This article describes how to troubleshoot the HTTP AO.

Contents

HTTP Accelerator Troubleshooting

The HTTP accelerator optimizes HTTP and HTTPS (in version 4.3.1 and later) traffic using the following techniques:

- **TCP connection reuse across the WAN**. Avoids a connection setup penalty for subsequent HTTP connections requested by the same client. (Does not apply to HTTPS traffic.)
- **HTTP metadata caching.** Certain HTTP responses are cached, along with their URLs and metadata information, so that the edge WAE can respond locally to subsequent requests for the same URL. (Available only in version 4.2.1 and later.) The three types of cached responses are as follows:
    - 301 Permanently-Redirected
    - 304 Not-Modified
    - 401 Authorization-Required
- **HTTPS metadata caching.** Certain HTTPS responses are cached, along with their URLs and metadata information, so that the edge WAE can respond locally to subsequent requests for the same URL. (Available only in version 4.3.1 and later.)
- **HTTP suppress server encoding.** Removes the Accept-Encoding header from the HTTP and HTTPS requests, preventing the server from sending compressed data towards the WAN. This allows the WAE to apply its own compression, typically resulting in a better compression ratio. (Available only in version 4.2.1 and later.)
- **DRE hints.** Provides specific hints to the DRE module to better compress the HTTP and HTTPS traffic based on the additional knowledge on the HTTP protocol provided by parsing the layer 7 payload:
    - Skip header: Instructs the DRE module to not compress HTTP/HTTPS headers resulting in a better compression of the object.
    - Flush: Instructs the DRE module to start compressing as soon as an HTTP/HTTPS transaction is fully processed.
    - Skip LZ: Instructs the DRE module to not apply LZ compression to all objects already compressed by the original server, thus reducing the CPU overhead.

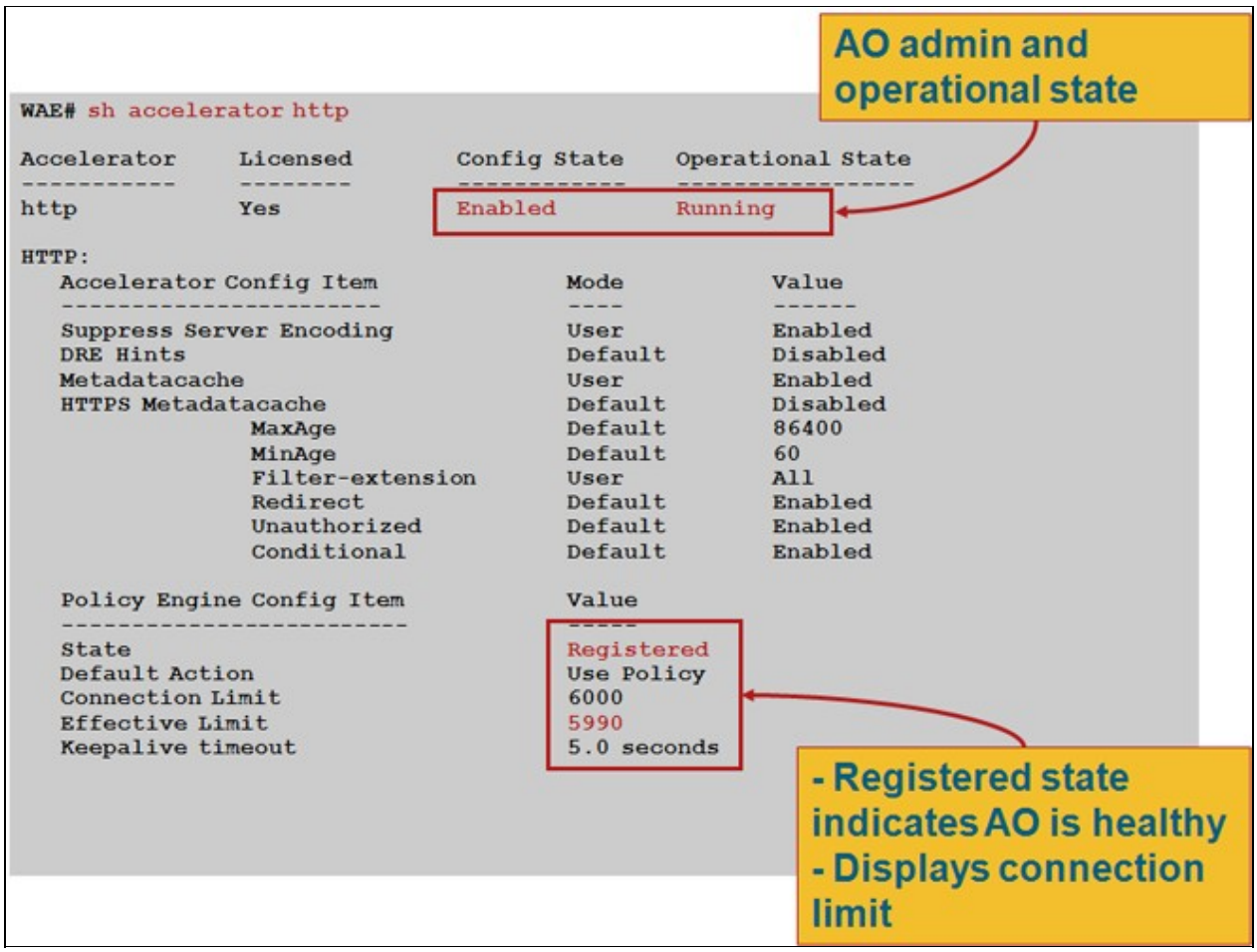
The HTTP metadata caching, suppress server encoding, and DRE hinting features can be configured separately. The TCP connection reuse feature is always active when the HTTP AO is enabled and applies only to HTTP traffic.

You can verify the general AO configuration and status with the **show accelerator** and **show license** commands, as described in the Troubleshooting Application Acceleration article. The Enterprise license is required for HTTP accelerator operation.

Next, verify the status that is specific to the HTTP AO by using the **show accelerator http** command, as shown in Figure 1. You want to see that the HTTP AO is Enabled, Running, and Registered, and that the connection limit is displayed. If the Config State is Enabled but the Operational State is Shutdown, it indicates a licensing problem. For each of the HTTP features the current mode is shown (User/Default) along with the value (Enabled, Disabled or configured value). The Suppress Server Encoding and Metadatacache items were added in version 4.2.1, and the DRE Hints and HTTPS Metadatacache items were added in version 4.3.1.

For HTTPS traffic to be optimized by both the SSL and HTTP AOs, ensure that one of these optional features is enabled: HTTPS metadata caching, suppress-server-encoding or DRE hints.

Figure 1. Verifying the HTTP Accelerator Status



Use the **show running-config** command to verify that the HTTP/HTTPS traffic policy is properly configured and which of the features is enabled. You want to see **accelerate http** for the Web application action and you want to see appropriate match conditions listed for the HTTP classifier, as follows:

```
WAE674# sh run | include HTTP

   accelerator http suppress-server-encoding enable                        <----- in 4.2.1 and lat
   accelerator http metadatacache https enable                             <----- in 4.3.1 and lat
   accelerator  http dre-hints enable                                      <----- in 4.3.1 and  la
                                                                                  at least one of


   classifier HTTP
   classifier HTTPS
      name Web classifier HTTP action optimize full accelerate http       <----- HTTP acceleratio
      name Web classifier HTTPS action optimize DRE no compression none   <----- HTTPS static pol
                                                                                  matching any SSL


WAE674# sh run | begin HTTP
...skipping
   classifier HTTP
      match dst port eq 80
      match dst port eq 8080
      match dst port eq 8000
      match dst port eq 8001
      match dst port eq 3128

WAE674# sh run | begin HTTPS
...skipping
   classifier HTTPS
      match dst port eq 443                                                <----- add here any non
```

Viewing HTTP Statistics

Use the **show statistics accelerator http** command to see the following statistics:

- How much time is being saved by the HTTP AO. You can see the overall Time Saved by the entire HTTP AO or the Time Saved by each of the features:
  - Time Saved by fast connection reuse
  - Time Saved by the three metadata caches
- Number of cache hits/misses for the metadata caches
- Number of times suppress server encoding is applied to HTTP requests
- Number of times DRE hints are provided based on the content of the HTTP headers
- Number of HTTP transactions (request+response) processed
- Number of errors in the HTTP header processing
- Number of cache revalidations

```
WAE674# sh stat accel http

HTTP:
  Global Statistics
  -----------------
  Time Accelerator was started:                                  Tue Apr 6 06:04:06 2010
  Time Statistics were Last Reset/Cleared:                       Tue Apr 6 06:04:06 2010
  Total Handled Connections:                                     3743984
  Total Optimized Connections:                                   3743984
  Total Connections Handed-off with Compression Policies Unchanged:  0
  Total Dropped Connections:                                     0
  Current Active Connections:                                    48
  Current Pending Connections:                                   0
  Maximum Active Connections:                                    176
  Total Time Saved (ms):                                         35584437   <-----Should be in
  Current Active Connections Free For Fast Connection Use:       2
  Total Connections Handed-off:                                  0
  Total Connections Handed-off with Compression Policies Disabled:   0
  Total Connections Handed-off to SSL:                           0
  Total Connection Hand-off Failures:                            0
  Total Fast Connection Successes:                               3617244    <-----Should be in
  Total Fast Connection Failures:                                0
  Maximum Fast Connections on a Single Connection:               100
  Total CONNECT Requests with Incomplete Message:                0
  Percentage of Connection Time Saved:                           37
  Total Round Trip Time For All Connections (ms):                4922767377
  Total Fast Connections Initiated by Peer:                      0
  Total SYN Timeouts:                                            0
  Total Time for Metadata Cache Miss (ms):                       2          <-----Output from
  RTT saved by Redirect Metadata Cache (ms):                     5988       <-----Should be in
  RTT saved by Authorization Redirect Metadata Cache (ms):       345        <-----Should be in
  RTT saved by Content Refresh Check Metadata Cache (ms):        44987      <-----Should be in
  Total Time Saved by Fast Connection Use (ms):                  456
  Total Locally Served Redirect Responses:                       453        <-----Should be in
  Total Locally Served Unauthorized Responses:                   56         <-----Should be in
  Total Locally Served Conditional Responses:                    4932       <-----Should be in
  Total Remotely Served Redirect Responses:                      0
  Total Remotely Served Unauthorized Responses:                  0
  Total Remotely Served Conditional Responses:                   1
  Total Requests with URL Longer than 255 Characters:            0
  Total Requests with HTTP Pipelining:                           0
  Total Transactions Handled:                                    2          <-----Total number
  Total Server Compression Suppression:                          1          <-----Total number
  Total Requests Requiring Server Content-Revalidation:          0
  Total Responses not to be Cached:                              0
  Total Connections Expecting Authentication:                    0
```

```
  Total Connections with Unsupported HTTP Requests:                0
  Total Connections with Unsupported HTTP Responses:               0
  Total Hints Sent to DRE Layer to Flush Data:                     2
  Total Hints Sent to DRE Layer to Skip LZ:                        0
  Total Hints Sent to DRE Layer to Skip Header Information:        1
```

If the Total Time Saved counter in the output above is not incrementing or is quite small, it indicates that the HTTP AO is not providing much benefit. If the Total Time Saved by one of the three metadata caches is not incrementing or is quite small, it indicates that the corresponding metadata cache is not providing much benefit.

The Total Server Compression Suppression counter indicates how many times the Accept-Encoding header has been removed, in an attempt to provide a better compression by the WAE device. The Total Hints Sent to DRE Layer counters indicate how many times each of the DRE hints (Flush Data, Skip LZ, Skip Header) has been issued to the DRE module, in an attempt to better compress the data.

To view similar information from the Central Manager in version 4.2.1 and later, choose the WAE device, then choose **Monitor > Acceleration > HTTP Acceleration Report** and choose the Details tab to see the following charts:

- HTTP Response Time Savings (fast connection reuse, redirect, conditional, and unauthorized cached)
- HTTP Optimization Count (number of times each of the above optimizations has been applied)
- HTTP Optimization Techniques (for all HTTP optimizations, including metadata caches, connection reuse, DRE hints and suppress-server-encoding)

To see debugging information on the HTTP header parsing and error conditions, use the **show statistics accelerator http debug** command (in 4.3.1 and later) to determine the following:

- Number of 301, 304 and 401 responses cached
- Number of HTTP headers, version and methods
- Reasons for HTTP responses not being cached
- Total number of HTTP responses being cached
- Reasons for HTTP requests not being served from the local cache

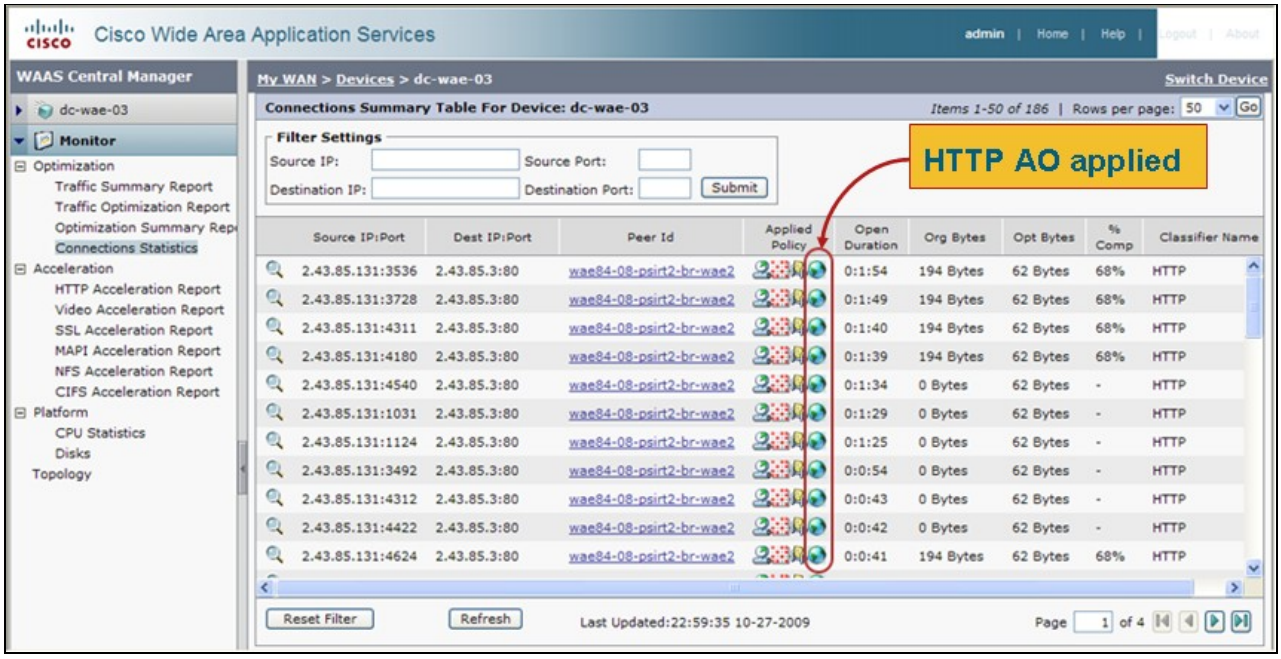
Use the **show statistics connection optimized http** command to check that the WAAS device is establishing optimized HTTP connections. Verify that an "H" appears in the Accel column for HTTP connections, which indicates that the HTTP AO was used, as follows:

```
WAE674# sh stat conn opt http
Current Active Optimized Flows:                       2
   Current Active Optimized TCP Plus Flows:           2
   Current Active Optimized TCP Only Flows:           0
   Current Active Optimized TCP Preposition Flows:    0
Current Active Auto-Discovery Flows:                  0
Current Active Pass-Through Flows:                    0
Historical Flows:                                     100
D:DRE,L:LZ,T:TCP Optimization,
A:AOIM,C:CIFS,E:EPM,G:GENERIC,H:HTTP,M:MAPI,N:NFS,S:SSL,V:VIDEO
ConnID  Source IP:Port        Dest IP:Port          PeerID             Accel
5929    10.10.10.10:3446      10.10.100.100:80      00:14:5e:84:24:5f  THDL      <-------Look for
```

You can check connection statistics for closed connections by using the **show statistics connection closed http** command.

To view similar information from the Central Manager, choose the WAE device, then choose **Monitor > Optimization > Connections Statistics**.

Figure 2. Connection Statistics Report with HTTP



In the Connection Statistics report, the globe icon in the Applied Policy column shows that the HTTP AO was used for a connection. (Place your cursor over an icon to see its meaning.)

You can view the HTTP connection statistics by using the **show statistics connection optimized http detail** command. Look for the "Fast connections" counter in the output. A positive value for this counter means that the HTTP AO benefits clients by reusing persistent connections, which reduces latency.

```
WAE674# show stat conn opt http detail
Connection Id:             1496
   Peer Id:                   00:14:5e:84:24:5f
   Connection Type:           EXTERNAL CLIENT
   Start Time:                Wed Jul 15 05:09:52 2009
   Source IP Address:         10.10.10.10
   Source Port Number:        1760
   Destination IP Address:    10.10.100.100
   Destination Port Number:   80
   Application Name:          Web                              <-----Should see Web
   Classifier Name:           HTTP                             <-----Should see HTTP
   Map Name:                  basic
   Directed Mode:             FALSE
   Preposition Flow:          FALSE
   Policy Details:
          Configured:         TCP_OPTIMIZE + DRE + LZ
             Derived:         TCP_OPTIMIZE + DRE + LZ
                Peer:         TCP_OPTIMIZE + DRE + LZ
          Negotiated:         TCP_OPTIMIZE + DRE + LZ
             Applied:         TCP_OPTIMIZE + DRE + LZ
   Accelerator Details:
               Configured:    HTTP                             <-----Should see HTTP configured
                  Derived:    HTTP
                  Applied:    HTTP                             <-----Should see HTTP applied
                     Hist:    None
```

```
                                        Original            Optimized
                                    -------------------- --------------------
   Bytes Read:                                   266               139160
   Bytes Written:                              82686                  128
. . .
HTTP : 1496

  Time Statistics were Last Reset/Cleared:                          Wed Jul 15
05:09:52 2009
  Total Bytes Read:                                                 3269
56367
  Total Bytes Written:                                              3269
56367
  Total Bytes Buffered:                                             0
0
  Total Internal Bytes Read:                                        92
  Total Internal Bytes Written:                                     92
  Bit Flags for I/O state:                                          1040
  Internal object pointer:                                          2046823200

  Fast connections:                                                 11        <-----Reused connec
. . .
```

Viewing HTTPS Statistics

(This section applies only to version 4.3.1 and later.)

Use the **show statistics accelerator http https** command to see the following statistics:

- How much time is being saved by the HTTP AO for HTTPS traffic. You can see the overall Time Saved by the entire HTTPS metadata cache or the Time Saved by each of the three metadata caches
- Number of cache hits/misses for the metadata caches
- Number of times suppress server encoding is applied to HTTPS requests
- Number of times DRE hints are provided based on the content of the HTTPS headers
- Number of HTTPS transactions (request+response) processed
- Number of errors in the HTTPS header processing
- Number of cache revalidations

```
WAE674# sh stat accel http https

  HTTPS Statistics
  ----------------
  Total Optimized HTTPS Connections:                                10     <-----Should be  incre
  Total Handled HTTPS Connections:                                  10     <-----Should be  incre
  Total Active HTTPS Connections:                                    2
  Total Proxy-Connect HTTPS Connections:                             0
  Total Proxy-Connect HTTPS Insert Failures:                         0
  RTT saved by HTTPS Content Refresh Check Metadata Cache - (ms):    44     <-----Should be increm
  RTT saved by HTTPS Redirect Metadata Cache - (ms):                 10     <-----Should be increm
  RTT saved by HTTPS Authorization Required Metadata Cache - (ms):    5     <-----Should be increm
  Total Locally Served HTTPS Conditional Responses:                 44     <-----Should be increm
  Total Locally Served HTTPS Redirect Responses:                    10     <-----Should be increm
  Total Locally Served HTTPS Unauthorized Responses:                 5     <-----Should be increm
  Total Remotely Served HTTPS Conditional Responses:                32
  Total Remotely Served HTTPS Redirect Responses:                    2
  Total Remotely Served HTTPS Unauthorized Responses:                1
  Total Hints Sent to DRE Layer to Skip Header Information - HTTPS: 121
  Total Hints Sent to DRE Layer to Flush Data - HTTPS:              121
  Total Hints Sent to DRE Layer to Skip LZ - HTTPS:                  0
```

```
  Total Server Compression Suppression - HTTPS:                    110
  Total Time Saved from all HTTPS metadata cache hits:              59     <-----Should be increm
  Total Time HTTPS Cache Miss:                                       4
  Total HTTPS Requests Requiring Server Content-Revalidation:       32
  Total HTTPS Responses not to be Cached:                            0
  Total HTTPS Connections Bypassed due to URL Based Bypass List:     0
  Total HTTPS Connections Bypassed due to IP Based Bypass List:      0
```

If the Total Time Saved counter in the output above is not incrementing or is quite small, it indicates that the HTTP AO is not providing much benefit to the HTTPS traffic. If the Total Time Saved by one of the three metadata caches is not incrementing or is quite small, it indicates that the corresponding metadata cache is not providing much benefit.

The Total Server Compression Suppression counter indicates how many times the Accept-Encoding header has been removed from HTTPS requests, in an attempt to provide a better compression by the WAE device. The Total Hints Sent to DRE Layer counters indicate how many times each of the DRE hints (Flush Data, Skip LZ, Skip Header) has been issued to the DRE module, in an attempt to better compress the data.

To view similar information from the Central Manager in version 4.3.1 and later, choose the WAE device, then choose **Monitor > Acceleration > HTTPS Acceleration Report** and choose the Details tab to see the following charts:

- HTTPS Response Time Savings (redirect, conditional, and unauthorized cached)
- HTTPS Optimization Count (number of times each of the above optimizations has been applied)
- HTTPS Optimization Techniques (for all HTTPS optimizations, including metadata caches, DRE hints and suppress-server-encoding)

To see debugging information on the HTTPS header parsing and error conditions, use the **show statistics accelerator http debug** command to determine the following:

- Number of 301, 304 and 401 responses cached
- Number of HTTP headers, version and methods
- Reasons for HTTP responses not being cached
- Total number of HTTP responses being cached
- Reasons for HTTP requests not being served from the local cache

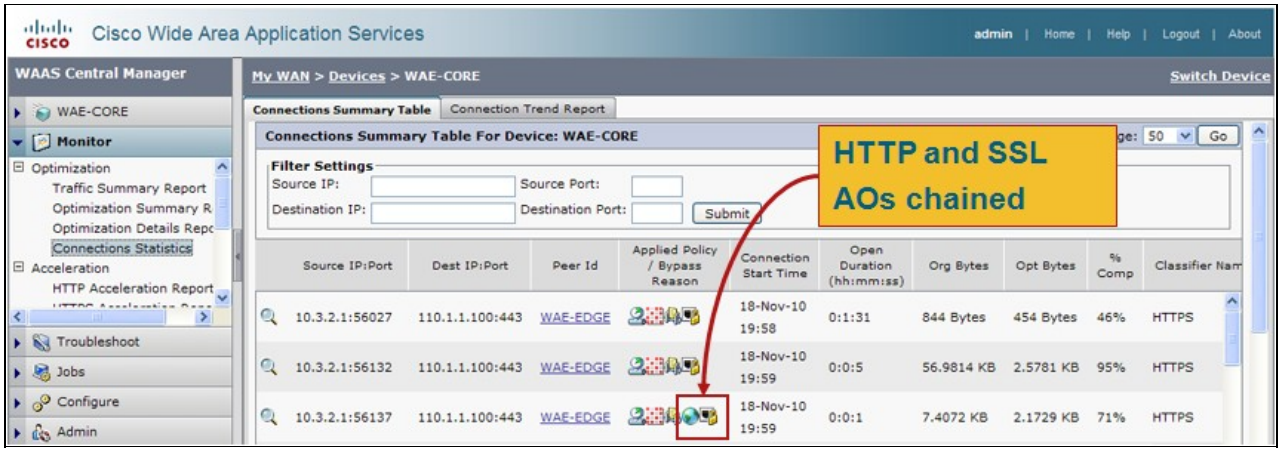
Use the **show statistics connection optimized http** command to check that the WAAS device is establishing optimized HTTPS connections. Verify that both an "H" and an "S" appear in the Accel column for HTTPS connections, which indicates that both the HTTP and SSL AOs were used, as follows:

```
WAE674# sh stat conn opt  http
Current  Active Optimized Flows:                     2
   Current  Active Optimized TCP Plus Flows:         2
   Current  Active Optimized TCP Only Flows:         0
   Current  Active Optimized TCP Preposition Flows:  0
Current  Active Auto-Discovery  Flows:               0
Current Active Pass-Through Flows:                   0
Historical Flows:                                    100
D:DRE,L:LZ,T:TCP Optimization,
A:AOIM,C:CIFS,E:EPM,G:GENERIC,H:HTTP,M:MAPI,N:NFS,S:SSL,V:VIDEO
ConnID   Source IP:Port        Dest IP:Port          PeerID             Accel
5929     10.10.10.10:3446      10.10.100.100:80      00:14:5e:84:24:5f  THSDL      <-------Look fo
```

You can check connection statistics for closed connections by using the **show statistics connection closed http** or **show statistics connection closed ssl** commands.

To view similar information from the Central Manager, choose the WAE device, then choose **Monitor > Optimization > Connections Statistics**.

Figure 3. Connection Statistics Report with HTTP and SSL



In the Connection Statistics report, the globe icon in the Applied Policy column shows that the HTTP AO was used for a connection and the lock icon indicates that the SSL AO was applied. (Place your cursor over an icon to see its meaning.)

You can view the HTTPS connection statistics by using the **show statistics connection optimized http detail** and **show statistics connection optimized ssl detail** commands.

```
WAE674# show stat conn opt http detail
Connection  Id:             34
   Peer Id:                   00:14:5e:cd:9c:c9
   Connection Type:           EXTERNAL CLIENT
   Start Time:                Thu Oct 28 14:47:56 2010
   Source IP Address:         10.3.2.1
   Source Port Number:        40829
   Destination IP Address:    110.1.1.100
   Destination Port Number:   443
   Application Name:          SSL                          <-----Should see SSL
   Classifier Name:           HTTPS                        <-----Should see HTTPS
   Map Name:                  basic
   Directed Mode:             FALSE
   Preposition Flow:          FALSE
   Policy Details:
          Configured:         TCP_OPTIMIZE
             Derived:         TCP_OPTIMIZE
                Peer:         TCP_OPTIMIZE
          Negotiated:         TCP_OPTIMIZE + DRE + LZ
             Applied:         TCP_OPTIMIZE + DRE + LZ
   Accelerator Details:
               Configured:    None
                  Derived:    None
                  Applied:    HTTP,SSL                     <-----Should see HTTP and SSL applied
                     Hist:    None

                                 Original            Optimized
                        -------------------- --------------------
   Bytes Read:                         5162                21874
   Bytes Written:                   1977819                 5108

   Total Reduction Ratio: 98.639%
```

```
HTTP : 34

  Time Statistics were Last Reset/Cleared:                          Thu Oct 28
14:47:56 2010
  Total Bytes Read:                                                 4620
1972570
  Total Bytes Written:                                              4620
1972570
. . .

SSL : 34

  Time Statistics were Last Reset/Cleared:                          Thu Oct 28
14:47:56 2010
  Total Bytes Read:                                                 0
0
  Total Bytes Written:                                              0
0
 . . .

  Hostname in HTTP CONNECT:                                  <------ the last three counters ap
  IP Address in HTTP CONNECT:                                        Proxy Connect type of HTTP
  TCP Port in HTTP CONNECT:
```

Viewing the HTTP Metadata Cache

To display the content of the three HTTP metadata caches (redirect, conditional, and unauthorized), use the **show cache http-metadatacache all** command. Only the full URL and the expiration (in seconds) are displayed. You can also display the content of each of the three caches separately by using the following commands:

- **show cache http-metadatacache redirect-response**
- **show cache http-metadatacache conditional-response**
- **show cache http-metadatacache unauthorized-response**

The typical output of the above commands is as follows:

```
Redirect Cache
Active entries: 1, Max Entries: 1500
URL: www.abcnews.com/, Expiration (sec): 3206
Conditional Cache
Active entries: 6, Max Entries: 10500
URL: www.cisco.com/web/fw/i/quicklinks-rnd-corners.gif, Expiration (sec): 3594
URL: www.cisco.com/web/fw/i/hp-sprites.gif, Expiration (sec): 3594
URL: www.cisco.com/en/US/home/images/ba-actsGreen-logo.jpg, Expiration (sec): 3594
URL: www.cisco.com/en/US/home/images/fp-eos3.jpg, Expiration (sec): 3594
URL: www.cisco.com/en/US/home/images/fp-AP541n.jpg, Expiration (sec): 3594
URL: www.cisco.com/web/fw/c/home.min.css, Expiration (sec): 3592
Unauthorized Cache
Active entries: 1, Max Entries: 3000
URL: l.yimg.com/index.html, Expiration (sec): 86393
```

You can clear the content of the three caches with the **clear cache http-metadatacache all** command.

If you want to clear the content of each cache separately, you can use the following commands:

- **clear cache http-metadatacache redirect-response**

- **clear cache http-metadatacache conditional-response**
- **clear cache http-metadatacache unauthorized-response**

If you want to specify a URL to be deleted you can use the following command:

clear cache http-metadatacache {**all**|**redirect**|**conditional**|**unauthorized**} *URL*

Viewing the HTTPS Metadata Cache

To display the number of entries in the three HTTPS metadata caches (redirect, conditional, and unauthorized), use the **show cache http-metadatacache https** command. Unlike the corresponding command for the HTTP metadata cache, the URL and the expiration time are not displayed. You can also display the number of entries for each of the three caches separately by using the following commands:

- **show cache http-metadatacache https redirect-response**
- **show cache http-metadatacache https conditional-response**
- **show cache http-metadatacache https unauthorized-response**

The typical output of the above commands is as follows:

```
HTTPS Redirect Cache
Active HTTP entries: 0, Active HTTPS entries: 0 Max Entries: 3250
HTTPS Conditional Cache
Active HTTP entries: 0, Active HTTPS entries: 11 Max Entries: 22750
HTTPS Unauthorized Cache
Active HTTP entries: 0, Active HTTPS entries: 0 Max Entries: 6500
```

You can clear the content of the three caches with the **clear cache http-metadatacache https** command.

If you want to clear the content of each cache separately, you can use the following commands:

- **clear cache http-metadatacache https redirect-response**
- **clear cache http-metadatacache https conditional-response**
- **clear cache http-metadatacache https unauthorized-response**

Metadata Cache Cache-Control Behavior

For HTTP and HTTPS (in version 4.3.1) 304 responses, the metadata cache honors all Cache-Control directives (Cache-Control: no-cache, no-store, private, must-revalidate, proxy-revalidate, max-age=0, Pragma: no-cache). There is an option to disable such Cache-Control checks, which means that all 304 responses with Cache-Control headers specifying no-cacheability are cached and all requests with Cache-Control headers specifying no-cacheability can be served from the local cache.

Understand that disabling the cache control checks might increase the benefits of the metadata-cache, because some browsers or web servers might have a default option to include one cache control header in all responses in order to force revalidation of the object through the original server. This would make the metadata cache ineffective for 304 responses.

The option can be independently controlled for HTTP/S requests (cache lookups) and responses (cache insertions).

To disable cache control checks on HTTP/S 304 requests, use the following command:

```
WAE#accelerator http metadatacache request-ignore-no-cache enable
```

This command forces the metadatacache to disregard all Cache-Control directives in HTTP/S 304 requests. (The default [no] form of this command forces the metadatacache to honor all Cache-Control directives in HTTP/S 304 requests.)

To disable cache control checks on HTTP/S 304 responses, use the following command:

```
WAE#accelerator http metadatacache response-ignore-no-cache enable
```

This command forces the metadatacache to disregard all Cache-Control directives in HTTP/S 304 responses. (The default [no] form of this command forces the metadatacache to honor all Cache-Control directives in HTTP/S 304 responses.)

The metadata cache honors Cache-Control headers for 301 and 401 responses. If the response has any of the Cache-Control headers (no-cache, no-store, private, must-revalidate, proxy-revalidate, max-age=0, Pragma: no-cache), it is not cached.

Metadata Caching Exceptions

There are certain exceptions to what is cached. The cache insertion or lookup does not occur when the HTTP AO encounters one of the following conditions on the HTTP/S request/response being processed:

- Non-RFC complaint requests and responses: malformed/invalid headers, repeated headers, missing headers, unexpected body, unexpected chunked encoding
- URL size is more than 255 characters
- HTTP pipelined transactions
- WebDav methods
- HEAD method
- 301/401 responses with cookie headers
- 301 responses with a total header length of more than 768 bytes
- 401 responses with a total header length of more than 384 bytes
- 401 responses with a chunked body
- 401 responses with unsupported authentication method (supported methods include: Basic, NTLM, Negotiate, Kerberos, Digest, Oauth)
- Partial HTTP header (header split) available for processing

HTTP AO Logging

The following log files are available for troubleshooting HTTP AO issues:

- Transaction log files: /local1/logs/tfo/working.log (and /local1/logs/tfo/tfo_log_*.txt)
- Debug log files: /local1/errorlog/httpao-errorlog.current (and httpao-errorlog.*)

For easier debugging, you should first set up an ACL to restrict packets to one host.

```
WAE674(config)# ip access-list extended 150 permit tcp host 10.10.10.10 any
WAE674(config)# ip access-list extended 150 permit tcp any host 10.10.10.10
```

To enable transaction logging, use the **transaction-logs** configuration command as follows:

```
wae(config)# transaction-logs flow enable
wae(config)# transaction-logs flow access-list 150
```

You can view the end of a transaction log file by using the **type-tail** command as follows:

```
wae# type-tail tfo_log_10.10.11.230_20090715_130000.txt
Wed Jul 15 13:37:00 2009 :1529 :10.10.10.10 :2004 :10.10.100.100 :80 :OT :END :EXTERNAL CLIENT :(H
Wed Jul 15 13:37:00 2009 :1529 :10.10.10.10 :1880 :10.10.100.100 :80 :SODRE :END  :14357 :8406 :21
Wed Jul 15 13:38:19 2009 :1533 :10.10.10.10 :2008 :10.10.100.101 :135 :OT :START :EXTERNAL CLIENT
 :Other :MS-EndPointMapper :F :(TFO) (TFO) (TFO) (TFO) (TFO) :<None> :(EPM) (EPM) (EPM) :<None> :<
Wed Jul 15 13:38:19 2009 :1534 :10.10.10.10 :2009 :10.10.100.101 :1025 :OT :START :EXTERNAL CLIENT
 :uuide3514235-4b06-11d1-ab04-00c04fc2dcd2
```

To set up and enable debug logging of the HTTP AO, use the following commands.

NOTE: Debug logging is CPU intensive and can generate a large amount of output. Use it judiciously and sparingly in a production environment.

You can enable detailed logging to the disk:

```
WAE674(config)# logging disk enable
WAE674(config)# logging disk priority detail
```

You can enable debug logging for connections in the ACL:

```
WAE674# debug connection access-list 150
```

The options for HTTP AO debugging (on 4.2.1 and later) are as follows:

```
WAE674# debug accelerator http ?
 all                        enable all HTTP accelerator debugs
 bypass-list                enable HTTP bypass-list debugs
 cli                        enable HTTP CLI debugs
 conditional-response       enable HTTP metadatacache conditional (304) response
                            debugs
 connection                 enable HTTP connection debugs
 dre-hints                  enable HTTP dre-hints debugs
 metadatacache              enable HTTP metadatacache debugs
 prefetch                   enable HTTP prefetch debugs
 redirect-response          enable HTTP metadatacache redirect (301) response
                            debugs
 shell                      enable HTTP shell debugs
 suppress-server-encoding   enable HTTP suppress-server-encoding debugs
 transaction                enable HTTP transaction debugs
 unauthorized-response      enable HTTP auth-optimization debugs bugs
```

You can enable debug logging for HTTP connections and then display the end of the debug error log as follows:

```
WAE674# debug accelerator http connection
WAE674# type-tail errorlog/httpao-errorlog.current follow
```