will not help

Common Status Codes

- **500 - Internal Server Error**
  - The server encountered an unexpected condition which prevented it from fulfilling the request
  - The HTTP plug-in will return a 500 response if it fails to connect to a WebSphere Application Server and is not able to failover
  - The HTTP plug-in will return a 500 response if a WebSphere Application Server fails during the reading and writing of a request from the plugin or the connection is dropped and the plugin is unable to retry the request or failover
  - The WebSphere Application Server may return a 500 response to the HTTP plug-in if the application server encounters a problem handling a request within the jvm
  - **502 - Bad Gateway**
  - The server, while acting as a gateway or proxy, received an invalid response from the upstream server it accessed in attempting to fulfill the request

Common Status Codes

- **503 - Service Unavailable**
  - The server is currently unable to handle the request due to a temporary overloading or maintenance of the server
  - The HTTP plug-in will return a 503 response if *maxconnections* setting in the plugin-cfg.xml is reached for a particular WebSphere Application Server and there is no other WebSphere Application Server to failover the request too

Examples

HTTP/1.1 **200** OK
Cache-Control: private, max-age=0
Date: Fri, 01 Aug 2008 19:39:24 GMT
Expires: -1
Content-Type: text/html; charset=UTF-8
Content-Encoding: gzip
Server: IBM HTTP Server
Content-Length: 2692

HTTP/1.1 **302** Found
Location: http://www.ibm.com/wps/portal/
Content-Language: en
Content-Length: 0
Date: Wed, 18 Jul 2007 19:35:22 GMT
Server: WebSphere Application Server/6.0

Examples

HTTP/1.1 **304** Not Modified
Content-Type: text/html
Date: Tue, 15 Jul 2008 15:42:13 GMT
Last-Modified: Sun, 14 May 2006 21:35:56 GMT
Content-Language: en-US
Content-Length: 0
Server: WebSphere Application Server/6.1

HTTP/1.1 **500** Internal Server Error
Date: Wed, 30 Jul 2008 18:27:48 GMT
Connection: close
Pragma: no-cache
Cache-Control: no-cache
Expires: Wed, 30 Jul 2008 18:27:48 GMT
Content-Type: text/html
Content-Length: 182
Server: IBM HTTP Server

Where status codes are logged

- **Packet Traces** (trace.pcap)

    no example provided due to customer confidentiality

- **Web Server access log** (access_log)

    example:

    12.3.4.56 - - [02/Jul/2008:09:07:32 -0500] "GET / HTTP/1.0" **200** 3183

    12.3.4.56 - - [02/Jul/2008:09:07:32 -0500] "GET /favicon.ico HTTP/1.0" **404** 279

    12.3.4.56 - - [02/Jul/2008:09:57:17 -0500] "GET /PlantsByWebSphere HTTP/1.0" **302** -

    12.3.4.56 - - [02/Jul/2008:09:57:18 -0500] "GET /PlantsByWebSphere/ HTTP/1.0" **304** –

- **HTTP plug-in log** (http_plugin.log)

    example:

    [Tue Jul 15 10:42:12 2008] 00000533 f5a55b90 - DETAIL: lib_htresponse: htresponseRead: Reading the response: 961fce4

    [Tue Jul 15 10:42:12 2008] 00000533 f5a55b90 - DETAIL: HTTP/1.1 **302** Found

    [Tue Jul 15 10:42:12 2008] 00000533 f5a55b90 - DETAIL: Content-Type: text/html

    [Tue Jul 15 10:42:12 2008] 00000533 f5a55b90 - DETAIL: Location: http://aikcwebdv01vcon.americanid.int/PlantsByWebSphere/

Where status codes are logged

- **WebSphere Application Server trace log** (trace.log)

    example:

    [7/22/08 15:31:18:313 EDT] 00000035 SRTServletReq 3   getRequestURI uri --> /ILClientWeb/login/j_security_check

    [7/22/08 15:31:18:313 EDT] 00000035 SRTServletReq 3   getServerName: serverName --> www.example.com

    [7/22/08 15:31:18:313 EDT] 00000035 SRTServletReq 3   getWebAppDispatcherContext

    [7/22/08 15:31:18:314 EDT] 00000035 SRTServletRes 3   setHeader name --> Location value --> https://www.example.com/ILClientWeb/login/

    [7/22/08 15:31:18:314 EDT] 00000035 SRTServletRes 3   setHeader name --> Location value --> https://www.example.com/ILClientWeb/login/ checkInclude --> true

    [7/22/08 15:31:18:314 EDT] 00000035 SRTServletReq 3   getWebAppDispatcherContext

    [7/22/08 15:31:18:314 EDT] 00000035 SRTServletRes 3   setStatus status --> **302**

Reference

- For more information on **HTTP status codes** and **Hypertext Transfer Protocol -- HTTP/1.1**

  http://www.w3.org/Protocols/rfc2616/rfc2616.html

Additional WebSphere Product Resources

- Discover the latest trends in WebSphere Technology and implementation, participate in technically-focused briefings, webcasts and podcasts at:
  http://www.ibm.com/developerworks/websphere/community/

- Learn about other upcoming webcasts, conferences and events:
  http://www.ibm.com/software/websphere/events_1.html

- Join the Global WebSphere User Group Community: http://www.websphere.org

- Access key product show-me demos and tutorials by visiting IBM Education Assistant:
  http://www.ibm.com/software/info/education/assistant

- View a Flash replay with step-by-step instructions for using the Electronic Service Request (ESR) tool for submitting problems electronically:
  http://www.ibm.com/software/websphere/support/d2w.html

- Sign up to receive weekly technical My Notifications emails:
  http://www.ibm.com/software/support/einfo.html

Questions and Answers