



# Content Rewrite Profile

Avi Technical Reference (v20.1)

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# Content Rewrite Profile

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Associating a content rewrite profile with an HTTP(s) virtual service enables modification of HTML content within the body of a server response. A content rewrite policy can be created and attached to a virtual service via Avi Vantage's CLI or using an API.

**Note:** Client request rewriting will be supported in a future releases.

A content rewrite profile specifies one or more strings to be searched for within the body of the server response. The profile neither modifies client requests nor server headers. Headers may be modified using other features such as DataScripts or policies. For information about rewriting response headers, read [this article](#).

## About Searching

- Content rewriting can be computationally expensive. Therefore, it is recommended to limit the search-replace to specific content types that should be modified. The `rewritable_content_ref` argument is used to specify a string group, which contains a list of eligible content types. By default, Avi Vantage configurations include the System-Rewritable-Content-Types string group, a list containing common text-based HTML MIME types such as `text/html`, `text/plain`, etc. This ensures that base64-encoded content, such as images, are not inspected when performing search-replace operations.
- Search is conducted throughout the entire body of the eligible server response, with no length limit.
- If a search string is found in multiple locations within a single HTTP response body, it will be replaced in all those locations.
- Multiple search-replace pairs can be specified in a single content rewrite profile; all are actively and independently applied. The content replacement is not recursive. For example, consider a profile having a search-replace of "a" with "b", and a second search-replace of "b" with "c". Only pre-existing instances of "b" in the server response will be replaced with "c." Instances of "a" that are replaced with "b" are not recursively checked and replaced with "c." Thus, with both pairs applied, a server response body of "abca" would be rewritten to "bccb."
- Searches are not case sensitive.

## Replacement String Types

The found strings may be replaced with new strings via one of three methods used to specify the new string. 1. Literal strings are basic text strings to be used for replacing data found in response bodies. 2. Strings within identified HTTP headers can be incorporated into replacement strings. Just specify the header name, and its current value will be used as the replacement string. If the header does not exist, the search string will be replaced with null data, effectively removing the search string from the response. When using HTTP Header, set the Type to `HTTP_HEADER_VAR`, and then input the name of the header to use. 3. DataScript can be used to generate a replacement string. Create and attach a new DataScript to the virtual service. It must use the [avi.http.set\\_reqvar\(\)](#) function to specify the new value. For example, a call to `avi.http.set_reqvar("key1", "value1")` creates a variable named `key1` and sets it to `value1`. In the content rewrite profile, set the type to `DATASCRIPT_VAR` and the variable to `key1`. With each HTTP request, the DataScript can uniquely set the DataScript variable to `key1` and assign it a new value (e.g., `value1`, `value2`, and so on), based on the script logic. If no DataScript has been assigned to the virtual service, if the variable is set to a different name, or no variable has been set, the content rewrite profile will replace the searched string with null data, effectively removing the searched string from the response.

## CLI Interface

In the below terminal dialog, notice these operative fields within the `VirtualService` object named `VS3`: \*

```
content_rewrite.rewritable_content_ref * content_rewrite.request_rewrite_enabled *
```

```
content_rewrite.response_rewrite_enabled * content_rewrite.rsp_match_replace_pair.
match_string * content_rewrite.rsp_match_replace_pair.replacement_string.type *
content_rewrite.rsp_match_replace_pair.replacement_string.val
```

We have inserted [TAB][TAB] in the below terminal dialog to indicate the user's typing of 2 tabs, causing the Avi shell to reveal command-line syntax.

```
[admin:10-160-0-3]: > configure virtualservice VS3
Updating an existing object. Currently, the object is:
+-----+-----+
| Field | Value |
+-----+-----+
| uuid | virtualservice-d49aff8a-2846-457b-98c7-657c18675b0e |
| name | VS3 |
| enabled | True |
| services[1] | |
| port | 80 |
| enable_ssl | False |
| port_range_end | 80 |
| application_profile_ref | System-HTTP |
| network_profile_ref | System-TCP-Proxy |
| pool_ref | VS3-pool |
| se_group_ref | Default-Group |
| network_security_policy_ref | vs-VS3-Default-Cloud-ns |
| analytics_policy | |
| full_client_logs | |
| enabled | True |
| duration | 30 min |
| all_headers | False |
| client_insights | ACTIVE |
| metrics_realtime_update | |
| enabled | True |
| duration | 30 min |
| vrf_context_ref | global |
| enable_autogw | True |
| analytics_profile_ref | System-Analytics-Profile |
| weight | 1 |
| delay_fairness | False |
| max_cps_per_client | 0 |
| limit_doser | False |
| type | VS_TYPE_NORMAL |
| cloud_type | CLOUD_NONE |
| use_bridge_ip_as_vip | False |
| flow_dist | LOAD_AWARE |
| ign_pool_net_reach | False |
| ssl_sess_cache_avg_size | 1024 |
| remove_listening_port_on_vs_down | False |
| tenant_ref | admin |
| cloud_ref | Default-Cloud |
| east_west_placement | False |
```

```

| scaleout_ecmp           | False |
| active_standby_se_tag  | ACTIVE_STANDBY_SE_1 |
| flow_label_type        | NO_LABEL |
| content_rewrite        |
|   rewritable_content_ref | System-Rewritable-Content-Types |
| request_rewrite_enabled | False |
| response_rewrite_enabled | False |
| sideband_profile       |
|   sideband_max_request_body_size | 1024 bytes |
| vip[1]                 |
|   vip_id                | 1 |
|   ip_address            | 10.160.33.200 |
|   enabled               | True |
|   auto_allocate_ip     | False |
|   auto_allocate_floating_ip | False |
|   avi_allocated_vip    | False |
|   avi_allocated_fip    | False |
| vsvip_ref              | vsvip-VS3-Default-Cloud |
+-----+-----+
[admin:10-160-0-3]: virtualservice> content_rewrite
[admin:10-160-0-3]: virtualservice:content_rewrite> where
Tenant: admin
+-----+-----+
| Field          | Value |
+-----+-----+
| rewritable_content_ref | System-Rewritable-Content-Types |
| request_rewrite_enabled | False |
| response_rewrite_enabled | False |
+-----+-----+
[admin:10-160-0-3]: virtualservice:content_rewrite> response_rewrite_enabled [TAB][TAB]
request_rewrite_enabled  Enable rewrite on request body.
rewritable_content_ref   Rewrite only content types listed in this string group. Content types not present in this list
[admin:10-160-0-3]: virtualservice:content_rewrite> response_rewrite_enabled
Overwriting the previously entered value for response_rewrite_enabled
[admin:10-160-0-3]: virtualservice:content_rewrite> where
Tenant: admin
+-----+-----+
| Field          | Value |
+-----+-----+
| rewritable_content_ref | System-Rewritable-Content-Types |
| request_rewrite_enabled | False |
| response_rewrite_enabled | True |
+-----+-----+
[admin:10-160-0-3]: virtualservice:content_rewrite> rsp_match_replace_pair
New object being created
[admin:10-160-0-3]: virtualservice:content_rewrite:rsp_match_replace_pair> where
Tenant: admin
No result.

[admin:10-160-0-3]: virtualservice:content_rewrite:rsp_match_replace_pair> match_string ABC
[admin:10-160-0-3]: virtualservice:content_rewrite:rsp_match_replace_pair> replacement_string

```

```
[admin:10-160-0-3]: virtualservice:content_rewrite:rsp_match_replace_pair:replacement_string> type [TAB][TAB]
datascript_var    The variable exposed in datascript to be used as the replacement string in content rewrite.
http_header_var   The HTTP header to be used as the replacement string in content rewrite.
literal_string    The literal string to be used as the replacement string in content rewrite.
[admin:10-160-0-3]: virtualservice:content_rewrite:rsp_match_replace_pair:replacement_string> type literal_string
[admin:10-160-0-3]: virtualservice:content_rewrite:rsp_match_replace_pair:replacement_string> val XYZ
[admin:10-160-0-3]: virtualservice:content_rewrite:rsp_match_replace_pair:replacement_string> save
[admin:10-160-0-3]: virtualservice:content_rewrite:rsp_match_replace_pair> where
Tenant: admin
+-----+-----+
| Field          | Value          |
+-----+-----+
| match_string   | ABC            |
| replacement_string |               |
| type           | LITERAL_STRING |
| val            | XYZ            |
+-----+-----+
[admin:10-160-0-3]: virtualservice:content_rewrite:rsp_match_replace_pair> save
[admin:10-160-0-3]: virtualservice:content_rewrite> save
[admin:10-160-0-3]: virtualservice> save
+-----+-----+
| Field          | Value          |
+-----+-----+
| uuid           | virtualservice-d49aff8a-2846-457b-98c7-657c18675b0e |
| name           | VS3            |
| enabled        | True           |
| services[1]    |                |
| port           | 80             |
| enable_ssl     | False          |
| port_range_end | 80             |
| application_profile_ref | System-HTTP   |
| network_profile_ref | System-TCP-Proxy |
| pool_ref       | VS3-pool       |
| se_group_ref   | Default-Group  |
| network_security_policy_ref | vs-VS3-Default-Cloud-ns |
| analytics_policy |                |
| full_client_logs |                |
| enabled        | True           |
| duration       | 30 min         |
| all_headers    | False          |
| client_insights | ACTIVE         |
| metrics_realtime_update |                |
| enabled        | True           |
| duration       | 30 min         |
| vrf_context_ref | global         |
| enable_autogw  | True           |
| analytics_profile_ref | System-Analytics-Profile |
| weight         | 1              |
| delay_fairness | False          |
| max_cps_per_client | 0              |
| limit_doser    | False          |
+-----+-----+
```

```

| type | VS_TYPE_NORMAL |
| cloud_type | CLOUD_NONE |
| use_bridge_ip_as_vip | False |
| flow_dist | LOAD_AWARE |
| ign_pool_net_reach | False |
| ssl_sess_cache_avg_size | 1024 |
| remove_listening_port_on_vs_down | False |
| tenant_ref | admin |
| cloud_ref | Default-Cloud |
| east_west_placement | False |
| scaleout_ecmp | False |
| active_standby_se_tag | ACTIVE_STANDBY_SE_1 |
| flow_label_type | NO_LABEL |
| content_rewrite | |
| rewritable_content_ref | System-Rewritable-Content-Types |
| request_rewrite_enabled | False |
| response_rewrite_enabled | True |
| rsp_match_replace_pair[1] | |
| match_string | ABC |
| replacement_string | |
|   type | LITERAL_STRING |
|   val | XYZ |
| sideband_profile | |
|   sideband_max_request_body_size | 1024 bytes |
| vip[1] | |
|   vip_id | 1 |
|   ip_address | 10.160.33.200 |
|   enabled | True |
|   auto_allocate_ip | False |
|   auto_allocate_floating_ip | False |
|   avi_allocated_vip | False |
|   avi_allocated_fip | False |
| vsvip_ref | vsvip-VS3-Default-Cloud |
+-----+-----+

```

To view the content rewrite profile configuration on a virtual service,

```

[admin:10-160-0-8]: show virtualservice virtualservice-1
+-----+-----+
| Field | Value |
+-----+-----+
| uuid | virtualservice-80519ed3-00f8-437d-9b4e-66c12f331f60 |
| name | virtualservice-1 |
| enabled | True |
| services[1] | |
| port | 9000 |
| enable_ssl | False |
| port_range_end | 9000 |
| services[2] | |
| port | 9443 |

```

```

|enable_ssl | True
|port_range_end | 9443
|application_profile_ref | applicationprofile-1
|network_profile_ref | System-TCP-Proxy
|pool_ref | pool-1
|se_group_ref | Default-Group
|ssl_key_and_certificate_refs[1] | System-Default-Cert-EC
|ssl_profile_ref | System-Standard
|analytics_policy |
|full_client_logs |
|enabled | True
|duration | 0 min
|throttle | 0 per_second
|client_insights | NO_INSIGHTS
|all_headers | True
|metrics_realtime_update |
|enabled | True
|duration | 0 min
|udf_log_throttle | 0 per_second
|significant_log_throttle | 0 per_second
|enabled | True
|vrf_context_ref | global
|enable_autogw | True
|analytics_profile_ref | System-Analytics-Profile
|vs_datascripts[1] |
|index | 0
|vs_datascript_set_ref | vsds1-0
|weight | 1
|delay_fairness | False
|max_cps_per_client | 0
|limit_doser | False
|type | VS_TYPE_NORMAL
|cloud_type | CLOUD_NONE
|use_bridge_ip_as_vip | False
|flow_dist | CONSISTENT_HASH_SOURCE_IP_ADDRESS_AND_PORT
|ign_pool_net_reach | False
|ssl_sess_cache_avg_size | 1024
|remove_listening_port_on_vs_down | False
|close_client_conn_on_config_update | False
|bulk_sync_kvcache | False
|tenant_ref | admin
|cloud_ref | Default-Cloud
|east_west_placement | False
|scaleout_ecmp | False
|active_standby_se_tag | ACTIVE_STANDBY_SE_1
|flow_label_type | NO_LABEL
|content_rewrite |
|rewritable_content_ref | sg-1
|request_rewrite_enabled | False
|response_rewrite_enabled | True
|rsp_match_replace_pair[1] |

```

```

| match_string | The Big Picture
| replacement_string |
| type | LITERAL_STRING
| val | The Bigger Picture
| rsp_match_replace_pair[2] |
| match_string | abankerisafellowwholendsyouhisumbrellawhenthесunіsshіng
| replacement_string |
| type | LITERAL_STRING
| VAL | ABANKERISAFELLOWWHOLENDYOUHISUMBRELLAWHENTHESUNISSHINING
| rsp_match_replace_pair[3] |
| match_string | literal
| replacement_string |
| type | LITERAL_STRING
| val | blah
| rsp_match_replace_pair[4] |
| match_string | httpvar
| replacement_string |
| type | HTTP_HEADER_VAR
| val | http_host
| match_string | datascriptvar
| replacement_string |
| type | DATASCRIPТ_VAR
| val | modified_hostname
| rsp_match_replace_pair[6] |
| match_string | fghijkl
| replacement_string |
| type | HTTP_HEADER_VAR
| val | http_host
| rsp_match_replace_pair[7] |
| match_string | datascript_some_var
| replacement_string |
| type | DATASCRIPТ_VAR
| val | some_var
| rsp_match_replace_pair[8] |
| match_string | integer_variable
| replacement_string |
| type | DATASCRIPТ_VAR
| val | int_variable
| rsp_match_replace_pair[9] |
| match_string | true_var
| replacement_string |
| type | DATASCRIPТ_VAR
| val | true_variable
| rsp_match_replace_pair[10] |
| match_string | false_var
| replacement_string |
| type | DATASCRIPТ_VAR
| val | false_variable
| rsp_match_replace_pair[11] |
| match_string | unset_var
| replacement_string |

```



type	DATASCRIPT_VAR
val	get_unset
rsp_match_replace_pair[12]	
match_string	variable1
replacement_string	
type	DATASCRIPT_VAR
val	multi_var1
rsp_match_replace_pair[13]	
match_string	small_match
replacement_string	
type	LITERAL_STRING
val	abcdefghijklmnopqrstuvwxyz 0123456789 ABCDEFGHIJKLMNOPQRSTUVWXYZ 9876543210 ABCDEFGHIJKLMNOPQRSTUVWXYZ 0123456789 9876543210_abcdefghijklmnop
rsp_match_replace_pair[14]	
match_string	ZYXWVUTSRQPONMLKJIHGFEDCBA_9876543210_0123456789_zyxwvutsrqponmlkjihgfedcba_The quick brown fox jumps over the lazy dog_Pack my box with five dozen liquor jugs.
replacement_string	
type	DATASCRIPT_VAR
val	modified_hostname
rsp_match_replace_pair[15]	
match_string	nginx
replacement_string	
type	LITERAL_STRING
val	content rewrite
rsp_match_replace_pair[16]	
match_string	apache
replacement_string	
type	LITERAL_STRING
val	NGINX
rsp_match_replace_pair[17]	
match_string	FEDORA
replacement_string	
type	LITERAL_STRING
val	Ubuntu
rsp_match_replace_pair[18]	
match_string	SerVer
replacement_string	
type	LITERAL_STRING
val	backend
rsp_match_replace_pair[19]	
match_string	SSL_VERSION_TLS1_1
replacement_string	
type	LITERAL_STRING
val	SSL_VERSION_TLS1_2
rsp_match_replace_pair[20]	
match_string	Gambardella
replacement_string	
type	LITERAL_STRING
val	alledrabmaG
rsp_match_replace_pair[21]	
match_string	ztoa

```
| replacement_string | |
| type               | LITERAL_STRING
| val                | ZTOA
| vip[1]             |
| vip_id             | 0
| ip_address         | 10.160.35.63
| enabled            | True
| auto_allocate_ip   | False
| auto_allocate_floating_ip | False
| avi_allocated_vip  | False
| avi_allocated_fip  | False
| auto_allocate_ip_type | V4_ONLY
| vsvip_ref          | vsvip-beK7uc
| use_vip_as_snat    | False
| traffic_enabled    | True
+-----+
[admin:10-160-0-8]:
```

## Suggested Reading

- [DataScript Precedence](#)