Note to technical reviewer:
* red lines in margin specify where text was changed to moved.
* green text is content that applies to 9.1 only.
* pink text is content that applies to 9.2 only.
* All other text is common to 9.1 and 9.2.
* Cross references and links may not be functional in this file for technical review.
* Some content needs further doc review. I've specified "needs further review" or "rewriting."
* All content needs technical review, but there are some places where I modified information that may need particular attention. I noted those areas.
*All parameter descriptions still need editing.

Compression

The compression feature improves the performance of Web sites by reducing the size of HTTP responses that are sent to browsers that are compression aware.

After you enable the compression feature, global compression policies are enabled and the NetScaler can compress data for traffic that matches these policies. You can augment the built-in compression policies by creating new compression actions and policies, and binding the policies globally or to particular virtual servers.

You can view statistics for compressed data that the NetScaler transmits.

Note: This chapter assumes that you are familiar with basic policy configuration. For more information, see the *Citrix NetScaler Policy Configuration and Reference Guide*. The compression feature uses both classic and advanced policies. This chapter also assumes that you are familiar with configuration of virtual servers and services. For more information about virtual servers and services, see the *Citrix NetScaler Traffic Management Guide*.

In This Chapter

About Compression

The NetScaler can compress HTML and other content that is generated statically or dynamically, including MIME types such as text/html, text/plain, text/xml, text/css, text/rtf, application/msword, application/vnd.ms-excel, and application/vnd.ms-powerpoint.

After you enable the compression feature on the NetScaler, built-in compression policies are applied to all HTTP and SSL services that you create and bind to load balancing vservers. You can disable compression on a particular service, and you can create custom compression policies and bind both the built-in and custom compression policies to a load balancing vserver.

Process overview: Compressing traffic [GL: These overview task topics need rewriting for eDocs.]

1. The NetScaler receives an HTTP request from a client for content on a Web server.
2. The NetScaler uses compression policies to determine whether to serve compressed content to the client.
3. The NetScaler receives an HTTP response to the request.
4. The NetScaler examines the content in the response to determine if it is compressible.
5. If the content is compressible, it is compressed and forwarded to the client. The response header is modified to indicate the type of compression that was applied to the data.

Enabling and Disabling Compression and Related Features

If you want the NetScaler to compress data, enable the compression feature. After enabling compression, the built-in compression policies are in effect, and compression is automatically enabled for any services that you create.

If you want to use compression in a load balancing environment, you also enable the load balancing feature. To compress traffic that is sent over SSL, you also enable the SSL feature.

To enable or disable compression, load balancing, and SSL by using the NetScaler command line

At the NetScaler command prompt, type:

```
enable|disable feature cmp lb ssl
```

To enable or disable compression, load balancing, and SSL by using the configuration utility

1. In the navigation pane, expand **System,** and then click **Settings**.
2. In the details pane, under the **Modes and Features** group, click **ConfigureChange basic features**.

3. In the **Configure Basic Features** dialog box, select the **Compression** check box to enable it; clear the check box to disable it. If appropriate, also select the **Load Balancing** and **SSL Offloading** check boxes.
4. Click **OK**, and click **Yes** in the **Enable/Disable Feature(s)?** message box.

Setting Global Compression Parameters

You can customize the way the NetScaler compresses data.

To set global compression parameters by using the NetScaler command line

At the NetScaler command prompt, type:

```
set cmp parameter -cmpLevel <compressionLevel> -quantumSize
<integer> -serverCmp (ON | OFF)
```

GL: This CLI command is incomplete compared to the scope of the GUI procedure and param list. Needs further review.

Parameters for setting compression

Parameter	Description GL: Descriptions need editing
Quantum Size (quantumSize)	This is the minimum quantum of data to compress. The minimum value is 1 and the maximum is 63488. Default value: 57344.
Compression Level (cmpLevel)	The compression level can be set to one of the following: • **Optimal.** Corresponds to a gzip level of 5-7. • **Best speed.** Corresponds to a gzip level of 1. • **Best compression.** Corresponds to a gzip level of 9. The default value is Optimal. Typically, there is little enough practical difference in these settings to warrant changing from the default.
Threshold ratio for heuristic Expiry (heurExpiryThres)	The threshold compression ratio for heuristic base file expiration, multiplied by one hundred. For example, if you want a threshold ratio of 1.25, specify 125 in the field. The default threshold ratio is 100, and the range is from 1 to 1000.
History weightage for heuristic expiry (heurExpiryHistWt)	A weight-to-delta-compression history for the heuristic base file expiration, as a percentage. The default weightage value is 50, and the range is 1 to 100.
Minimum HTTP response size. (minResSize)	The smallest response to be compressed.

Parameters for setting compression

Parameter	Description GL: Descriptions need editing
Bypass compression on CPU usage (`cmpBypassPct`)	The NetScaler CPU threshold after which compression is not performed.
Policy Type (`policyType`)	The policy type to be implemented, as follows: • **Classic.** Classic policies evaluate basic characteristics of traffic and other data. • **Advanced.** Advanced policies can perform the same type of evaluations as classic policies. In addition, advanced policies enable you to analyze more data (for example, the body of an HTTP request) and to configure more operations in the policy rule (for example, transforming data in the body of a request into an HTTP header).
Allow Server-side compression (`serverCmp`)	This is disabled by default to allow the NetScaler to handle all compression. When enabled, the data transfer between the appliance and the server is compressed.
Heuristic basefile expiry (`heurExpiry`)	This is disabled by default. When enabled, the NetScaler performs heuristic base file expiration.
Compress push packet (`cmpOnPush`)	This is disabled by default. When enabled, the NetScaler compresses Web 2.0 PUSH packets.

To set global compression parameters by using the configuration utility

1. In the navigation pane, click **HTTP CompressionCompression**.
2. In the details pane, click **Change compression settings**.
3. In the **Configure Compression Parameters** dialog box, configure the settings (for example, set the **Quantum Size** and **Compression level**), and then click **OK**.

Enabling and Disabling Compression for a Service

By default, if the compression feature is enabled, any new service that you create is enabled for compression and uses the built-in compression policies. If you create any services prior to enabling compression, you must manually enable compression for the service.

You can disable or enable compression for HTTP and SSL services.

Compression is in effect for a compression-enabled service once you bind the service to a vserver. You can bind HTTP services to an HTTP load balancing vserver, and bind SSL services to an SSL load balancing vserver. The protocol types must match. For additional information on configuring HTTP and SSL-based vservers, see the *Citrix NetScaler Traffic Management Guide*.

To create a compression-enabled service by using the NetScaler command line **GL: This section title, CLI title and GUI title should be consistent. Needs further review.**

At the NetScaler command prompt, type:

```
add service <name> <IPAddress> HTTP <portNumber>
set service <name> -CMP (YES | NO)
[GL:
```

Example

```
add service Service-HTTP-1 10.102.29.51 HTTP 80
set service Service-HTTP-1 -CMP YES
```

Parameters for a compression-enabled service *GL: param list not consistent with CLI command. Needs further review.*

Parameter	Description
Name (name)	The name of the service. This is a mandatory parameter and cannot be changed. The service name must not exceed 127 characters.
IP Address (IPAddress)	The IP address of the origin server, which the service represents.
Port (port)	The port on which the service listens. The port number must be a positive number not greater than 65535. The minimum value is 1.
Service Type (serviceType)	The type of service that is being added. This parameter determines the behavior of the service. The possible values are: HTTP and SSL
Compression (compression)	Enables compression on the service.

To enable or disable service-level compression by using the navigation pane **GL: This procedure title doesn't seem consistent with the steps. It also needs a parallel CLI procedure. Needs further review.**

1. In the navigation pane, expand **Load Balancing,** and then click **Services**.
2. In the details pane, select the service for which you want to enable or disable compression, and then click **Open**.

3. In the **Configure Service** dialog box, in the **Advanced** tab, under **Settings**, select **Override Global**, and then select the **Compression** check box.
4. Click **Create,** and then click **Close**.

Configuring Compression Policies and Actions

A compression policy contains a rule, which is a logical expression that enables the NetScaler to identify the traffic that should be compressed.

You associate actions with compression policies. If an HTTP request matches the policy rule, the action is applied to the response. For example, you can configure a compression policy that identifies requests that are sent to a particular server, and associate the policy with an action that compresses data that is sent with the response.

Configuring Compression Actions

There are four built-in compression actions:

- **COMPRESS:** Uses the GZIP algorithm to compress data for browsers that support either GZIP or both GZIP and DEFLATE. The NetScaler uses the DEFLATE algorithm to compress data for browsers that support the DEFLATE algorithm. If the browser does not support either algorithm, and the action has been set to COMPRESS, the NetScaler does not compress data.
- **NOCOMPRESS:** Does not compress data.
- **GZIP:** Uses the GZIP algorithm to compress data for browsers that support GZIP compression. If the browser does not support the GZIP algorithm the NetScaler does not compress data.
- **DEFLATE:** Uses the DEFLATE algorithm to compress data for browsers that support the DEFLATE algorithm. If the browser does not support the DEFLATE algorithm, and the action has been set to DEFLATE, the NetScaler does not compress data.

Creating a Compression Action

Compression actions determine whether and what type of compression the NetScaler applies to a response. After creating an action, you associate the action with one or more compression policies.

To create a compression action by using the NetScaler command line

At the NetScaler command prompt, type: [GL: Please tech review. It looked like "-cmpType" was missing from the command syntax so I added that. Looks like "delta" is missing from command options. See description in param list.]

```
add cmp action <name> -cmpType (gzip|compress|deflate|nocompress)
```

.

Parameters for Compression

Parameters	Descriptions
Name	The name of the compression action. This is a mandatory parameter and cannot be changed.
Compression Type (cmpType)	The type of compression action. The possible values are: compress, gzip, deflate, delta, and nocompress.

To create a compression action by using the configuration utility

1. In the navigation pane, expand **HTTP Compression,** and then click **Actions**.**Compression,** and then click **HTTP**.
2. In the details pane, click **Add**.In the details pane, on the **Actions** tab, click **Add**.
3. In the **Create Compression Action** dialog box, in the **Name** text box, type the name of the action (for example, Action-CMP-1).
4. Under **Compression Type**, choose the compression type (for example, GZIP).
5. Click **Create**, and then click **Close**.

Deleting a Compression Action

If you try to delete a built-in action, or any action that is associated with a policy, an error message appears. Only custom actions that have no associated policy can be deleted.

To delete a compression action by using the NetScaler command line

At the NetScaler command prompt, type:

```
rm cmp action <actionName>
```

To delete a compression action by using the configuration utility

1. In the navigation pane, expand **HTTP Compression,** and then click **Actions**.**Compression**, and then click **HTTP**.

2. In the details pane, select the compression action that you want to delete.In the details pane, on the **Actions** tab, select the compression action that you want to delete.
3. Click **Remove**, and then click **Yes** in the **Remove** message box.

Configuring and Using Compression Policies

When the NetScaler receives an HTTP response from a server, it evaluates a built-in or custom compression policy to determine whether to compress the response and the type of compression to apply.

There are five built-in compression policies. These policies are activated globally when you enable compression.

The following table describes the built-in compression policies.

Built-in Policies for Compression

Built-in Compression Policies	Description
ns_nocmp_mozilla_47	Does not compress CSS files when a request is sent from a Mozilla 4.7 Web browser.
ns_cmp_mscss	Compresses CSS files when the request is sent from a Microsoft Internet Explorer Web browser.
ns_cmp_msapp	Compresses files that are generated by the following applications: • Microsoft Office Word • Microsoft Office Excel • Microsoft Office PowerPoint
ns_cmp_content_type	Compresses data when the response contains the header 'Content-Type' and contains text.
ns_nocmp_xml_ie	Does not compress when a request is sent from a Microsoft Internet Explorer browser with the response header 'Content-Type' and contains text or xml.

To view built-in compression policies by using the configuration utility

1. In the navigation pane, expand **HTTP Compression**, and then click **Policies**.**Compression**, and then click **HTTP**.
2. In the details pane, on the **Policies** tab, view the built-in compression policies.

Bind Points for a Policy

You can bind the policy to one of the following bind points:

- **A global policy label.** These are the request-time default, request-time override, response-time default, and response-time override policy labels, as described in "Order of Policy Evaluation," on page 9.
- **A virtual server.** Policies that you bind to a virtual server are processed after the global override policies and before the global default policies, as described in "Order of Policy Evaluation," on page 9. Note that when binding a policy to a virtual server, you bind it to either request-time or response-time processing.
- **An ad-hoc policy label.** In addition to the global labels, the integrated cache has two built-in custom policy labels:
  - **_reqBuiltinDefaults.** This policy label, by default, is invoked from the request-time default policy label.
  - **_resBuiltinDefaults.** This policy label, by default, is invoked from the response-time default policy label.

You can also define new policy labels. User-defined policy labels must be invoked from a policy label for one of the built-in bind points. For more information on creating and invoking a policy label, see "Configuring and Using Policy Labels," on page 20.

Important: You should bind a policy with an INVAL action to a request-time override or a response-time override bind point. To delete a policy, you must first unbind it.

Order of Policy Evaluation

For an advanced policy to take effect, you must ensure that the policy is invoked at some point during the NetScaler's processing of traffic. To specify the invocation time, you associate the policy with a bind point. The following are the bind points, listed in order of evaluation:

- **Request-time override.** If a request matches a request-time override policy, by default request-time policy evaluation ends and the NetScaler stores the action that is associated with the matching policy.
- **Request-time load balancing virtual server.** If policy evaluation cannot be completed after all the request-time override policies are evaluated, the NetScaler processes request-time policies that are bound to load balancing virtual servers. If the request matches one of these policies, evaluation ends and the NetScaler stores the action that is associated with the matching policy.

- **Request-time content switching virtual server.** Policies that are bound to this bind point are evaluated after request-time policies that are bound to load balancing virtual servers.
- **Request-time default.** If policy evaluation cannot be completed after all request-time, virtual server-specific policies are evaluated, the NetScaler processes request-time default policies. If the request matches a request-time default policy, by default request-time policy evaluation ends and the NetScaler stores the action that is associated with the matching policy.
- **Response-time override.** Similar to request-time override policy evaluation.
- **Response-time load balancing virtual server.** Similar to request-time virtual server policy evaluation.
- **Response-time content switching virtual server.** Similar to request-time virtual server policy evaluation.
- **Response-time default.** Similar to request-time default policy evaluation.

You can associate multiple policies with each bind point. To control the order of evaluation of the policies associated with the bind point you configure a priority level. In the absence of any other flow control information, policies are evaluated according to priority level, starting with the lowest numeric priority value.

Creating a Compression Policy

You can create a compression policy by using the built-in compression actions and named expressions, or you can use custom actions and expressions.

To create a compression policy with default values by using the NetScaler command line [GL: Please tech review command and example below. Note that command below does not specify the default value for -resAction--as the procedure title mentions.]

At the NetScaler command prompt, type:

```
add cmp policy <name> -resAction (compress|gzip|deflate|nocompress)
-rule <build_in_rule_name>|"<user_defined_rule>"
```

Example

```
add cmp policy Policy-CMP-2 -resAction Action-CMP-2 -rule
"REQ.HTTP.URL == /*.pdf"
```

Parameters for compression policies

Parameters	Descriptions
Policy Name (`name`)	The name of the compression policy. This is a mandatory parameter and the value cannot be changed. Maximum length: 127 characters.
Response Action (`resAction`)	The type of compression action that is performed when a response matches the policy. Possible values: compress, gzip, deflate, delta, and nocompress. [GL: this value list is not consistent with CLI method. CRG is consistent with CLI method list--no delta value. What is default value?]
Named Expression (`rule`)	The rule that the NetScaler uses to determine whether to compress an HTTP response. [GL: what about *how* it will be compressed?]

To create a compression policy by using the configuration utility GL: Title should be the same as the corresponding CLI proc. Update? I rewrote this procedure--please tech review.

1. In the navigation pane, expand **HTTP Compression**, and then click **Policies**.**Compression**, and then click **HTTP**.
2. In the details pane, click **Add**. In the details pane, on the **Policies** tab, click **Add**.
3. In the **Create Compression Policy** dialog box, in the **Policy Name** text box, type the name of the policy.
4. In **Response Action**, do one of the following:
   - To use a built-in or existing compression action, choose a compression action in the drop-down list.
   - To create a new compression action, click **New**. In the **Create Compression Action** dialog box, enter a compression action name and type, and then click **Create**.
5. In the **Named Expressions** list, do one of the following:
   - To use an existing named expression, in the **Named Expressions** list, choose a named expression, choose the expression you want to add, and then click **Add Expression**.
   - To create a new named expression, click **Add**. In the **Add Expression** dialog box, specify the desired values, click **OK**, and then click **Create**.
6. Click **Create**, and then click **Close**.

Binding and Unbinding a Compression Policy Globally

A global compression policy applies to all services that support compression. When binding the policy, you assign it a priority. The policy is enabled by default upon creation.

To globally bind a compression policy by using the NetScaler command line

At the NetScaler command prompt, type:

```
bind cmp global <policyName> -priority <positiveInteger> -state (enabled|disabled)
```

[GL: Need confirmation that the scope of the parallel GUI procedure and param list are consistent with the scope of the CLI method. Needs further review.]

To unbind a globally-bound compression policy by using the NetScaler command line

At the NetScaler command prompt, type:

```
unbind cmp global <policyName>
```

[GL: Need confirmation that the scope of the parallel GUI procedure and param list are consistent with the scope of the CLI method. Needs further review.]

Entries to Control Globally-Bound Compression Policies

Attribute	Specifies
Priority	A numeric value that indicates when this policy is evaluated relative to others. A lower priority is evaluated before a higher one. Note that in the configuration utility, you can click the Priority field and edit the priority level or drag the entry to a new position in the policy label. If you drag the entry to a new position, the priority level is updated automatically.
Policy name	The name of the policy.
Expression	The rule that the NetScaler uses to determine whether to compress an HTTP response. For details, refer to "To create a compression policy by using the configuration utility GL: Title should be the same as the corresponding CLI proc. Update? I rewrote this procedure--please tech review.," on page 11.
Action	The action that is performed when traffic matches this policy.
State	Indicates whether the globally-bound policy is enabled or disabled.

I think some of these params apply to 9.1 but it's pink specifying 9.2 only. Needs review.

Entries to Control Globally-Bound Compression Policies

Attribute	Specifies
Insert Policy	Adds a new policy to this policy label. Note that in the configuration utility, when you click this option, a drop-down list appears in the **Policy Name** field. You can select from the following: • **Policy name.** The name of an existing policy. • **New policy.** Invokes the policy creation editor.
Request	A type of bind point. At request time, policies that are bound to this bind point are evaluated.
Response	A type of bind point. After evaluating all of the request-time policies, if no match is found, the appliance evaluates response-time policies.
Override Global	A type of bind point. Binds policies globally, which makes them available to all virtual servers. When a request flows through a feature, the appliance first evaluates global request-time override policies. At response time, the appliance starts with policies that are bound to the global response-time override bind point.
Default Global	Binds policies to the default bind point. At request time, if policy evaluation cannot be completed after all request-time policies for virtual servers have been evaluated, the appliance processes request-time default policies. At response time, if policy evaluation cannot be completed after all response-time policies for virtual servers have been evaluated, the appliance processes response-time default policies.
Goto Expression	*Optional*. Determines the next policy to evaluate in this bank. You can provide one of several values. NEXT means go to the policy with the next higher priority. END means stop evaluation. USE_INVOCATION_RESULT is applicable if this entry invokes another policy label. If the final Goto in the invoked bank has a value of END, evaluation stops. If the final Goto is anything other than END, the current policy label performs a NEXT. You can also enter a positive number that equals the priority number of the next policy to be evaluated. Finally, you can enter a numeric expression that produces the priority number of the next policy to be evaluated. The Goto can only proceed forward in a policy label. If you omit the Goto expression, it is the same as specifying END.
Invoke	*Optional*. In this field, you select the name of a policy label or a virtual server. A policy label is a set of policies that is bound to a load balancing or content switching virtual server. After evaluating the policies in the invoked policy label, the appliance continues evaluating policies that are bound to the current policy label (the selected bind point).

To globally bind or unbind a compression policy by using the configuration utility GL: Rewrote this 9.1 procedure. Needs tech review.

1. In the navigation pane, expand **Compression**, and then click **HTTP**.

2. In the details pane, on the **Policies** tab, click **Global Bindings**.
3. In the **Bind/Unbind Compression Policy(s) to Global** dialog box, do one of the following:
   - To globally bind a compression policy, click **Insert Policy**, and then click the policy name that you want to bind. Double-click the **Priority** field for the policy and set the priority. A lower value causes the policy to be evaluated before policies with a higher priority value.
   - To unbind a globally-bound compression policy, click the policies that you want to unbind, and then click **Unbind Policy**.
4. Click **OK**.

To globally bind a compression policy by using the configuration utility GL: I rewrote this procedure and split out bind and unbind into separate procedures. Also, this procedure is about binding and the original included information about disabling the policy, which should be another procedure, so I left that information out. Original title: To bind or unbind a globally bound compression policy.

1. In the navigation pane, expand **HTTP Compression**, and then click **Policies**.
2. In the details pane, click **Global Bindings**.
3. In the **Bind/Unbind Compression Policies to Global** dialog box, do one of the following:
   - To bind compression policies by using classic expressions, click **Classic Expression**. Click **Insert Policy**, and then click the policy name that you want to bind. Double-click the **Priority** field for the policy and set the priority. A lower value causes the policy to be evaluated before policies with a higher priority value. Click **Apply Changes**.

     Note: Optionally, to configure a expression as described in "Creating a Compression Policy," on page 10, double-click the field in the **Expression** column, and specify a valid expression.

   - To bind compression policies by using advanced expressions, click **Advanced Policies**. Select a **Request** or **Response** bind point, and then select a second level of binding of either **Override Global** or **Default Global**. A list of policies appears. These are policies that are bound to this bind point. Click **Insert Policy**, and then click the policy name that you want to bind.[GL: this advanced expression step included info about insert a *new* policy, but the classic expression

step does not. This is uneven so I removed the new policy reference.] Double-click the **Priority** field for the policy and set the priority. A lower value causes the policy to be evaluated before policies with a higher priority value.[GL: I removed the option to the drag and drop to assign priority level. Modifying the Prioirity field should be a sufficient method for assigning priority. We should avoid documenting multiple way to do simple tasks in GUI.] Specify other optional values, such as a Goto expression or invocation of an external policy label.

Note: To configure a Goto expression, double-click the field in the **Goto Expression** column, and enter valid priority level, the keywords NEXT or END, or an advanced expression. For more information, see the GoTo expression entry in the table, "Entries to Control Evaluation Flow in a Policy Label," on page 16. [GL: I made this cross reference specific to an entry in the table. Was this the intention?]

---

4. Click **Apply Changes**, and then click **Close**.

To unbind a globally-bound compression policy by using the configuration utility

1. In the navigation pane, expand **HTTP Compression**, and then click **Policies**.
2. In the details pane, click **Global Bindings**.
3. In the **Bind/Unbind Compression Policies to Global** dialog box, click the policies that you want to unbind, and then click **Unbind Policy**.

Binding and Unbinding Compression Policies to or from a Virtual Server

When you configure virtual-server based compression, you bind services and compression policies to a virtual server. This causes traffic that flows through a virtual server (to and from the bound services) to be subject to compression policies that you bind to the vserver.

If you bind a policy to a vserver, the policy is evaluated only by compression-enabled services that are bound to this vserver. When binding a policy, you set a priority value. Policies with a lower priority value are evaluated before policies with a higher value. After unbinding a policy from a vserver, the policy ceases to act on the services associated with that vserver.

To bind a compression policy to a load balancing vserver by using the NetScaler command line

At the NetScaler command prompt, type:

```
bind lb vserver <vserverName> -policyName <policyName> -priority <positiveInt>
```

GL: Need confirmation that the scope of the parallel GUI procedure and param list are consistent with the scope of the CLI method. Needs further review.

To unbind a compression policy from a load balancing vserver by using the NetScaler command line

At the NetScaler command prompt, type:

```
unbind lb vserver <vserverName> -policyName <policyName>
```

GL: Need confirmation that the scope of the parallel GUI procedure and param list are consistent with the scope of the CLI method. Needs further review.

.

Entries to Control Evaluation Flow in a Policy Label

Attribute	Specifies GL:I expected title of this table to be "Parameters for binding and unbinding compression policies for load balancing vserves." No mention in introduction about "policy labels." Needs further review..
Name	The name of the policy that you bound to the virtual server.
Bound To	The name of the virtual server to which the policy is bound.
Priority	The priority level used to determine when the policy is evaluated relative to other policies that are bound to this virtual server. Specify an integer. The lower the integer, the higher the priority.
Goto Expression	Determines the next policy to evaluate in this label. Goto can proceed only forward in a policy label. Omitting the Goto expression is the same as specifying END. You can provide one of the following values: • **NEXT**: Go to the policy with the next higher priority. • **END**: Stop evaluation. • **USE_INVOCATION_RESULT**: Applicable if this entry invokes another policy label. If the final Goto in the invoked bank has a value of END, evaluation stops. If the final Goto is anything other than END, the current policy label performs a NEXT. • **Positive number**: Priority number of the next policy to be evaluated. • **Numeric expression**: Expression that produces the priority number of the next policy to be evaluated.
Flow Type	You must specify a flow type to determine whether this policy is evaluated at request time or response time.

Please confirm that this table is 9.2 only.

Entries to Control Evaluation Flow in a Policy Label

Attribute	Specifies GL:I expected title of this table to be "Parameters for binding and unbinding compression policies for load balancing vserves." No mention in introduction about "policy labels." Needs further review..
Invoke Label Type	Designates a policy label type. The value can be one of the following: • **Request Vserver**: Invokes request-time policies that are associated with a virtual server. • **Response Vserver**: Invokes response-time policies that are associated with a virtual server. • **Policy label**: Invokes another policy label, as identified by the policy label for the bank.
Invoke Label Name	The name of a virtual server or a policy label, depending on the value that you specified for the invocation type.

There are two built-in policy labels: GL: This information on policy labels doesn't seem to flow. No mention of policy label in introduction. Move this information to the policy labels section? Needs further review.

- **_reqBuiltInDefaults**: This policy label is invoked from the request-time default bind point.
- **_resBuiltInDefaults**: This policy label is invoked from the response-time default bind point.

You can configure additional policy labels.

GL: I narrowed the following procedure to be about only binding. I removed "configuring" from the title and wrote a separate "unbinding" procedure.

To bind a compression policy to a load balancing vserver by using the configuration utility

1. In the navigation pane, expand **Load Balancing,** and then click **Virtual Servers**.
2. In the details pane, click the name of the virtual server, and then click **Open**.
3. In the **Configure Virtual Server (Load Balancing)** dialog box, on the **Policies** tab, click **Compression**. GL: added step below to specify either classic or advanced expression. Needs tech review.
4. Click either **Classic Expression** or **Advanced Expression**. Click **Insert Policy** and select the policy that you want to bind. Optionally, you can double-click the **Priority** field and type a new priority level.

Note: To invoke another policy label or to configure a policy for a request vserver, from the **Invoke** drop-down list, make an appropriate selection. If you select a request vserver, you can bind a compression policy for the selected vserver by double-clicking the Invoke field. The **Configure Compression Policies** dialog box appears.

5. Click **OK**, and then click **Close**.

[GL: New unbinding procedure below. Needs review.]

To unbind a compression policy from a load balancing vserver by using the configuration utility

1. In the navigation pane, expand **Load Balancing,** and then click **Virtual Servers**.
2. In the details pane, click the name of the virtual server for which you want to unbind a compression policy, and then click **Open**.
3. In the **Configure Virtual Server (Load Balancing)** dialog box, on the **Policies** tab, click the name of the policy that you want to unbind, and then click **Unbind Policy**.

To bind or unbind a compression policy to a load balancing vserver by using the configuration utility

1. In the navigation pane, expand **Load Balancing,** and then click **Virtual Servers**.
2. In the details pane, click the name of the virtual server, and then click **Open**.
3. In the **Configure Virtual Server (Load Balancing)** dialog box, on the **Policies** tab, click **Compression**, and then do one of the following:
   - To bind a policy, click **Insert Policy** and select the policy that you want to bind. Optionally, you can double-click the **Priority** field and type a new priority level.
   - To unbind a policy, click the name of the policy that you want to unbind, and then click **Unbind Policy**.
4. Click **OK**.

GL: Ideally, the following procedures need an edit consistent with other visualizer procedures. This procedure needs technical review for accuracy. I wasn't able to complete it. Needs further review.

To bind or unbind a compression policy to a load balancing vserver by using the Visualizer in the configuration utility

1. In the navigation pane, expand **Load Balancing**, and then click **Virtual Servers**.
2. In the details pane, click the name of the virtual server, and then click **Visualizer**.
3. In the **Load Balancing Visualizer** dialog box, in the right pane, click the **Available Resources** tab, and from the drop-down list in the tab, choose **Compression Policies**.
4. Select a policy and drag it to the load balancing vserver node in the details pane. The **Configure Binding Parameters** dialog box appears.[GL: This box didn't appear when I tested this.]
5. Enter a priority level in the **Priority** field. The priority is a positive integer.[GL: I didn't see where priorities are assigned in Visualier.]
6. Optionally, to configure a goto priority expression, click the **Configure** button next to the **Goto Priority Expression** text box.
   For information on the values accepted here, see the table, "Entries to Control Evaluation Flow in a Policy Label," on page 16.
7. Define when the policy is evaluated by selecting an option from the **Flow Type** drop-down list.
8. To invoke another policy label, click the field in the **Invoke Type** column, and select the type of policy label that you are adding (a global label or a virtual server bank).
9. In the **Invoke Name** field enter the label or virtual server name.
10. When you are done, click **OK**. For more information, see the table, "Entries to Control Evaluation Flow in a Policy Label," on page 16
11. To unbind a policy, refer to the instructions available in "To bind or unbind a compression policy to a load balancing vserver by using the configuration utility," on page 18.

Modifying a Compression Policy

You can modify the actions and expressions that are associated with a user-defined policy. However, you cannot make any modifications to the built-in compression policies.

To modify a compression policy by using the NetScaler command line

At the NetScaler command prompt, type: GL: Please tech review CLI command. Need confirmation that the scope of the parallel GUI procedure isconsistent with the scope of the CLI method. Needs further review.

```
set cmp policy <policyName> -resAction
(compress|gzip|deflate|nocompress) -rule <rule>
```

Example

```
set cmp policy Policy-CMP-2 -resAction NOCOMPRESS -rule
“REQ.HTTP.URL == /*.html”
```

[GL: considering inserting param list.]

To modify a compression policy by using the configuration utility

1. In the navigation pane, expand **HTTP Compression**, and then click **Policies**.**Compression**, and then click **HTTP**.
2. In the details pane, click the policy you want to modify, and then click **Open**.In the details pane, on the **Policies** tab, click the policy you want to modify, and then click **Open**.
3. In the **Configure Compression Policy** dialog box, select the action or expression, and then modify it.
4. Click **OK**.

Removing a Compression Policy

You can remove a compression policy if the policy is not bound globally or to a vserver. If the compression policy is bound, you must first unbind it. You cannot remove a built-in compression policy.

To remove an unbound compression policy by using the NetScaler command line

At the NetScaler command prompt, type:

```
rm cmp -policyName <policyName>
```

To remove an unbound compression policy by using the configuration utility

1. In the navigation pane, expand **HTTP Compression**, and then click **Policies**.**Compression**, and then click **HTTP**.
2. In the details pane, click the policy you want to remove, and then click **Remove**. In the details pane, on the **Policies** tab, click the policy you want to remove, and then click **Remove**.

Configuring and Using Policy Labels

[GL: Considering changing title to “Creating Policy Labels.”]You can create caching policy labels and configure banks of policies for these new labels. A compression policy label can be invoked only from one of the following bind points:

- Request override
- Request default
- Response override
- Response default

You can invoke a policy label any number of times, unlike a policy which can only be invoked once.

Note: You can use the NOPOLICY “dummy” policy to invoke any policy label from another policy label. The NOPOLICY entry is a placeholder that does not process a rule.

[GL: add corresponding CLI procedure here, which is missing from section. Need review.]

[GL: delete this intro after CLI method is added.]The following table describes the parameters that you configure when creating a compression policy label.

Parameters for creating compression policy labels

Parameters [GL: need to add correspnding CLI params here]	**Descriptions[GL: all descriptions need editing.]**
Name	The name of the policy label. This is a mandatory parameter and the value cannot be changed. Maximum length: 127 characters.
Evaluates	Determines when this policy label is applied: request or response time.
Priority	Determines the numeric priority of the policy. Policies with lower priority values are evaluated before policies with higher priority values.
Policy Name	The name of a policy in this policy label.
Expression	The policy rule. Classic and advanced policy expressions are described in detail in the *Citrix NetScaler Policy Configuration and Reference Guide* on the Documentation tab.
Action	The action taken when traffic matches this policy.

Parameters for creating compression policy labels

Parameters [GL: need to add correspnding CLI params here]	Descriptions[GL: all descriptions need editing.]
Goto Expression	*Optional*. Determines the next policy to evaluate in this bank. Omitting a value is the same as specifying END. Goto can only proceed forward in a policy label. You can specify one of the following values: • "NEXT. Go to the policy with the next higher priority. • "END. Stop evaluation. • "USE_INVOCATION_RESULT. Applicable if this entry invokes another policy label. If the final Goto in the invoked bank has a value of END, evaluation stops. If the final Goto is anything other than END, the current policy label performs a NEXT. • "Positive number. The priority number of the next policy to be evaluated. • "Numeric expression. An expression that produces the priority number of the next policy to be evaluated.
Invoke	*Optional*. You can invoke other policy labels by using this option. A policy label can be a set of policies that is bound to a load balancing or content switching virtual server, or it can be a set of policies that is bound to a policy label. In this field, you select the name of a policy label or a virtual server. After evaluating the policies in the invoked bank, the appliance continues evaluating policies that are bound to the current policy label (the selected bind point).

To create a policy label for caching by using the configuration utility GL: Rewrote procedure. Needs tech review.

1. In the navigation pane, expand **HTTP Compression**, and then click **Policy Labels**.
2. In the details pane, click **Add**.
3. In the **Create Compression Policy Label** dialog box, in **Name**, specify a name for the policy label.
4. In the **Evaluates** drop-down list, select whether the policy label will be evaluated at request time (**REQ**) or response time (**RES**).
5. Click **Insert Policy**, and then select the policy, or click **New Policy** to create a new policy.

Note: To ensure that the NetScaler processes the policy label at the right time, you can configure an invocation of this label from the policy labels that are associated with the built-in bind points. Select the appropriate policy label of request vserver from the **Invoke** column field.

6. Click **Create**, and then click **Close**.

Disabling Service-Level Compression

Use the following procedures to disable compression. [GL: What else can we say about disabling compression? Why do we call it “service-level”? Any red flags or particular information that user should know?]

To disable compression at the service level by using the NetScaler command line

At the NetScaler command prompt, type:

```
set service <serviceName> -CMP NO
```

To disable compression at the service level by using the configuration utility

1. In the navigation pane, expand **Load Balancing**, and then click **Services**.
2. In the details pane, on the **Services** tab**,** click the service, and then click **Open**.
3. On the **Advanced** tab, under **Settings**, clear the **Compression** check box.
4. Click **OK**.

Configuring Compression for a Load Balancing Virtual Server

When you configure virtual server-based compression, you bind services and compression policies to a virtual server. This causes traffic that flows through a virtual server to and from the bound services to be subject to compression policies that you bind to the vserver.

When a client request flows through a vserver, compression policies identify whether the client can accept compressed data. The NetScaler forwards the request to the destination server, as identified by a service that is bound to the load balancing vserver. After the NetScaler receives the response from the server, it determines whether the response is compressible based on the compression policies that are bound to the virtual server. If the content is compressible, it is compressed and forwarded to the client.

Task overview: configuring compression for a load balancing vserver. GL: Rewrite effort removed these task overview topics. Delete? Needs further review.

1. Enable compression and load balancing, as described in "Enabling and Disabling Compression and Related Features," on page 2.
2. Add a vserver, as described in the chapters on load balancing and SSL offloading in the *Citrix NetScaler Traffic Management Guide*.
3. Add one or more HTTP or SSL services and bind the services to a vserver, as described in the chapters on load balancing and SSL offloading in the *Citrix NetScaler Traffic Management Guide*.
4. Create compression policies, as described in "Configuring Compression Policies and Actions," on page 6.
5. Bind the compression policies to the vserver, as described in "Binding and Unbinding Compression Policies to or from a Virtual Server," on page 15.

Viewing Compression Statistics

You view statistics such as compression requests, compressible bytes received, compressed bytes transmitted, and compression ratio. You can also collect compression statistics in an SNMP monitor.

Viewing Compression Statistics By Using the Dashboard Utility

The Dashboard utility displays summary and detailed compression statistics in tabular and graphic format.

Note: For more information about the statistics and charts, see the Dashboard help on the NetScaler appliance.

To view compression statistics by using the Dashboard

1. In the Dashboard utility, in the **Select Group** list, choose **Compression**, and then do one or more of the following:
   - To view of summary of compression statistics, click the **Summary** tab.
   - To view compression statistics by protocol type, click the **Details** tab.
   - To view the rate of requests processed by the compression feature, click the **Chart** tab.

Viewing Compression Statistics By Using SNMP

You can view the following compression statistics by using the SNMP network management application.

Note: For more information on SNMP, see the *Citrix NetScaler Administration Guide*.

- Number of compression requests (OID: 1.3.6.1.4.1.5951.4.1.1.50.1)
- Number of compressed bytes transmitted (OID: 1.3.6.1.4.1.5951.4.1.1.50.2)
- Number of compressible bytes received (OID: 1.3.6.1.4.1.5951.4.1.1.50.3)
- Number of compressible packets transmitted (OID: 1.3.6.1.4.1.5951.4.1.1.50.4)
- Number of compressible packets received (OID: 1.3.6.1.4.1.5951.4.1.1.50.5)
- Ratio of compressible data received and compressed data transmitted (OID: 1.3.6.1.4.1.5951.4.1.1.50.6)
- Ratio of total data received to total data transmitted (OID: 1.3.6.1.4.1.5951.4.1.1.50.7)

Viewing Additional Compression Statistics

When the NetScaler compresses a response based on a policy, the policy hit counter is incremented. You can view statistics for a compression policy, including the number of hits.

To view details and hits to a compression policy by using the command line

From the command prompt, type:

```
sh cmp policy <policyName>
```

To view a summary of compression statistics by using the command line

```
stat cmp
```

To view detailed statistics of compression by using the command line

```
stat cmp -detail
```

To view compression statistics by using the configuration utility

1. In the navigation pane, click **HTTP Compression**.
2. In the details pane, click the **Statistics** link.

Note: To view statistics for an individual policy, expand **HTTP Compression**, and then click **Policies**.**Compression**, and then click **HTTP**. In the details pane, click the policy for which you want to view statistics.
