



Pulse Secure Virtual Traffic Manager: REST API Guide

Supporting Pulse Secure Virtual Traffic Manager 19.3

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Pulse Secure Virtual Traffic Manager: REST API Guide

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Preface

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- [Requesting Technical Support](#) 2

Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Pulse Secure technical documentation.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used in the flow of the text to highlight specific words or phrases.

| Format | Description |
|--------------------|---|
| bold text | Identifies command names |
| | Identifies keywords and operands |
| | Identifies the names of user-manipulated GUI elements |
| | Identifies text to enter at the GUI |
| <i>italic text</i> | Identifies emphasis |
| | Identifies variables |
| | Identifies document titles |
| Courier Font | Identifies command output |
| | Identifies command syntax examples |

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

| Convention | Description |
|--------------------|--|
| bold text | Identifies command names, keywords, and command options. |
| <i>italic text</i> | Identifies a variable. |
| [] | Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets. |

| Convention | Description |
|------------------------------------|---|
| { x y z } | A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options. |
| x y | A vertical bar separates mutually exclusive elements. |
| < > | Non-printing characters, for example, passwords, are enclosed in angle brackets. |
| ... | Repeat the previous element, for example, member[member...]. |
| \ | Indicates a “soft” line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash. |

Notes and Warnings

Note, Attention, and Caution statements might be used in this document.

Note: A Note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION

An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.

CAUTION

A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

Requesting Technical Support

Technical product support is available through the Pulse Secure Global Support Center (PSGSC). If you have a support contract, file a ticket with PSGSC.

- Product warranties—For product warranty information, visit <https://support.pulsesecure.net/product-service-policies/>

Self-Help Online Tools and Resources

For quick and easy problem resolution, Pulse Secure provides an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <https://support.pulsesecure.net>
- Search for known bugs: <https://support.pulsesecure.net>
- Find product documentation: <https://www.pulsesecure.net/techpubs>
- Download the latest versions of software and review release notes: <https://support.pulsesecure.net>
- Open a case online in the CSC Case Management tool: <https://support.pulsesecure.net>

- To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://support.pulsesecure.net>

For important product notices, technical articles, and to ask advice:

- Search the Pulse Secure Knowledge Center for technical bulletins and security advisories: <https://kb.pulsesecure.net>
- Ask questions and find solutions at the Pulse Community online forum: <https://community.pulsesecure.net>

Opening a Case with PSGSC

You can open a case with PSGSC on the Web or by telephone.

- Use the Case Management tool in the PSGSC at <https://support.pulsesecure.net>.
- Call 1-844 751 7629 (Toll Free, US).

For international or direct-dial options in countries without toll-free numbers, see <https://support.pulsesecure.net/support/support-contacts/>

Introduction to the REST API

This chapter provides an overview of the Pulse Secure Virtual Traffic Manager (Traffic Manager) REST API. This chapter contains the following sections:

| | |
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| • About This Guide | 5 |
| • Introducing REST | 5 |
| • Why use a REST API | 6 |
| • A REST-Based Architecture | 6 |
| • Scope of This Release | 7 |

About This Guide

The *Pulse Secure Virtual Traffic Manager: REST API Guide* describes the Traffic Manager product REST API.

This guide introduces you to the syntax and constructs used in the REST API, and is intended as a complete reference to all REST resources available in the Traffic Manager.

Introducing REST

REST (REpresentational State Transfer) is a framework for API design. It is based on generic facilities of the standard HTTP protocol, including the six basic HTTP methods (GET, POST, PUT, DELETE, HEAD, INFO) and the full range of HTTP return codes.

A REST interface partitions the API into a series of "resources," each of which can be accessed using one or more HTTP methods. (In the Traffic Manager, only the GET, PUT, and DELETE methods are used; HEAD, POST and INFO are not currently implemented). Each method operates in the Traffic Manager as follows:

- **GET:** Obtain a representation of the resource, without modifying server state (except perhaps for logging purposes).
- **PUT:** Create a new resource or apply some change to a resource. Where the resource exists, only those properties specified in the request are modified; all others remain unchanged. If a resource object does not exist, a new one is created.
- **DELETE:** Delete an existing resource.

Importantly, each resource is uniquely identified with an address, or URI (Uniform Resource Identifier). In other words, if you know the URI you can access the resource (subject to the normal authorization/authentication processes associated with accessing the administrative systems of the Traffic Manager).

Since all resources have URIs, resources can point to other resources by embedding the URIs of related resources within their representations.

In the Traffic Manager, all resources are represented and stored as JSON (JavaScript Object Notation) structures. Requests and responses that interact with the Traffic Manager through the REST API must adopt the same format.

The full range of HTTP return codes is available in REST, although in practice a useful subset can be identified and applied consistently. So, for example, it should be evident from the response itself whether a request has succeeded or not, without any need for parsing the body of the response. However, the Traffic Manager always attempts to provide extra information regarding a failure into the response body. For more details, see [“Errors” on page 20](#).

Why use a REST API

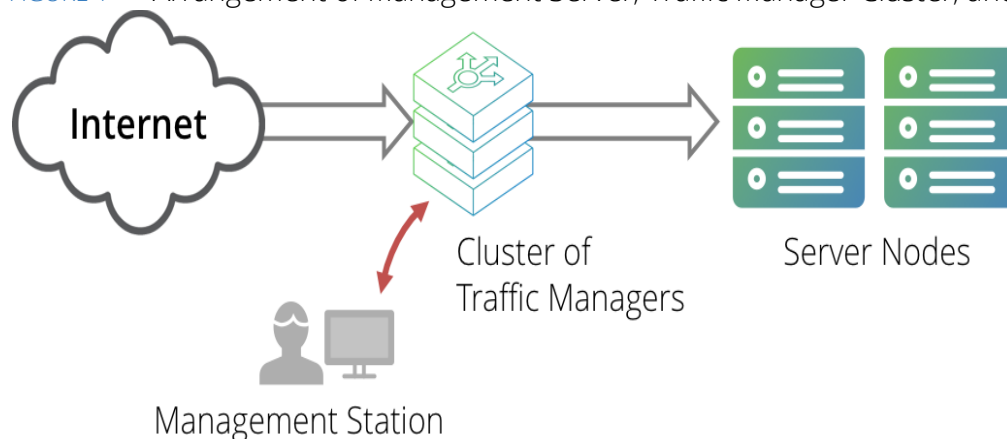
REST interfaces have become popular in public APIs because of their inherent simplicity. An API can focus on available resources, with details regarding updating and deleting of each resource delegated to the appropriate HTTP method in predictable ways.

The purpose of implementing a REST API is not primarily to add functionality but to add structure. Because of the inherent similarity of all REST APIs (by virtue of their underlying HTTP structure), familiarity with any REST API brings familiarity with all of them. In many cases it is just as easy to implement to a REST design as it is to use a more ad hoc API design, while reaping the benefits that come with well-understood REST conventions.

Finally, the availability of return codes is another example of leveraging known semantics when building a useful API. Without a meaningful return code it becomes necessary to parse every response to find out whether it worked or not. In addition, most modern browsers and Web programming frameworks expect that specific HTTP error codes are set in the event of error and respond differently depending on the code. This is especially apparent in the case of AJAX requests, which are often handled differently by many modern Javascript frameworks depending on the status code returned from the server.

A REST-Based Architecture

FIGURE 1 Arrangement of Management Server, Traffic Manager Cluster, and Server Nodes



A cluster of traffic managers is normally managed using the web-based Administration UI on one of the machines. The Traffic Manager's REST API provides an alternative means to remotely administer and configure a Traffic Manager cluster.

The REST service is enabled by default for new Traffic Manager instances. To toggle the REST service between enabled and disabled, see [“Enabling and Disabling the API” on page 25](#).

Note: For Traffic Managers running version 11.0 or earlier, the REST service is disabled by default. To preserve the integrity of your configuration, the REST service state is unchanged during an upgrade to a Traffic Manager version later than 11.0.

The Traffic Manager REST API can be used by any HTTP client or application environment that supports HTTP services.

The REST API is an interface used to configure, manage, and monitor a cluster of Traffic Managers remotely.

A management application can issue a REST request to any one of the Traffic Managers in a cluster. The application may be running on a stand-alone management server, one of the server nodes, or even on one of the Traffic Managers.

ATTENTION

When upgrading your Traffic Manager cluster to the latest software version, do not attempt to use the REST API until all cluster members have been successfully upgraded. Use of the REST API on a cluster in a mixed-version state can result in unexpected behavior.

The application can issue the request to any of your Traffic Managers. All Traffic Managers in the cluster automatically synchronize their configuration, so a configuration change sent to one machine is automatically replicated across the cluster.

ATTENTION

Due to the nature of the REST API's ability to access and modify your Traffic Manager configuration, it is strongly recommended that you disallow access to this service from outside of your trusted network.

Scope of This Release

This document describes the features and capabilities of the REST API for the Pulse Secure Virtual Traffic Manager 19.3 release. The REST API version referred to in this document is 7.1.

The API performs basic type checking, although Pulse Secure recommends that your client applications provide suitable validation to ensure the suitability of the configuration data being provided to the Traffic Manager.

All defined users in the system have the ability to authenticate a connection through the Traffic Manager REST API. However, you cannot modify the users configuration file in any way, so it is not possible to add, edit, or delete users through the API.

A full list of specific features, capabilities, and API versions supported by this release can be found in the release notes supplied with your product variant.

Typical Usage in the Traffic Manager

This chapter describes the usage, syntax, and structure of the Traffic Manager REST API. This chapter contains the following sections:

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|--|----|
| • The Resource Model | 9 |
| • Resource URI Patterns | 12 |
| • Traversing the Tree | 14 |
| • The Traffic Manager REST Service | 16 |
| • The Pulse Secure Virtual Web Application Firewall REST Interface | 17 |
| • Authentication | 17 |
| • Supported HTTP Methods | 18 |
| • Further Aspects of the Resource Model | 20 |
| • Traffic Manager UI Features | 25 |

The Resource Model

The Traffic Manager REST API is made up of a hierarchy of resources that are manipulated using standard HTTP calls to a listener service running along side the Traffic Manager. HTTP URIs are used to address the resources in the system.

There are three resource types:

- Configuration: to represent Traffic Manager configuration objects.
- Counters: for reporting through SNMP counters.
- Information: for system information.

Counters and Information resources are read-only, whereas Configuration resources are fully interactive and map directly to the native Traffic Manager configuration system. Each concept, such as pools, virtual servers, TrafficScript rules, or Service Level Monitoring classes, has an associated configuration resource model.

All resources are represented as JSON structures (MIME type `application/json`), and objects of each resource type are captured in this format.

Typically, a configuration resource follows this format:

```
{
  "properties": {
    "sectionname": {
      "key1": "stringvalue1",
      "key2": numericvalue2,
      "key3": booleanvalue3
    }
  }
}
```

A single instance of a resource, for example a virtual server, contains a primary group entitled "properties". This contains all configuration keys attributable to this resource type.

Counter resources contain dynamically generated data to correspond to SNMP counters in the Traffic Manager.

Sections

Sections are designed to contain properties (or "keys") that have a commonality of purpose or perhaps apply in certain circumstances. For example, monitor classes may have keys that apply only to monitors of particular types.

In a configuration resource, the properties group contains several sections, one for each logical set of keys. There is always a section entitled "basic," containing common configuration items, followed by one or more additional sections according to the specification of the resource.

A counter resource contains a single section, "statistics," listing the SNMP counters associated with the resource. Similarly, an information resource contains a single section, "information," listing the system information properties applicable to this Traffic Manager.

Data Types

Each key:value pair is then presented as a comma-separated list within each section, according to the specification shown throughout this guide. Key names are always delimited by quotes, with the values according to the following rules:

| Type | Value |
|--------------|--|
| Boolean | A value of <code>true</code> or <code>false</code> (case-sensitive). For example: <code>"key1": true,</code> <code>"key2": false</code> |
| Int | A numeric positive or negative value with no decimal point. For example: <code>"key1": 1024,</code> <code>"key2": -10</code> |
| Unsigned Int | A numeric positive value with no decimal point. For example: <code>"key1": 0,</code> <code>"key2": 50</code> |

| Type | Value |
|-----------------|---|
| Float | <p>A numeric positive or negative value that can have a decimal point.</p> <p>For example:</p> <pre>"key1": 1.0, "key2": -1024.111</pre> |
| String | <p>A set of alpha-numeric characters that may not include new-lines. Non-alpha characters must use correct character escapes.</p> <p>For example:</p> <pre>"key1": "Hello world", "key2": "", "key3": "Hello y\'all"</pre> |
| Freeform String | <p>A set of alpha-numeric characters that can contain new-lines. Non-alpha characters must use correct character escapes, and a newline must be represented by a \n.</p> <p>For example:</p> <pre>"key1": "Multi-line\nString",</pre> |
| Password | <p>A string that cannot be read, only written to. When read, it is displayed as a structure that indicates if the password has been set (is non-empty).</p> <p>For example, when reading the key:</p> <pre>"key1": { "password_set": false }, "key2": { "password_set": true }</pre> <p>When writing to the key, the structure can be unchanged, or a new password can be set:</p> <pre>"key2": { "password_set": true }, "key1": "secret123"</pre> |
| Time | <p>Times are represented as strings in ISO8601 time format, including a time zone designator.</p> <p>For example:</p> <pre>{Year}-{Month}-{Day}T{Hour}:{Minute}:{Second}{Time Zone}</pre> |
| Set | <p>This is a collection of unique unordered items of a particular type, stored as an array.</p> <p>For consistency, a set is rendered in alpha-numeric order.</p> <p>For example:</p> <pre>"key": ["Item A", "Item B", "Item D"]</pre> |

| Type | Value |
|--------|---|
| List | <p>This is a collection of ordered items of a particular type. It may contain duplicates and is stored as a standard array.</p> <p>For example:</p> <pre>"key": ["Item A", "Item C", "Item A"]</pre> |
| Tables | <p>This is a special type designed to allow nested data within a single config key. In some circumstances, you might wish to specify a list or array of data items, such as a list of pool nodes, where each item has one or more extra pieces of configuration data to be attached to it.</p> <p>Each one of these nested list entries expects a value known as the “primary key”, used to identify it. Each sub-key value should then be specified in the same way.</p> <p>For example:</p> <pre>"key": [{ "prmkey": "Hello World", "subkey1": false, "subkey2": ["Item 1", "Item 2"] }, { "prmkey": "Other text", "subkey1": true, "subkey2": [] },]</pre> |

Resource URI Patterns

ATTENTION

Resource URIs are case-sensitive.

The Traffic Manager provides access to its resources through a common base URI that identifies the root of the resource model:

```
https://<host>:<port>/api/tm/<version>
```

In this URI path:

- <host>: The hostname of the Traffic Manager whose REST API you are accessing.
- <port>: The port that the REST API is published on (typically "9070").
- <version>: The version number of the REST API you are accessing. Details of supported versions are contained in the release notes supplied with your product variant.

ATTENTION

All client applications and scripts that access the Traffic Manager REST API must use the same supported major version of the API at any one time. The Traffic Manager does not support interactions using multiple versions concurrently.

Note: In the previous example, a scheme of HTTPS is used to signify an encrypted connection from a remote client. HTTP is supported only where the connection is to a server on the same host. For further details, see ["Authentication" on page 17](#).

The Traffic Manager presents different resource types at specific child nodes under this root URI.

Configuration Resources

Configuration resources map to objects in the Traffic Manager's configuration system. To access configuration resources, use the following URI pattern:

```
https://<host>:<port>/api/tm/<version>/config/active
```

Instances of a particular configuration resource, such as a virtual server, are persistently stored and alter the host Traffic Manager's behavior if changed. Additionally, changes you make here are synchronized automatically to all other Traffic Managers in the cluster.

To view or modify a stored configuration resource record, append the full path to the end of the base URI. For example, to issue a request for a virtual server resource named "Web", use the following URI:

```
https://myhost:9070/api/tm/7.1/config/active/virtual_servers/Web
```

Counter and Information Resources

Counter resources map to SNMP counter objects generated by the Traffic Manager. To access counter resources, use the following URI pattern:

```
https://<host>:<port>/api/tm/<version>/status/<tm>/statistics
```

Information resources provide basic information data about your cluster members. To access information resources, use the following URI pattern:

```
https://<host>:<port>/api/tm/<version>/status/<tm>/
```

Unlike configuration resources, instances of counter and information resources are specific to each Traffic Manager in the cluster. You can access the data for all of your cluster members from the base URI of any one of them by specifying the desired member hostname in the `/<tm>/` child node.

For example, to request the SNMP counter data from cluster member "myhost2" for a pool named "P1", use the following URI:

```
https://myhost:9070/api/tm/7.1/status/myhost2/statistics/pools/P1
```

Note: The child node <tm> also accepts the special node name “local_tm”, to refer to the REST API of the Traffic Manager you are accessing. For further information, see [“Traversing the Tree” on page 14](#).

Traversing the Tree

Resource URIs can be either:

- Resources.
- A directory structure containing child elements denoting sub-directories or resource nodes.

You can test the overall availability of the REST API by querying the following URI in a compatible Web browser or JSON/REST query application:

`https://<host>:<port>`

(As mentioned above, <host> is the hostname of the Traffic Manager and <port> is the port that the REST API is published on).

Some versions of Internet Explorer are unable to directly render the “application/json” MIME type data returned from a Traffic Manager REST API query. Pulse Secure recommends using an alternative browser. However, to resolve the issue for affected browsers, amend the Windows registry as shown here:

1. Open Notepad and enter the following text:

```
Windows Registry Editor Version 5.00;
; Tell IE 7,8,9,10,11 to open JSON documents in the browser on Windows XP and
later.
; 25336920-03F9-11cf-8FD0-00AA00686F13 is the CLSID for the "Browse in
place".
;
[HKEY_CLASSES_ROOT\MIME\Database\Content Type\application/json]
"CLSID"="{25336920-03F9-11cf-8FD0-00AA00686F13}"
"Encoding"=hex:08,00,00,00
```

2. Save the document as “IE-Json.reg” and then run it.
3. Restart Internet Explorer and re-enter a REST URI to confirm the JSON results appear within the browser.

Note: For further information, see <http://www.codeproject.com/Tips/216175/View-JSON-in-Internet-Explorer>.

A GET request for this URI should yield the following result:

```
{
  "children": [{
    "name": "api",
    "href": "/api/"
  }]
},
```

This shows that the REST service at <host>:<port> contains a single child element "/api". As discussed in [“Resource URI Patterns” on page 12](#), the full root URI of the configuration resource model then becomes:

```
https://myhost:9070/api/tm/7.1/config/active
```

Therefore, requesting this URI results in a list of child elements similar to the following example:

```
{
  "children": [{
    "name": "action_programs",
    "href": "/api/tm/7.1/config/active/action_programs/"
  }, {
    "name": "actions",
    "href": "/api/tm/7.1/config/active/actions/"
  }, {
    "name": "aptimizer",
    "href": "/api/tm/7.1/config/active/aptimizer/"
  }, {
    "name": "bandwidth",
    "href": "/api/tm/7.1/config/active/bandwidth/"
  }, {
    "name": "cloud_api_credentials",
    "href": "/api/tm/7.1/config/active/cloud_api_credentials/"
  }, {
    ...
    (truncated)
    ...
  }, {
    "name": "virtual_servers",
    "href": "/api/tm/7.1/config/active/virtual_servers/"
  }
]}
```

This output identifies all configuration resource types available through the Traffic Manager being queried. Each is identified by a name and href attribute combination.

A query for a specific resource type shows all instances of that resource defined within the Traffic Manager configuration. For example, the following URI lists all virtual servers:

```
https://myhost:9070/api/tm/7.1/config/active/virtual_servers
```

The output shows each stored virtual server, as per the following example:

```
{
  "children": [{
    "name": "vs1",
    "href": "/api/tm/7.1/config/active/virtual_servers/vs1"
  }, {
    "name": "vs2",
    "href": "/api/tm/7.1/config/active/virtual_servers/vs2"
  }
]}
```

SNMP counter and system information resources are unique to each Traffic Manager in the cluster. You can access the data for each cluster member from the API of whichever Traffic Manager you are connected to.

To list the available Traffic Managers in your cluster, perform a request for the following URI:

```
https://myhost1:9070/api/tm/7.1/status
```

The response is a list of child elements similar to the following:

```
{
  "children": [{
    "name": "myhost1.example.com",
    "href": "/api/tm/7.1/status/myhost1.example.com/"
  }, {
    "name": "myhost2.example.com",
    "href": "/api/tm/7.1/status/myhost2.example.com/"
  }, {
    "name": "myhost3.example.com",
    "href": "/api/tm/7.1/status/myhost3.example.com/"
  }, {
    "name": "local_tm",
    "href": "/api/tm/7.1/status/local_tm/"
  }]
}
```

The list also includes the “local_tm” child node that corresponds to the REST API of the Traffic Manager you are currently accessing. This provides a consistent programmatic interface to access resources for the local Traffic Manager only, no matter which host's API you are connected to. For example, the following URI can be used on the API of any Traffic Manager in the cluster, and the response contains results for that Traffic Manager only:

```
/api/tm/7.1/status/local_tm/information
```

To view (or modify, in the case of configuration resources) a stored record for a particular resource type, append the full path to the end of this base URI. For example, a request for a virtual server configuration resource named “Web” looks like this:

```
https://myhost:9070/api/tm/7.1/config/active/virtual_servers/Web
```

Equally, a request for the SNMP counter output for a pool named “P1” looks like this:

```
https://myhost:9070/api/tm/7.1/status/local_tm/statistics/pools/P1
```

The Traffic Manager REST Service

The Traffic Manager REST API is an HTTP service running on the Traffic Manager server. By default, it is available on TCP port 9070, although this can be reconfigured. The REST service supports HTTP versions: 0.9, 1.0, and 1.1; Version 1.1 is recommended.

When connecting to the local machine using a loop-back interface (for example, 127.0.0.1 or “localhost”), plain HTTP must be used. When connecting from a remote machine, connections must be encrypted using SSL (HTTPS).

The service uses the same SSL certificate as the Traffic Manager's admin server, which by default is an automatically generated self-signed certificate. Any HTTP client used to connect to the REST API should have the server's self-signed certificate added to its trusted certificate catalogue. Alternatively the admin server/REST certificate can be replaced with one signed by a trusted certificate authority.

The Pulse Secure Virtual Web Application Firewall REST Interface

The Pulse Secure Virtual Web Application Firewall (vWAF) component maintains a separate REST interface to facilitate control of vWAF-specific resources. You can reach this interface through the standard Traffic Manager REST service, using the following path:

```
https://<host>:<port>/api/af/<version>
```

<version> can be any specific currently published API version, or you can use the string "latest" to access the most current version. Full details of the available resources and actions that can be performed through the vWAF REST API can be found in the vWAF user documentation.

To access the vWAF REST interface, you must first install and activate the vWAF component on your Traffic Manager. You must also enable the Traffic Manager REST service through the Admin UI (for details, see [“Enabling and Disabling the API” on page 25](#)).

The Traffic Manager operates as a proxy to the vWAF REST service, and communicates with it through a designated port. To view and modify this port, click **System > Application Firewall > Local Application Firewall Ports** in the Admin UI. Any problems accessing the vWAF REST interface can often be resolved by setting this value to a known free port. Contact your support provider if you require any further information.

Authentication

A REST-based management application communicates with a configuration service running on the Admin Server (the Traffic Manager-based service used to provide the Admin UI), so the same security considerations apply:

- REST requests are authenticated using HTTP Basic Auth.
- REST traffic over HTTPS is automatically encrypted using SSL. Traffic over HTTP is not encrypted, so should only be used inside a secure environment or to/from localhost.
- The Traffic Manager Admin Server authenticates itself with its SSL certificate, which is generally self-signed. You might need to ensure that your REST application accepts self-signed certificates, or install a trusted SSL certificate in your Traffic Manager.
- REST requests are authenticated using the same user credentials as defined in the Administration Server. Individual object access is synonymous with page access in the Admin UI. For example, if a user wishes to view and manipulate pool objects, they must have been granted access to pools on the access permissions page.

Supported HTTP Methods

The REST service supports three primary HTTP methods for accessing and modifying data in the Traffic Manager configuration system:

- GET
- PUT
- DELETE

GET is used when making read-only requests for a resource, whereas PUT is used when updating existing data or adding new configuration objects. DELETE is used when you wish to completely remove configuration objects from the Traffic Manager.

Each of these methods is discussed in more detail in the sections that follow.

Note: The REST service additionally supports the POST method for uploading files to the Traffic Manager, specifically with respect to configuration backup TAR archive files. For more information, see [“Configuration Backups” on page 21](#).

Requesting a Resource

A client interacts with the Traffic Manager REST API by performing operations on its resources. An operation is distinguished by the HTTP method it uses and the path and query components of the associated URI. Some operations, however, are not applicable to every resource.

The GET method is used to retrieve the current representation of the resource it is used on. It does not alter the resource in any way or have any other side effects.

This is achieved by sending a HTTP GET request to the server with no body. The request must accept a response in JSON format only (by specifying an “Accept” header type of `application/json`), and authorization is provided using *HTTP Basic Auth* (for more details, see [“Authentication” on page 17](#)). Such a request resembles the following:

```
GET /api/tm/7.1/config/active/bandwidth/BWClass1 HTTP/1.1
Authorization: Basic YWRtaW46c2VjcmV0MTIz
Accept: application/json
```

If successful, the server returns a "200 OK" response code with the full resource in the response body. The above Bandwidth class example might produce the following output:

```
{
  "properties": {
    "basic": {
      "maximum": 10000,
      "note": "This is my bandwidth class",
      "sharing": "cluster"
    }
  }
}
```

This is a JSON structure representing the configuration keys present in the requested bandwidth class object. In this case, it consists of a single "basic" section containing three key:value pairs. Other resource types might contain different or additional sections and corresponding keys.

Setting Configuration for a Resource

Note: This section does not apply to read-only resources such as SNMP counters or system information.

Changing data items in the Traffic Manager configuration system is achieved through a PUT request to a configuration type resource. This applies to either creating new resource items or updating the properties of an existing resource item.

When creating a new resource item, the request URI must contain the full path to the intended item, with the name being the final element of the path. For example, creating a new bandwidth class called "mynewclass" requires using the following URI:

```
/api/tm/7.1/config/active/bandwidth/mynewclass
```

For both creation and update operations, the request body must contain a representation of the resource properties in JSON format (with the appropriate body "Content-Type" header set). Partial updates to configuration resources can be performed by only including the properties that need to be altered. Other properties are left unchanged.

Note: For PUT requests, ensure that the request body is encoded as UTF-8.

The REST service returns a "200 OK" response for a correctly updated configuration set, or "201 Created" for establishing a new configuration object of a particular resource type. In these cases, the full resource is returned as the response body. The only exception to this rule is when updating a raw file, which instead returns a "204 No Content" empty-body response.

ATTENTION

You might want to exercise some care when creating or updating resources. The changes are permanent and no warning is given for existing configuration that is overridden. If you attempt to create a new resource where one of the same name already exists, you overwrite the properties of the existing record. It is recommended that you build such validation into your REST client application.

Removing Resources

Note: This section does not apply to read-only resources such as SNMP counters or system information.

A HTTP DELETE request for the full URI of a configuration item can be sent to the REST server to permanently remove it. On success, a "204 No Content" empty-body response is returned.

Further Aspects of the Resource Model

Enumerated Types

Some configuration keys can accept one or more of a pre-defined set of values. This is known as an enumerated key type, and the list of possible values (with long description) is provided in the reference guide later in this document.

Uploading Files

Resources that represent real files (such as TrafficScript rules) can also be presented in a raw format, where the data returned is the contents of the file. The MIME type of the request payload should be set to `application/octet-stream`.

Custom Configuration Sets

You can store and retrieve arbitrary name:value configuration pairs in the Traffic Manager configuration system using the REST API. This configuration is replicated across your cluster, and is only accessible through the REST API, SOAP API, and ZCLI.

To store a custom configuration, create an instance of the “custom” resource and set your name:value data to the “string_lists” property. For example, to create a resource called “customdata”, use the following URI:

```
https://myhost:9070/api/tm/7.1/config/active/custom/customdata
```

Set the request body to a JSON structure resembling the following:

```
{
  "properties": {
    "basic": {
      "string_lists": [{
        "name": "customname1",
        "value": ["val1", "val2"]
      }, {
        "name": "customname2",
        "value": "val3"
      }]
    }
  }
}
```

Using this system, you can organize your custom configuration into logical groups, initially by an instance of the “custom” resource, and within this, by a name:value pair. Each value can itself be a single item or a list of items.

Errors

If the REST server is unable to handle a HTTP request, it returns a HTTP response with an appropriate HTTP error code. The response body is in JSON and contains a data structure describing the error with a unique identifier (separate to the numeric error code) and a description.

The unique identifier is made up of 2 parts:

```
{section}.{error_type}
```

Some errors might provide additional formatted information, specified with an optional "error_info" parameter. For example, the REST API uses this parameter to return per-property errors when a value fails validation. The following structure demonstrates the general form of an error:

```
{
  "error": {
    "error_id": "{error identifier}",
    "error_text": "{error description}",
    "error_info": {error specific data structure, optional}
  }
}
```

A validation error occurs when one or more of the properties within a configuration resource fail a validation check. The error_info section then contains a sub-error for each property that failed validation. These sub-errors are like normal errors in that they contain an identifier (error_id) and a human readable text description (error_text):

```
{
  "error": {
    "error_id": "resource.validation_failed",
    "error_text": "Some of the properties in the resource failed validation.",
    "error_info": {
      "basic": {
        "key1": {
          "error_id": "num.range",
          "error_text": "Value must be in range 1000 - 2000."
        }
      }
    }
  }
}
```

Configuration Backups

The REST service supports the ability to create new backup sets of your Traffic Manager configuration.

When a user creates a new backup in the Admin UI, the Traffic Manager copies the current configuration folder (\$ZEUSHOME/zxtm/conf) into a new backup directory under \$ZEUSHOME/zxtm/confarchive. The name of the backup directory reflects the name chosen in the Admin UI.

Each backup set is saved with a series of metadata files:

| Filename | Purpose |
|-------------|---|
| DESCRIPTION | Description of the backup |
| NAME | Optional file containing the name of the backup |

| Filename | Purpose |
|-------------------|--|
| VERSION_<version> | File to indicate the software version of the Traffic Manager used to create the backup. This file has no contents. |
| TIMESTAMP | File indicating when the backup was created. |
| PARTIAL | Indicates that the backup is a partial backup. |

To learn more about configuration backups, see the *Pulse Secure Virtual Traffic Manager: User's Guide*.

Note: The REST service exposes only the name and description metadata for your backups, although each listed file is still present in a backup archive on the Traffic Manager.

Backups are represented through the REST API as child resources of the System Information resource:

```
/api/tm/7.1/status/<tm>/backups/full
```

As with all System Information resources, you must specify the cluster member you want to interrogate (denoted by <tm> in the URI shown). Each child resource of this URI is named in accordance with the corresponding backup name.

Listing Existing Backups

To see the configuration backups currently stored in a Traffic Manager, perform a GET request for the backups parent resource:

```
/api/tm/7.1/status/<tm>/backups/full
```

If successful, the server returns a "200 OK" response code with the backup list in the response body:

```
{
  "children": [{
    "name": "Backup 1",
    "href": "/api/tm/3.9/status/mytm/backups/full/Backup%201/"
  }, {
    "name": "vTMBBackup-May16",
    "href": "/api/tm/3.9/status/mytm/backups/full/vTMBBackup-May16/"
  }, {
    "name": "another backup",
    "href": "/api/tm/3.9/status/mytm/backups/full/another%20backup/"
  }]
}
```

To observe the metadata for a specific backup, perform a GET request for a child name. For example, a request for `/api/tm/7.1/status/<tm>/backups/full/vTMBBackup-May16` might return the following JSON structure in the response body:

```
{
  "properties": {
    "backup": {
      "description": "Backup for May 2016",
      "time_stamp": 1462445371,
    }
  }
}
```

```

        "version": "19.3"
    }
}

```

Creating a Backup

To create a new backup, use an HTTP PUT request to the backups URI:

```
/api/tm/7.1/status/<tm>/backups/full/<backup_name>
```

Set <backup_name> as the name of the backup you want to create.

The request body must contain a JSON resource representing the backup, with an optional description:

```

{
  "properties": {
    "backup": {
      "description": "My vTM backup for today",
    }
  }
}

```

Set the Content-Type header to "application/json".

If your backup request is successful, the Traffic Manager returns a "201 Created" response with the full backup metadata in the response body. If the Traffic Manager cannot create the backup, the response contains an HTTP error and the body contains an explanation of why the backup was unsuccessful.

CAUTION

Make sure your backup name does not already exist. The Traffic Manager does not override existing backups and instead returns an error in the response.

Restoring a Backup

CAUTION

Restoring a backup means your current configuration is overwritten permanently and all unsaved changes are lost. Pulse Secure strongly recommends only performing the following procedure if you are sure of the results.

To restore a backup to be your current Traffic Manager configuration, send a PUT request with the name of the selected backup in the URI, with a "restore" argument:

```
/api/tm/7.1/status/<tm>/backups/full/MyBackup?restore
```

Set the request body to an empty properties structure, such as the following:

```

{
  "properties":{
  }
}

```

If your restore request is successful, the Traffic Manager returns a "200 OK" response with the backup metadata in the response body. If the Traffic Manager is unable to restore the backup, the response contains an HTTP error and the body contains an explanation of why the operation was unsuccessful.

Downloading Backups

To download a backup as a TAR archive file, perform a GET request with the name of the required backup appended to the base backups URI. For example:

```
/api/tm/7.1/status/<tm>/backups/full/MyBackup
```

Set the "Accept" header to "application/x-tar".

When the request is made, a TAR file will be generated, which will be streamed to the client.

Some backup clients are able to make the request, but cannot properly handle an application/x-tar response. In this case, Pulse Secure recommends a command line tool such as CURL. The following command is an example of how to download a backup with CURL:

```
curl -H "accept:application/x-tar"  
      -u <username>:<password>  
      http://<host>:<port>/api/tm/7.1/status/<tm>/backups/full/MyBackup > MyBackup.tar
```

Uploading Backups

To upload a configuration backup file to your Traffic Manager /confarchive directory, use an HTTP POST request to the base backups URI:

```
/api/tm/7.1/status/<tm>/backups/full
```

The name of the backup is not required in the URI; instead, the Traffic Manager uses the contents of the "NAME" file in the backup TAR archive file. Make sure the backup name does not already exist in the Traffic Manager backups list.

Before you send the request, attach your backup archive file and set the Content-Type header to "application/x-tar". The actual process of uploading or attaching the archive file depends on your REST client.

The REST service returns a "201 Created" response for a correctly uploaded configuration backup archive file. If the Traffic Manager is unable to upload the backup file, the response contains an HTTP error and the body contains an explanation of why the operation was unsuccessful.

Deleting Backups

To delete a configuration backup, perform a DELETE request with the full URI of the backup you want to remove. For example, to remove a backup called "MyBackup", use the following URI:

```
/api/tm/7.1/status/<tm>/backups/full/MyBackup
```

If the request is successful, a "204 No Content" empty-body response is returned.

Traffic Manager UI Features

Enabling and Disabling the API

To enable or disable the REST service, click **System > Security > REST API** in the Traffic Manager Admin UI. You can additionally use this page to set the TCP port that the service listens on. The default port is 9070, however any unreserved port can be used here provided it does not conflict with other services already running on the Traffic Manager system. Click **Update** to apply any changes.

ATTENTION

The REST API is currently not available in conjunction with the Traffic Manager's Multi-Site Manager (MSM) feature. Attempts to enable the REST service whilst MSM is operational are denied. Equally, attempting to enable MSM whilst the REST service is running triggers an error. The current state of the Traffic Manager remains unchanged in either of these situations.

To manually restart the REST API service, click **System > Traffic Managers** and then, in the Software Restart section, click **Restart REST API...** The Traffic Manager asks you to confirm the restart on the next screen. Note that any existing connections are lost while the service restarts.

Controlling Timeout Events

The **System > Security > REST API** page provides a number of settings to control how the Traffic Manager responds to certain timeout events that occur through use of the REST API. These are:

| Setting | Description |
|-------------------|---|
| rest!auth_timeout | <p>The timeout period, in seconds, for the REST Authentication cache. As REST does not include the concept of a "session", each request must include user and password credentials. These credentials are validated each time; however, to save requesting repeated external authentications for the same user (from the same IP address), a cache of recent authentications is maintained. This timeout is the maximum amount of time a given user's credentials can stay in the cache.</p> <p>A setting of 0 (zero) disables the cache, forcing every REST request to be authenticated as it is received. However, this affects the performance of the API.</p> <p>(Default: 120 seconds)</p> |
| rest!replulltime | <p>This is the <i>lull time</i> for configuration replication using REST.</p> <p>This is the time, in seconds, of inactivity through the REST API before configuration replication starts. Increasing this value delays configuration replication among a cluster of Traffic Managers.</p> <p>(Default: 5 seconds)</p> |

| Setting | Description |
|-----------------|--|
| rest!repabstime | This is the absolute timeout prior to configuration replication using REST. This is the longest time, in seconds, before configuration replication using REST starts, regardless of activity through the API. (Default: 20 seconds) |
| rest!reptimeout | The configuration replication duration timeout using REST. This is the time, in seconds, allowed for the process of configuration replication to complete. On a system with slow cluster communications or a very large configuration, increasing this value improves replication reliability. (Default: 10 seconds) |

Configuring the IP Addresses That the REST API Listens On

System > Security > REST API contains a setting, `rest!bindips`, that can be used to control the IP address(es) that the REST API listens on for connections. This can be a space-separated or comma-separated list of IPv4 or IPv6 addresses. Alternatively, it can contain an entry of "*", in which case the REST API listens on all IP addresses.

If you configure the Traffic Manager to use a management IP address during initial configuration, `rest!bindips` defaults to this same IP address. You can, however, override this later with a separate IP address or list of IP addresses specific to the REST API.

ATTENTION

`rest!bindips` is a machine-specific setting and is not included in the cluster configuration that is replicated out to joining Traffic Manager instances. If you intend to join an unrestricted Traffic Manager into a cluster that has been previously configured to use a management IP address, you must ensure `rest!bindips` is set on the new instance before you join the cluster to avoid exposing unintended access.

The addresses that are bound to are listed in the error log. Addresses to which the REST API cannot be bound are also logged. If no addresses can be bound, the REST API shuts down.

Restricting Access to Trusted Users

In addition to username/password access, click **System > Security > Restricting Access** to further restrict access to the administrative capabilities of your Traffic Manager system to a set of trusted IP addresses, CIDR subnets, or DNS wildcards. Access to the REST API is also affected by this capability.

Log Messages in the Traffic Manager

The Event Log

A number of specific API-related messages might be found in the Traffic Manager event log under certain conditions:

- "REST API started: https://<URI>"
Raised when the REST Daemon starts.
- "REST API is shutting down"
Raised when the REST Daemon closes down.
- "On IPv6 host but cannot set unspecified ip address to ::"
Raised when the REST Daemon can't set itself up to listen on the IPv6 wildcard address.
- "Could not open Traffic Manager PID file for read: <error>"
Raised when REST Daemon can't identify the Traffic Manager PID, and so can't signal it to reload its config after a change has been made via the REST API.
- "Could not open Traffic Manager PID file: <error>"
Raised when REST Daemon can't identify the Traffic Manager PID, and so can't signal it to reload its config after a change has been made via the REST API.
- "Failed to write to audit log: <error>"
Raised when the REST Daemon can't add lines to the audit log.

The Audit Log

The audit log records login attempts, configuration changes, and user logouts. It also records changes made using the Traffic Manager Control API, and through the Traffic Manager Command-Line Interface (CLI). Configuration changes made through the REST API follow the same behavior.

In addition to the typical configuration messages entered into the audit log, the Traffic Manager also provides the ability to track user activity in the REST API. It does this by grouping REST request/response exchanges made in close succession from a given user into a "session".

The Traffic Manager logs the first request in a group of one or more requests from a particular user/ip address combination in the audit log as a "session start". Requests received after the initial request are deemed to be part of the same user session. Then, after a specified timeout interval since the most recent request was received from the same user, a "session end" is logged.

Examples and Use-Cases

This chapter provides examples and use-cases for the REST API. This chapter contains the following sections:

- [Typical Usage](#) 29
- [Listing Running Virtual Servers](#) 30
- [Adding a Node to a Pool](#)..... 31

Typical Usage

ATTENTION

The following examples are developed to work with version 7.1 of the Traffic Manager REST API. Pulse Secure makes no warranty as to their suitability for older versions.

The following code samples demonstrate how to interact with the REST API for a variety of purposes. The examples are based on Perl using the “REST::Client” module to handle the connections to the Traffic Manager REST daemon.

For further information on REST::Client, see the CPAN Web site: www.cpan.org.

A typical Perl client connection might resemble the following:

```
#!/usr/bin/perl

use REST::Client;
use strict;

# Set up the connection
my $client = REST::Client->new();
$client->setHost( 'https://myhost:9070' );
$client->addHeader( 'Authorization', 'Basic YWRtaW46am9iYmll' );
$client->addHeader( 'Content-Type', 'application/json' );

# Perform a HTTP GET on this URI
$client->GET( '/api/tm/7.1/config/active' );

# Print out the response body
print $client->responseContent();
```

In the above example, a new connection is established to the REST service on the Traffic Manager "myhost" on port 9070.

The setHost() function allows us to set up a definitive hostname and port to which all requests are made. This is an optional feature, and the full hostname can be supplied when making the actual request if multiple hosts are required.

Two HTTP headers can be added here, one to provide Basic Auth authentication and the other to provide a declaration of the Content Type when making PUT requests. In the majority of cases, the content type is "application/json", apart from transactions involving raw files where it is necessary to use "application/octet-stream".

A GET request is sent to the REST service with a target of the resource URI as the supplied argument. Typically, the above script outputs a JSON structure showing the Traffic Manager resource tree at the top level:

```
{
  "children": [{
    "name": "rules",
    "href": "/api/tm/7.1/config/active/rules/"
  }, {
    "name": "actions",
    "href": "/api/tm/7.1/config/active/actions/"
  },
  ...
  (truncated)
  ...
  {
    "name": "auth",
    "href": "/api/tm/7.1/config/active/auth/"
  }
}]
}
```

Note: Each of the following examples make use of a further Perl module "JSON" in order to encode and decode between the JSON string used by REST::Client and a native Perl structure. This is done to simplify the parsing algorithm within the script. Further information regarding the JSON Perl module can be found at the CPAN Web site: www.cpan.org.

Listing Running Virtual Servers

In this example, we collect data on stored virtual servers by querying the "vservers" resource and identifying which ones are enabled (running).

The code structure is as follows:

- Instantiate a new REST Client object.
- Specify the hostname and port of the REST service to which all requests are to be directed.
- Add required HTTP headers for authentication and content type.
- Send a GET request for the "vservers" resource in order to return a list of all Virtual Servers on the system.
- Check the response body, and decode from JSON into a Perl structure. This value is a hash ref.
- Identify the "children" hash key, and iterate through the array to which it points.
- Each array item contains a hash of "name" and "href" associative values.
- Using the "name" value, perform a new GET request to return the full configuration for this named virtual server resource.

- Again, using the decoded JSON response body, identify the Boolean value of the “enabled” key in the “basic” configuration section. If it is “true”, this virtual server is running so print it’s name to STDOUT.

ATTENTION

This script does not contain any error checking in order to best demonstrate the basic functionality. It is strongly recommended you incorporate return value checking and other validation mechanisms as appropriate.

```
#!/usr/bin/perl

use REST::Client;
use JSON;
use strict;

# Set up the connection
my $client = REST::Client->new();
$client->setHost( 'https://myhost:9070' );
$client->addHeader( 'Authorization', 'Basic YWRtaW46am9iYmll' );
$client->addHeader( 'Content-Type', 'application/json' );

# Request a list of all virtual servers
$client->GET( '/api/tm/7.1/config/active/vservers' );

# Decode response into a perl structure for easy parsing
my $response = decode_json( $client->responseContent() );

# Obtain a reference to the children array
my $vsArrayRef = $response->{children};

# For each VS, make a request for its configuration and
# check the Boolean value of the 'enabled' key
foreach my $vs ( @$vsArrayRef ) {
    my $vsName = $vs->{name};
    $client->GET( "/api/tm/7.1/config/active/vservers/$vsName" );
    my $vsConfig = decode_json( $client->responseContent() );
    if( $vsConfig->{properties}->{basic}->{enabled} eq "true" ) {
        # Print the name of this matched VS
        print "$vsn\n";
    }
}
```

The expected output of a script such as this would be:

```
$ ./listVS.pl
Main Website
Intranet
Support Site
```

Adding a Node to a Pool

Provisioning systems can dynamically deploy applications across servers, perhaps in reaction to increased server load. This example demonstrates an application that modifies the nodes that a pool balances traffic to.

The code structure is as follows:

- Instantiate a new REST Client object.
- Specify the hostname and port of the REST service to which all requests are to be directed.
- Add required HTTP headers for authentication and content type.
- Send a GET request for the pool that the new node is added to. Check the response body, and decode from JSON into a Perl structure. This value is a hash ref.
- The new node must be added to the table of existing nodes before writing the data back to the pool resource. Failing to do this results in the existing table being overwritten with a single row containing the new node. Each of the subkeys associated with the node have default values and do not need to be specified.
- Re-encode the Perl structure into JSON and pass as an argument to the PUT request (using the pool name URI as the target).
- In this example, the script performs a check on the response code to ensure any problems are reported back (where the response code is not 200 OK).
- There is an optional portion of code at the end to iterate through the stored node table to ensure that the new node name appears.

```
#!/usr/bin/perl -w

use REST::Client;
use JSON;
use strict;

# Set up the connection
my $client = REST::Client->new();
$client->setHost( 'http://localhost:9070' );
$client->addHeader( 'Authorization', 'Basic YWRtaW46am9iYmll' );
$client->addHeader( 'Content-Type', 'application/json' );

# Our pool and new node details
my $poolName = "WebPool";
my $newNode = { "node" => "www3.pulsesecure.net:80" };

# Get the config for the pool in question
$client->GET( "/api/tm/7.1/config/active/pools/$poolName" );
my $poolConfig = decode_json( $client->responseContent() );

# Find the existing nodes table (a hashref), and add our new node
my $nodesRef = $poolConfig->{properties}->{basic}->{nodes_table};
push @$nodesRef, $newNode;

# Re-encode as a JSON string
my $poolStr = encode_json( $poolConfig );

# Now send a PUT request to the REST service
$client->PUT( "/api/tm/7.1/config/active/pools/$poolName",
             $poolStr );

# Print out the response code if we were NOT successful
```



```
if( $client->responseCode() ne '200' ) {  
    die "FAILED with HTTP code: " . $client->responseCode();  
}  
  
# We're done! Verify that the node has been added  
$client->GET( "/api/tm/7.1/config/active/pools/$poolName" );  
$poolConfig = decode_json( $client->responseContent() );  
print "Stored nodes for pool '$poolName':\n";  
foreach my $tablerow ( @{$poolConfig->{properties}->{basic}->{nodes_table}} ) {  
    print "$tablerow->{node}\n";  
}
```

The expected output of a script such as this would be:

```
$ ./addNode.pl  
Stored nodes for pool 'WebPool':  
www1.pulsesecure.net:80  
www2.pulsesecure.net:80  
www3.pulsesecure.net:80
```


Resource Model Reference

This chapter provides a complete reference listing for the Traffic Manager REST API resource model. This chapter contains the following sections:

- [About the Resource Model Reference](#) 35
- [Configuration Resources](#) 36
- [SNMP Counter Values](#) 173
- [System Information Resources](#) 215

About the Resource Model Reference

This chapter lists all the configuration, counter, and information resources available through the REST API model.

Each section relates to a specific resource and lists its name, description, unique URI path, and a table of properties.

For each property, you can find the description and data type. Additional information is provided where applicable, such as default value, permitted values (for enumerated types), and SNMP counter name. For Table-type properties, a list of the Primary and Sub keys is provided.

The path to use in your URIs is listed for each resource. For example, the URI path for a virtual server configuration resource is "virtual_servers", so to address a stored virtual server named "foo", you would use:

```
/api/tm/7.1/config/active/virtual_servers/foo
```

Getting Information About the Structure of Resources

To obtain information about the structure of resources through the REST API itself, use the "metadata" query string argument with any request URI. For example:

```
https://<host>:<port>/api/tm/7.1/config/active/virtual_servers?metadata
https://<host>:<port>/api/tm/7.1/config/active/virtual_servers/foo?metadata
https://<host>:<port>/api/tm/7.1/status/local_tm/statistics/pools/mypool?metadata
https://<host>:<port>/api/tm/7.1/status/myvtm/state?metadata
```

You can append ?metadata to a resource type ("/virtual_servers") or to an instance of a resource ("/virtual_servers/foo"). The Traffic Manager returns the relevant details in a "metadata" element in the JSON response. For example:

```
"metadata":{
  "description": "description of the resource",
  "properties": {
    "sectionA": {
      "property1": {
        "description": "description of property1",
```

```

    "type": "property type",
    "default": <default value>
  }
}
}

```

The response contains resource level metadata, along with a "properties" element. This follows the same structure as a typical "properties" element, with sections and properties. All properties contain values for the "description", "type", and "default" value. The default value matches the type of the property.

Configuration Resources

Action Program

URI Endpoint: /api/tm/7.1/config/active/action_programs

This is a program or script that can be referenced and used by actions of type 'Program'

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

Alerting Action

URI Endpoint: /api/tm/7.1/config/active/actions

A response to an event occurring in your traffic manager. An example of an action might be sending an email or writing a line to a log file.

| Property | Description |
|----------------------|--|
| note | A description of the action. <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |
| syslog_msg_len_limit | Maximum length in bytes of a message sent to the remote syslog. Messages longer than this will be truncated before they are sent. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "2048" |

| Property | Description |
|---------------------------------------|---|
| timeout | How long the action can run for before it is stopped automatically (set to 0 to disable timeouts). <ul style="list-style-type: none"> Type: UInt Required: false Default value: "60" |
| type | The action type. <ul style="list-style-type: none"> Type: Enum(String) Required: true Default value: <none> Permitted values: <ul style="list-style-type: none"> "email": E-Mail "log": Log to File "program": Program "soap": SOAP Callback "syslog": Log to Syslog "trap": SNMP Notify or Trap |
| verbose | Enable or disable verbose logging for this action. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "email" section: | |
| from | The e-mail address from which messages will appear to originate. <ul style="list-style-type: none"> Type: String Required: false Default value: "vTM@%hostname%" |
| server | The SMTP server to which messages should be sent. This must be a valid IPv4 address or resolvable hostname (with optional port). <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| to | A set of e-mail addresses to which messages will be sent. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| Properties for the "log" section: | |
| file | The full path of the file to log to. The text %zeushome% will be replaced with the location where the software is installed. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "program" section: | |

| Property | Description |
|--------------------------------------|--|
| arguments | <p>A table containing arguments and argument values to be passed to the event handling program.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> name (String): The name of the argument to be passed to the event handling program. (Required) Sub keys: <ul style="list-style-type: none"> value (String): The value of the argument to be passed to the event handling program. (Required) description (String): A description for the argument provided to the program. |
| program | <p>The program to run.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "soap" section: | |
| additional_data | <p>Additional information to send with the SOAP call.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| password | <p>The password for HTTP basic authentication.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| proxy | <p>The address of the server implementing the SOAP interface (For example, https://example.com).</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| username | <p>Username for HTTP basic authentication. Leave blank if you do not wish to use authentication.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "syslog" section: | |
| sysloghost | <p>The host and optional port to send syslog messages to (if empty, messages will be sent to localhost).</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "trap" section: | |

| Property | Description |
|----------------|---|
| auth_password | <p>The authentication password for sending a Notify over SNMPv3. Blank to send unauthenticated traps.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| community | <p>The community string to use when sending a Trap over SNMPv1 or a Notify over SNMPv2c.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| hash_algorithm | <p>The hash algorithm for SNMPv3 authentication.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "md5" Permitted values: <ul style="list-style-type: none"> "md5": MD5 "sha1": SHA-1 |
| priv_password | <p>The encryption password to encrypt a Notify message for SNMPv3. Requires that authentication also be configured. Blank to send unencrypted traps.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| traphost | <p>The hostname or IPv4 address and optional port number that should receive traps.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| username | <p>The SNMP username to use to send the Notify over SNMPv3.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| version | <p>The SNMP version to use to send the Trap/Notify.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "snmpv1" Permitted values: <ul style="list-style-type: none"> "snmpv1": SNMPv1 "snmpv2c": SNMPv2c "snmpv3": SNMPv3 |

Optimizer Application Scope

URI Endpoint: /api/tm/7.1/config/active/optimizer/scopes

Application scopes define criteria that match URLs to specific logical web applications hosted by a virtual server.

| Property | Description |
|--------------------|---|
| canonical_hostname | If the hostnames for this scope are aliases of each other, the canonical hostname will be used for requests to the server. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| hostnames | The hostnames to limit acceleration to. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| root | The root path of the application defined by this application scope. <ul style="list-style-type: none"> Type: String Required: false Default value: "/" |

BGP Neighbor

URI Endpoint: /api/tm/7.1/config/active/bgpneighbors

The conf/bgpneighbors directory contains configuration files for BGP neighbors. The name of a file is the name of the neighbor configuration that it defines. BGP neighbors can be managed under the System > Fault Tolerance > BGP Neighbors section of the Admin UI, or by using functions under the BGPNeighbors section of the SOAP API and CLI.

| Property | Description |
|------------------------|---|
| address | The IP address of the BGP neighbor <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| advertisement_interval | The minimum interval between the sending of BGP routing updates to neighbors. Note that as a result of jitter, as defined for BGP, the interval during which no advertisements are sent will be between 75% and 100% of this value. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "5" |

| Property | Description |
|-------------------------|---|
| as_number | The AS number for the BGP neighbor <ul style="list-style-type: none"> Type: UInt Required: false Default value: "65534" |
| authentication_password | The password to be used for authentication of sessions with neighbors <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| holdtime | The period after which the BGP session with the neighbor is deemed to have become idle - and requires re-establishment - if the neighbor falls silent. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "90" |
| keepalive | The interval at which messages are sent to the BGP neighbor to keep the mutual BGP session established. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| machines | The traffic managers that are to use this neighbor <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |

Bandwidth Class

URI Endpoint: /api/tm/7.1/config/active/bandwidth

A Bandwidth class, which can be assigned to a virtual server or pool in order to limit the number of bytes per second used by inbound or outbound traffic.

| Property | Description |
|----------|---|
| maximum | The maximum bandwidth to allocate to connections that are associated with this bandwidth class (in kbits/second). <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10000" |

| Property | Description |
|----------|---|
| note | <p>A description of this bandwidth class.</p> <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |
| sharing | <p>The scope of the bandwidth class.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "cluster" Permitted values: <ul style="list-style-type: none"> "cluster": Bandwidth is shared across all traffic managers "connection": Each connection can use the maximum rate "machine": Bandwidth is shared per traffic manager |

Cloud Credentials

URI Endpoint: /api/tm/7.1/config/active/cloud_api_credentials

Cloud credentials used in cloud API calls

| Property | Description |
|-------------------|---|
| api_server | <p>The vCenter server hostname or IP address.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| cloud_api_timeout | <p>The traffic manager creates and destroys nodes via API calls. This setting specifies (in seconds) how long to wait for such calls to complete.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "200" |
| cred1 | <p>The first part of the credentials for the cloud user. Typically this is some variation on the username concept.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| cred2 | <p>The second part of the credentials for the cloud user. Typically this is some variation on the password concept.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |

| Property | Description |
|-----------------|---|
| cred3 | The third part of the credentials for the cloud user. Typically this is some variation on the authentication token concept. <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| script | The script to call for communication with the cloud API. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| update_interval | The traffic manager will periodically check the status of the cloud through an API call. This setting specifies the interval between such updates. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |

Custom configuration set

URI Endpoint: /api/tm/7.1/config/active/custom

Custom configuration sets store arbitrary named values. These values can be read by SOAP or REST clients.

| Property | Description |
|--------------|--|
| string_lists | This table contains named lists of strings <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> name (String): Name of list (Required) Sub keys: <ul style="list-style-type: none"> value (List(String)): Named list of user-specified strings. (Required) |

DNS Zone

URI Endpoint: /api/tm/7.1/config/active/dns_server/zones

The conf/dnsserver/zones/ file contains zone metadata

| Property | Description |
|----------|---|
| origin | The domain origin of this Zone. <ul style="list-style-type: none"> Type: String Required: true Default value: <none> |
| zonefile | The Zone File encapsulated by this Zone. <ul style="list-style-type: none"> Type: String Required: true Default value: <none> |

DNS Zone File

URI Endpoint: /api/tm/7.1/config/active/dns_server/zone_files

The conf/dnsserver/zonefiles/ directory contains files that define DNS zones.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

Event Type

URI Endpoint: /api/tm/7.1/config/active/event_types

Configuration that ties actions to a set of events that trigger them.

| Property | Description |
|----------|--|
| actions | The actions triggered by events matching this event type, as a list of action references. <ul style="list-style-type: none"> Type: List(Reference(config-event-action)) Required: false Default value: <none> |
| built_in | If set to Yes this indicates that this configuration is built-in (provided as part of the software) and must not be deleted or edited. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|--|--|
| note | A description of this event type. <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |
| Properties for the "cloudcredentials" section: | |
| event_tags | Cloud credentials event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | Cloud credentials object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "config" section: | |
| event_tags | Configuration file event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "faulttolerance" section: | |
| event_tags | Fault tolerance event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "general" section: | |
| event_tags | General event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "glb" section: | |
| event_tags | GLB service event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | GLB service object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "java" section: | |

| Property | Description |
|---|---|
| event_tags | Java event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "licensekeys" section: | |
| event_tags | License key event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | License key object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "locations" section: | |
| event_tags | Location event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | Location object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "monitors" section: | |
| event_tags | Monitor event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | Monitors object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "pools" section: | |
| event_tags | Pool key event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | Pool object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "protection" section: | |

| Property | Description |
|---|--|
| event_tags | Service protection class event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | Service protection class object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "rules" section: | |
| event_tags | Rule event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | Rule object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "slm" section: | |
| event_tags | SLM class event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | SLM class object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "ssl" section: | |
| event_tags | SSL event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "sslhw" section: | |
| event_tags | SSL hardware event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "trafficscript" section: | |
| event_tags | TrafficScript event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |

| Property | Description |
|--|---|
| Properties for the "vservers" section: | |
| event_tags | Virtual server event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | Virtual server object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| Properties for the "zxtms" section: | |
| event_tags | Traffic manager event tags <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| objects | Traffic manager object names <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |

Extra File

URI Endpoint: /api/tm/7.1/config/active/extra_files

A user-uploaded file. Such files can be used in TrafficScript code using the resource.get function.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

GLB Service

URI Endpoint: /api/tm/7.1/config/active/glb_services

A global load balancing service is used by a virtual server to modify DNS requests in order load balance data across different GLB locations.

| Property | Description |
|------------------------|--|
| algorithm | <p>Defines the global load balancing algorithm to be used.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "hybrid" Permitted values: <ul style="list-style-type: none"> "chained": Sends traffic to one location at a time, until that location fails where the next one in the chain is used. "geo": Distributes traffic based solely on the geographic location of each client. "hybrid": Distribute traffic based on both the load and geographic location. "load": Distributes traffic based on the current load to each location. "round_robin": Distributes traffic by assigning each request to a new location in turn. Over a period of time, all locations will receive the same number of requests. "weighted_random": Distributes traffic in a random way, but according to a weighted policy defined by individual location weights |
| all_monitors_needed | <p>Do all monitors assigned to a location need to report success in order for it to be considered healthy?</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| autorecovery | <p>The last location to fail will be available as soon as it recovers.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| chained_auto_failback | <p>Enable/Disable automatic failback mode.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| chained_location_order | <p>The locations this service operates for and defines the order in which locations fail.</p> <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| disable_on_failure | <p>Locations recovering from a failure will become disabled.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|----------------------|--|
| dnssec_keys | <p>A table mapping domains to the private keys that authenticate them</p> <ul style="list-style-type: none"> • Type: Table • Required: false • Primary key: <ul style="list-style-type: none"> - domain (String): A domain authenticated by the associated private keys. (Required) • Sub keys: <ul style="list-style-type: none"> - ssl_key (Set(String)): Private keys that authenticate the associated domain. (Required) |
| domains | <p>The domains shown here should be a list of Fully Qualified Domain Names that you would like to balance globally. Responses from the back end DNS servers for queries that do not match this list will be forwarded to the client unmodified. Note: "*" may be used as a wild card.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| enabled | <p>Enable/Disable our response manipulation of DNS.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| geo_effect | <p>How much should the locality of visitors affect the choice of location used? This value is a percentage, 0% means that no locality information will be used, and 100% means that locality will always control which location is used. Values between the two extremes will act accordingly.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "50" |
| last_resort_response | <p>The response to be sent in case there are no locations available.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| location_draining | <p>This is the list of locations for which this service is draining. A location that is draining will never serve any of its service IP addresses for this domain. This can be used to take a location off-line.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |

| Property | Description |
|-----------------------------------|--|
| location_settings | <p>Table containing location specific settings.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> location (String): Location to which the associated settings apply. (Required) Sub keys: <ul style="list-style-type: none"> weight (UInt): Weight for this location, for use by the weighted random algorithm. ips (Set(String)): The IP addresses that are present in a location. If the Global Load Balancer decides to direct a DNS query to this location, then it will filter out all IPs that are not in this list. (Required) monitors (Set(String)): The monitors that are present in a location. |
| return_ips_on_fail | <p>Return all or none of the IPs under complete failure.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| rules | <p>Response rules to be applied in the context of the service, in order, comma separated.</p> <ul style="list-style-type: none"> Type: List(Reference(config-trafficscript)) Required: false Default value: <none> |
| ttl | <p>The TTL for the DNS resource records handled by the GLB service.</p> <ul style="list-style-type: none"> Type: Int Required: false Default value: "-1" |
| Properties for the "log" section: | |
| enabled | <p>Log connections to this GLB service?</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| filename | <p>The filename the verbose query information should be logged to. Appliances will ignore this.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "%zeushome%/zxtm/log/services/%g.log" |
| format | <p>The format of the log lines.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "%t, %s, %l, %q, %g, %n, %d, %a" |

Global Settings

URI Endpoint: /api/tm/7.1/config/active/global_settings

General settings that apply to every machine in the cluster.

| Property | Description |
|--------------------|---|
| accepting_delay | How often, in milliseconds, each traffic manager child process (that isn't listening for new connections) checks to see whether it should start listening for new connections. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "50" |
| afm_enabled | Is the application firewall enabled. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| chunk_size | The default chunk size for reading/writing requests. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "16384" |
| client_first_opt | Whether or not your traffic manager should make use of TCP optimisations to defer the processing of new client-first connections until the client has sent some data. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| cluster_identifier | Cluster identifier. Generally supplied by Services Director. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| license_servers | A list of license servers for FLA licensing. A license server should be specified as a <ip/host>:<port> pair. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| max_fds | The maximum number of file descriptors that your traffic manager will allocate. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1048576" |

| Property | Description |
|---------------------|--|
| monitor_memory_size | <p>The maximum number of each of nodes, pools or locations that can be monitored. The memory used to store information about nodes, pools and locations is allocated at start-up, so the traffic manager must be restarted after changing this setting.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "4096" |
| rate_class_limit | <p>The maximum number of Rate classes that can be created. Approximately 100 bytes will be pre-allocated per Rate class.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "25000" |
| shared_pool_size | <p>The size of the shared memory pool used for shared storage across worker processes (e.g. bandwidth shared data). This is specified as either a percentage of system RAM, 5% for example, or an absolute size such as 10MB.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: "10MB" |
| slm_class_limit | <p>The maximum number of SLM classes that can be created. Approximately 100 bytes will be pre-allocated per SLM class.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "1024" |
| so_rbuff_size | <p>The size of the operating system's read buffer. A value of 0 (zero) means to use the OS default; in normal circumstances this is what should be used.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: <none> |
| so_wbuff_size | <p>The size of the operating system's write buffer. A value of 0 (zero) means to use the OS default; in normal circumstances this is what should be used.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: <none> |

| Property | Description |
|-------------------------------------|--|
| socket_optimizations | <p>Whether or not the traffic manager should use potential network socket optimisations. If set to auto, a decision will be made based on the host platform.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "auto" Permitted values: <ul style="list-style-type: none"> "auto": Decide based on local platform "no": Disable socket optimizations "yes": Enable socket optimizations |
| tip_class_limit | <p>The maximum number of Traffic IP Groups that can be created.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10000" |
| Properties for the "admin" section: | |
| honor_fallback_scsv | <p>Whether or not the admin server, the internal control port and the config daemon honor the Fallback SCSV to protect connections against downgrade attacks.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| ssl3_allow_rehandshake | <p>Whether or not SSL3/TLS re-handshakes should be supported for admin server and internal connections.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "rfc5746" Permitted values: <ul style="list-style-type: none"> "always": Always allow "never": Never allow "rfc5746": Only if client uses RFC 5746 (Secure Renegotiation Extension) "safe": Allow safe re-handshakes |
| ssl3_ciphers | <p>The SSL ciphers to use for admin server and internal connections. For information on supported ciphers see the online help.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |

| Property | Description |
|--------------------------------|---|
| ssl3_diffie_hellman_key_length | <p>The length in bits of the Diffie-Hellman key for ciphers that use Diffie-Hellman key agreement for admin server and internal connections.</p> <ul style="list-style-type: none"> Type: Enum(UInt) Required: false Default value: "dh_2048" Permitted values: <ul style="list-style-type: none"> "dh_1024": Use 1024 bit keys for Diffie-Hellman ciphers. "dh_2048": Use 2048 bit keys for Diffie-Hellman ciphers. "dh_3072": Use 3072 bit keys for Diffie-Hellman ciphers. "dh_4096": Use 4096 bit keys for Diffie-Hellman ciphers. |
| ssl3_min_rehandshake_interval | <p>If SSL3/TLS re-handshakes are supported on the admin server, this defines the minimum time interval (in milliseconds) between handshakes on a single SSL3/TLS connection that is permitted. To disable the minimum interval for handshakes the key should be set to the value 0.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1000" |
| ssl_elliptic_curves | <p>The SSL elliptic curve preference list for admin and internal connections. The named curves P256, P384 and P521 may be configured.</p> <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| ssl_insert_extra_fragment | <p>Whether or not SSL3 and TLS1 use one-byte fragments as a BEAST countermeasure for admin server and internal connections.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| ssl_max_handshake_message_size | <p>The maximum size (in bytes) of SSL handshake messages that the admin server and internal connections will accept. To accept any size of handshake message the key should be set to the value 0.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10240" |
| ssl_signature_algorithms | <p>The SSL signature algorithms preference list for admin and internal connections using TLS version 1.2 or higher. For information on supported algorithms see the online help.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |

| Property | Description |
|---|--|
| support_ssl3 | Whether or not SSL3 support is enabled for admin server and internal connections. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| support_tls1 | Whether or not TLS1.0 support is enabled for admin server and internal connections. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| support_tls1_1 | Whether or not TLS1.1 support is enabled for admin server and internal connections. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| support_tls1_2 | Whether or not TLS1.2 support is enabled for admin server and internal connections. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| support_tls1_3 | Whether or not TLS1.3 support is enabled for admin server and internal connections. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "appliance" section: | |
| bootloader_password | The password used to protect the bootloader. An empty string means there will be no protection. <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| return_path_routing_enabled | Whether or not the traffic manager will attempt to route response packets back to clients via the same route on which the corresponding request arrived. Note that this applies only to the last hop of the route - the behaviour of upstream routers cannot be altered by the traffic manager. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "optimizer" section: | |

| Property | Description |
|--|--|
| max_dependent_fetch_size | <p>The maximum size of a dependent resource that can undergo Web Accelerator optimization. Any content larger than this size will not be optimized. Units of KB and MB can be used, no postfix denotes bytes. A value of 0 disables the limit.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "2MB" |
| max_original_content_buffer_size | <p>The maximum size of unoptimized content buffered in the traffic manager for a single backend response that is undergoing Web Accelerator optimization. Responses larger than this will not be optimized. Note that if the backend response is compressed then this setting pertains to the compressed size, before Web Accelerator decompresses it. Units of KB and MB can be used, no postfix denotes bytes. Value range is 1 - 128MB.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "2MB" |
| watchdog_interval | <p>The period of time (in seconds) after which a previous failure will no longer count towards the watchdog limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "300" |
| watchdog_limit | <p>The maximum number of times the Web Accelerator sub-process will be started or restarted within the interval defined by the aptimizer!watchdog_interval setting. If the process fails this many times, it must be restarted manually from the Diagnose page. Zero means no limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "3" |
| Properties for the "auditlog" section: | |
| via_eventd | <p>Whether to mirror the audit log to EventD.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| via_syslog | <p>Whether to output audit log message to the syslog.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "auth" section: | |
| saml_key_lifetime | <p>Lifetime in seconds of cryptographic keys used to decrypt SAML SP sessions stored externally (client-side).</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "86400" |

| Property | Description |
|---|---|
| saml_key_rotation_interval | Rotation interval in seconds for cryptographic keys used to encrypt SAML SP sessions stored externally (client-side). <ul style="list-style-type: none"> Type: UInt Required: false Default value: "14400" |
| Properties for the "autoscaler" section: | |
| verbose | Whether or not detailed messages about the autoscaler's activity are written to the error log. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "bgp" section: | |
| as_number | The number of the BGP AS in which the traffic manager will operate. Must be entered in decimal. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "65534" |
| enabled | Whether BGP Route Health Injection is enabled <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "cluster_comms" section: | |
| allow_update_default | The default value of allow_update for new cluster members. If you have cluster members joining from less trusted locations (such as cloud instances) this can be set to false in order to make them effectively "read-only" cluster members. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| allowed_update_hosts | The hosts that can contact the internal administration port on each traffic manager. This should be a list containing IP addresses, CIDR IP subnets, and localhost; or it can be set to all to allow any host to connect. <ul style="list-style-type: none"> Type: List(String) Required: false Default value: "all" |
| state_sync_interval | How often to propagate the session persistence and bandwidth information to other traffic managers in the same cluster. Set this to 0 (zero) to disable propagation. Note that a cluster using "unicast" heartbeat messages cannot turn off these messages. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "3" |

| Property | Description |
|--|---|
| state_sync_timeout | <p>The maximum amount of time to wait when propagating session persistence and bandwidth information to other traffic managers in the same cluster. Once this timeout is hit the transfer is aborted and a new connection created.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "6" |
| Properties for the "connection" section: | |
| idle_connections_max | <p>The maximum number of unused HTTP keepalive connections with back-end nodes that the traffic manager should maintain for re-use. Setting this to 0 (zero) will cause the traffic manager to auto-size this parameter based on the available number of file-descriptors.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| idle_timeout | <p>How long an unused HTTP keepalive connection should be kept before it is discarded.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| listen_queue_size | <p>The listen queue size for managing incoming connections. It may be necessary to increase the system's listen queue size if this value is altered. If the value is set to 0 then the default system setting will be used.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| max_accepting | <p>Number of processes that should accept new connections. Only this many traffic manager child processes will listen for new connections at any one time. Setting this to 0 (zero) will cause your traffic manager to select an appropriate default value based on the architecture and number of CPUs.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| multiple_accept | <p>Whether or not the traffic manager should try to read multiple new connections each time a new client connects. This can improve performance under some very specific conditions. However, in general it is recommended that this be set to 'false'.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "dns" section: | |

| Property | Description |
|-----------------------------------|--|
| max_ttl | Maximum Time To Live (expiry time) for entries in the DNS cache. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "86400" |
| min_ttl | Minimum Time To Live (expiry time) for entries in the DNS cache. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "86400" |
| negative_expiry | Expiry time for failed lookups in the DNS cache. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "60" |
| size | Maximum number of entries in the DNS cache. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10867" |
| timeout | Timeout for receiving a response from a DNS server. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "12" |
| Properties for the "ec2" section: | |
| access_key_id | Deprecated: This key is unused. Amazon authentication credentials are now extracted from IAM Roles assigned to an EC2 instance. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| awstool_timeout | The maximum amount of time requests to the AWS Query API can take before timing out. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| metadata_server | URL for the EC2 metadata server, http://169.254.169.254/latest/meta-data for example. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| query_server | URL for the Amazon EC2 endpoint, https://ec2.amazonaws.com/ for example. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |

| Property | Description |
|---|--|
| secret_access_key | <p>Deprecated: This key is unused. Amazon authentication credentials are now extracted from IAM Roles assigned to an EC2 instance.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| verify_query_server_cert | <p>Whether to verify Amazon EC2 endpoint's certificate using CA(s) present in SSL Certificate Authorities Catalog.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "eventing" section: | |
| mail_interval | <p>The minimum length of time that must elapse between alert emails being sent. Where multiple alerts occur inside this timeframe, they will be retained and sent within a single email rather than separately.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| max_attempts | <p>The number of times to attempt to send an alert email before giving up.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| Properties for the "fault_tolerance" section: | |
| arp_count | <p>The number of ARP packets a traffic manager should send when an IP address is raised.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| auto_failback | <p>Whether or not traffic IPs automatically move back to machines that have recovered from a failure and have dropped their traffic IPs.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| autofailback_delay | <p>Configure the delay of automatic failback after a previous failover event. This setting has no effect if autofailback is disabled.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| child_timeout | <p>How long the traffic manager should wait for status updates from any of the traffic manager's child processes before assuming one of them is no longer servicing traffic.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "5" |

| Property | Description |
|--------------------|---|
| frontend_check_ips | <p>The IP addresses used to check front-end connectivity. The text %gateway% will be replaced with the default gateway on each system. Set this to an empty string if the traffic manager is on an Intranet with no external connectivity.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: "%gateway%" |
| heartbeat_method | <p>The method traffic managers should use to exchange cluster heartbeat messages.</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "unicast" • Permitted values: "multicast": multicast "unicast": unicast |
| igmp_interval | <p>The interval between unsolicited periodic IGMP Membership Report messages for Multi-Hosted Traffic IP Groups.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "30" |
| monitor_interval | <p>The frequency, in milliseconds, that each traffic manager machine should check and announce its connectivity.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "500" |
| monitor_timeout | <p>How long, in seconds, each traffic manager should wait for a response from its connectivity tests or from other traffic manager machines before registering a failure.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "5" |
| multicast_address | <p>The multicast address and port to use to exchange cluster heartbeat messages.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: "239.100.1.1:9090" |
| unicast_port | <p>The unicast UDP port to use to exchange cluster heartbeat messages.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "9090" |

| Property | Description |
|---|--|
| use_bind_ip | Whether or not cluster heartbeat messages should only be sent and received over the management network. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| verbose | Whether or not a traffic manager should log all connectivity tests. This is very verbose, and should only be used for diagnostic purposes. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "fips" section: | |
| enabled | Enable FIPS Mode (requires software restart). <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "ftp" section: | |
| data_bind_low | Whether or not the traffic manager should permit use of FTP data connection source ports lower than 1024. If No the traffic manager can completely drop root privileges, if Yes some or all privileges may be retained in order to bind to low ports. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "glb" section: | |
| verbose | Write a message to the logs for every DNS query that is load balanced, showing the source IP address and the chosen datacenter. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "historical_activity" section: | |
| keep_days | Number of days to store historical traffic information, if set to 0 the data will be kept indefinitely. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "90" |
| Properties for the "ip" section: | |

| Property | Description |
|------------------------------------|---|
| appliance_returnpath | <p>A table of MAC to IP address mappings for each router where return path routing is required.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> mac (String): The MAC address of a router the software is connected to. (Required) Sub keys: <ul style="list-style-type: none"> ipv4 (String): The MAC address to IPv4 address mapping of a router the software is connected to. The * (asterisk) in the key name is the MAC address, the value is the IP address. ipv6 (String): The MAC address to IPv6 address mapping of a router the software is connected to. The * (asterisk) in the key name is the MAC address, the value is the IP address. |
| Properties for the "java" section: | |
| classpath | <p>CLASSPATH to use when starting the Java runner.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| command | <p>Java command to use when starting the Java runner, including any additional options.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "java -server" |
| enabled | <p>Whether or not Java support should be enabled. If this is set to No, then your traffic manager will not start any Java processes. Java support is only required if you are using the TrafficScript java.run() function.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| lib | <p>Java library directory for additional jar files. The Java runner will load classes from any .jar files stored in this directory, as well as the * jar files and classes stored in traffic manager's catalog.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| max_connections | <p>Maximum number of simultaneous Java requests. If there are more than this many requests, then further requests will be queued until the earlier requests are completed. This setting is per-CPU, so if your traffic manager is running on a machine with 4 CPU cores, then each core can make this many requests at one time.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "256" |

| Property | Description |
|--|--|
| session_age | <p>Default time to keep a Java session.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "86400" |
| Properties for the "kerberos" section: | |
| verbose | <p>Whether or not a traffic manager should log all Kerberos related activity. This is very verbose, and should only be used for diagnostic purposes.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "log" section: | |
| error_level | <p>The minimum severity of events/alerts that should be logged to disk. INFO will log all events; a higher severity setting will log fewer events. More fine-grained control can be achieved using events and actions.</p> <ul style="list-style-type: none"> Type: Enum(UInt) Required: false Default value: "info" Permitted values: <ul style="list-style-type: none"> "fatal": Only fatal errors are logged "info": All events are logged to disk "serious": Only serious errors or worse "warn": Only warnings and errors are logged |
| flush_time | <p>How long to wait before flushing the request log files for each virtual server.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "5" |
| log_file | <p>The file to log event messages to.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "%zeushome%/zxtm/log/errors" |
| rate | <p>The maximum number of connection errors logged per second when connection error reporting is enabled.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "50" |
| reopen | <p>How long to wait before re-opening request log files, this ensures that log files will be recreated in the case of log rotation.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |

| Property | Description |
|--|---|
| time | <p>The minimum time between log messages for log intensive features such as SLM.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "60" |
| Properties for the "log_export" section: | |
| auth_hec_token | <p>The HTTP Event Collector token to use for HTTP authentication with a Splunk server.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| auth_http | <p>The HTTP authentication method to use when exporting log entries.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "none" Permitted values: "basic": Basic (Username and Password) "none": None "splunk": Splunk (HEC token) |
| auth_password | <p>The password to use for HTTP basic authentication.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| auth_username | <p>The username to use for HTTP basic authentication.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| enabled | <p>Monitor log files and export entries to the configured endpoint.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| endpoint | <p>The URL to which log entries should be sent. Entries are sent using HTTP(S) POST requests.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| request_timeout | <p>The number of seconds after which HTTP requests sent to the configured endpoint will be considered to have failed if no response is received. A value of 0 means that HTTP requests will not time out.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |

| Property | Description |
|--------------------------------------|--|
| tls_verify | <p>Whether the server certificate should be verified when connecting to the endpoint. If enabled, server certificates that do not match the server name, are self-signed, have expired, have been revoked, or that are signed by an unknown CA will be rejected.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| Properties for the "ospfv2" section: | |
| area | <p>The OSPF area in which the traffic manager will operate. May be entered in decimal or IPv4 address format.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: "0.0.0.1" |
| area_type | <p>The type of OSPF area in which the traffic manager will operate. This must be the same for all routers in the area, as required by OSPF.</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "normal" • Permitted values: "normal": Normal area "nssa": Not So Stubby Area (RFC3101) "stub": Stub area |
| authentication_key_id_a | <p>OSPFv2 authentication key ID. If set to 0, which is the default value, the key is disabled.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: <none> |
| authentication_key_id_b | <p>OSPFv2 authentication key ID. If set to 0, which is the default value, the key is disabled.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: <none> |
| authentication_shared_secret_a | <p>OSPFv2 authentication shared secret (MD5). If set to blank, which is the default value, the key is disabled.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| authentication_shared_secret_b | <p>OSPFv2 authentication shared secret (MD5). If set to blank, which is the default value, the key is disabled.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |

| Property | Description |
|--|---|
| dead_interval | The number of seconds before declaring a silent router down. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "40" |
| enabled | Whether OSPFv2 Route Health Injection is enabled <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| hello_interval | The interval at which OSPF "hello" packets are sent to the network. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| Properties for the "protection" section: | |
| conncount_size | The amount of shared memory reserved for an inter-process table of combined connection counts, used by all Service Protection classes that have per_process_connection_count set to No. The amount is specified as an absolute size, eg 20MB. <ul style="list-style-type: none"> Type: String Required: false Default value: "20MB" |
| Properties for the "recent_connections" section: | |
| max_per_process | How many recently closed connections each traffic manager process should save. These saved connections will be shown alongside currently active connections when viewing the Connections page. You should set this value to 0 in a benchmarking or performance-critical environment. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "500" |
| retain_time | The amount of time for which snapshots will be retained on the Connections page. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "60" |
| snapshot_size | The maximum number of connections each traffic manager process should show when viewing a snapshot on the Connections page. This value includes both currently active connections and saved connections. If set to 0 all active and saved connection will be displayed on the Connections page. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "500" |
| Properties for the "remote_licensing" section: | |

| Property | Description |
|--|--|
| comm_channel_enabled | Whether to create a Communications Channel agent to send and receive messages from the Services Director Registration Server. This will be disabled when performing self-registration with a Services Director which does not support this feature. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| comm_channel_port | The port number the Services Director instance is using for access to the traffic manager Communications Channel. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "8102" |
| owner | The Owner of a Services Director instance, used for self-registration. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| owner_secret | The secret associated with the Owner. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| policy_id | The auto-accept Policy ID that this instance should attempt to use. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| registration_server | A Services Director address for self-registration. A registration server should be specified as a <ip/host>:<port> pair. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| server_certificate | The certificate of a Services Director instance, used for self-registration. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "rest_api" section: | |
| auth_timeout | The length of time after a successful request that the authentication of a given username and password will be cached for an IP address. A setting of 0 disables the cache forcing every REST request to be authenticated which will adversely affect performance. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "120" |

| Property | Description |
|--|--|
| enabled | Whether or not the REST service is enabled. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| http_max_header_length | The maximum allowed length in bytes of a HTTP request's headers. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "4096" |
| maxfds | Maximum number of file descriptors that the REST API will allocate. The REST API must be restarted for a change to this setting to take effect. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1048576" |
| replicate_absolute | Configuration changes will be replicated across the cluster after this period of time, regardless of whether additional API requests are being made. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "20" |
| replicate_lull | Configuration changes made via the REST API will be propagated across the cluster when no further API requests have been made for this period of time. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "5" |
| replicate_timeout | The period of time after which configuration replication across the cluster will be cancelled if it has not completed. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| Properties for the "security" section: | |
| login_banner | Banner text displayed on the Admin Server login page and before logging in to appliance SSH servers. <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |
| login_banner_accept | Whether or not users must explicitly agree to the displayed login_banner text before logging in to the Admin Server. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
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| login_delay | The number of seconds before another login attempt can be made after a failed attempt. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "4" |
| max_login_attempts | The number of sequential failed login attempts that will cause a user account to be suspended. Setting this to 0 disables this feature. To apply this to users who have never successfully logged in, track_unknown_users must also be enabled. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| max_login_external | Whether or not usernames blocked due to the max_login_attempts limit should also be blocked from authentication against external services (such as LDAP and RADIUS). <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| max_login_suspension_time | The number of minutes to suspend users who have exceeded the max_login_attempts limit. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "15" |
| password_allow_consecutive_chars | Whether or not to allow the same character to appear consecutively in passwords. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| password_changes_per_day | The maximum number of times a password can be changed in a 24-hour period. Set to 0 to disable this restriction. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| password_min_alpha_chars | Minimum number of alphabetic characters a password must contain. Set to 0 to disable this restriction. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| password_min_length | Minimum number of characters a password must contain. Set to 0 to disable this restriction. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |

| Property | Description |
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| password_min_numeric_chars | Minimum number of numeric characters a password must contain. Set to 0 to disable this restriction. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| password_min_special_chars | Minimum number of special (non-alphanumeric) characters a password must contain. Set to 0 to disable this restriction. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| password_min_uppercase_chars | Minimum number of uppercase characters a password must contain. Set to 0 to disable this restriction. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| password_reuse_after | The number of times a password must have been changed before it can be reused. Set to 0 to disable this restriction. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| post_login_banner | Banner text to be displayed on the appliance console after login. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| track_unknown_users | Whether to remember past login attempts from usernames that are not known to exist (should be set to false for an Admin Server accessible from the public Internet). This does not affect the audit log. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| ui_page_banner | Banner text to be displayed on all Admin Server pages. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "session" section: | |
| asp_cache_size | The maximum number of entries in the ASP session persistence cache. This is used for storing session mappings for ASP session persistence. Approximately 100 bytes will be pre-allocated per entry. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "32768" |

| Property | Description |
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| ip_cache_expiry | IP session persistence cache expiry time in seconds. A session will not be reused if the time since it was last used exceeds this value. 0 indicates no expiry timeout. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| ip_cache_size | The maximum number of entries in the IP session persistence cache. This is used to provide session persistence based on the source IP address. Approximately 100 bytes will be pre-allocated per entry. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "32768" |
| j2ee_cache_expiry | J2EE session persistence cache expiry time in seconds. A session will not be reused if the time since it was last used exceeds this value. 0 indicates no expiry timeout. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| j2ee_cache_size | The maximum number of entries in the J2EE session persistence cache. This is used for storing session mappings for J2EE session persistence. Approximately 100 bytes will be pre-allocated per entry. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "32768" |
| ssl_cache_size | The maximum number of entries in the SSL session persistence cache. This is used to provide session persistence based on the SSL session ID. Approximately 200 bytes will be pre-allocated per entry. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "32768" |
| universal_cache_expiry | Universal session persistence cache expiry time in seconds. A session will not be reused if the time since it was last used exceeds this value. 0 indicates no expiry timeout. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| universal_cache_size | The maximum number of entries in the global universal session persistence cache. This is used for storing session mappings for universal session persistence. Approximately 100 bytes will be pre-allocated per entry. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "32768" |
| Properties for the "snmp" section: | |

| Property | Description |
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| user_counters | <p>The number of user defined SNMP counters. Approximately 100 bytes will be pre-allocated at start-up per user defined SNMP counter.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| Properties for the "soap" section: | |
| idle_minutes | <p>The number of minutes that the SOAP server should remain idle before exiting. The SOAP server has a short startup delay the first time a SOAP request is made, subsequent SOAP requests don't have this delay.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| Properties for the "ssl" section: | |
| allow_rehandshake | <p>Whether or not SSL/TLS re-handshakes should be supported. Enabling support for re-handshakes can expose services to Man-in-the-Middle attacks. It is recommended that only "safe" handshakes be permitted, or none at all.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "safe" Permitted values: <ul style="list-style-type: none"> "always": Always allow "never": Never allow "rfc5746": Only if client uses RFC 5746 (Secure Renegotiation Extension) "safe": Allow safe re-handshakes |
| cache_enabled | <p>Whether or not the SSL server session cache is enabled, unless overridden by virtual server settings.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| cache_expiry | <p>How long the SSL session IDs for SSL decryption should be stored for.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1800" |
| cache_per_virtualserver | <p>Whether an SSL session created by a given virtual server can only be resumed by a connection to the same virtual server.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

| Property | Description |
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| cache_size | <p>How many entries the SSL session ID cache should hold. This cache is used to cache SSL sessions to help speed up SSL handshakes when performing SSL decryption. Each entry will allocate approximately 1.5kB of metadata.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "6151" |
| cipher_suites | <p>The SSL/TLS cipher suites preference list for SSL/TLS connections, unless overridden by virtual server or pool settings. For information on supported cipher suites see the online help.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| client_cache_enabled | <p>Whether or the SSL client cache will be used, unless overridden by pool settings.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| client_cache_expiry | <p>How long in seconds SSL sessions should be stored in the client cache for, by default. Servers returning session tickets may also provide a lifetime hint, which will be used if it is less than this value.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "14400" |
| client_cache_size | <p>How many entries the SSL client session cache should hold, per child. This cache is used to cache SSL sessions to help speed up SSL handshakes when performing SSL encryption. Each entry will require approx 100 bytes of memory plus space for either an SSL session id or an SSL session ticket, which may be as small as 16 bytes or may be as large as a few kilobytes, depending upon the server behavior.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "1024" |
| client_cache_tickets_enabled | <p>Whether or not session tickets, including TLS >= 1.3 PSKs, may be requested and stored in the SSL client cache.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| crl_mem_size | <p>How much shared memory to allocate for loading Certificate Revocation Lists. This should be at least 3 times the total size of all CRLs on disk. This is specified as either a percentage of system RAM, 1% for example, or an absolute size such as 10MB.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: "5MB" |

| Property | Description |
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| diffie_hellman_modulus_size | <p>The size in bits of the modulus for the domain parameters used for cipher suites that use finite field Diffie-Hellman key agreement.</p> <ul style="list-style-type: none"> Type: Enum(UInt) Required: false Default value: "dh_2048" Permitted values: <ul style="list-style-type: none"> "dh_1024": 1024 bit modulus "dh_2048": 2048 bit modulus "dh_3072": 3072 bit modulus "dh_4096": 4096 bit modulus |
| elliptic_curves | <p>The SSL/TLS elliptic curve preference list for SSL/TLS connections using TLS version 1.0 or higher, unless overridden by virtual server or pool settings. For information on supported curves see the online help.</p> <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| honor_fallback_scsv | <p>Whether or not ssl-decrypting Virtual Servers honor the Fallback SCSV to protect connections against downgrade attacks.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| insert_extra_fragment | <p>Whether or not SSL3 and TLS1 use one-byte fragments as a BEAST countermeasure.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| log_keys | <p>Whether SSL connection key logging should be available via the <code>ssl.sslkeylogline()</code> TrafficScript function. If this setting is disabled then <code>ssl.sslkeylogline()</code> will always return the empty string.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| max_handshake_message_size | <p>The maximum size (in bytes) of SSL handshake messages that SSL connections will accept. To accept any size of handshake message the key should be set to the value 0.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10240" |
| middlebox_compatibility | <p>Whether or not TLS 1.3 middlebox compatibility mode as described in RFC 8446 appendix D.4 will be used in connections to pool nodes, unless overridden by pool settings.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

| Property | Description |
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| min_rehandshake_interval | <p>If SSL3/TLS re-handshakes are supported, this defines the minimum time interval (in milliseconds) between handshakes on a single SSL3/TLS connection that is permitted. To disable the minimum interval for handshakes the key should be set to the value 0.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1000" |
| ocsp_cache_size | <p>The maximum number of cached client certificate OCSP results stored. This cache is used to speed up OCSP checks against client certificates by caching results. Approximately 1040 bytes are pre-allocated per entry.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "2048" |
| ocsp_stapling_default_refresh_interval | <p>How long to wait before refreshing requests on behalf of the store of certificate status responses used by OCSP stapling, if we don't have an up-to-date OCSP response.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "60" |
| ocsp_stapling_maximum_refresh_interval | <p>Maximum time to wait before refreshing requests on behalf of the store of certificate status responses used by OCSP stapling. (0 means no maximum.)</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "864000" |
| ocsp_stapling_mem_size | <p>How much shared memory to allocate for the store of certificate status responses for OCSP stapling. This should be at least 2kB times the number of certificates configured to use OCSP stapling. This is specified as either a percentage of system RAM, 1% for example, or an absolute size such as 10MB.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "1MB" |
| ocsp_stapling_time_tolerance | <p>How many seconds to allow the current time to be outside the validity time of an OCSP response before considering it invalid.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| ocsp_stapling_verify_response | <p>Whether the OCSP response signature should be verified before the OCSP response is cached.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|------------------------|--|
| signature_algorithms | <p>The SSL/TLS signature algorithms preference list for SSL/TLS connections using TLS version 1.2 or higher, unless overridden by virtual server or pool settings. For information on supported algorithms see the online help.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| support_ssl3 | <p>Whether or not SSL3 support is enabled.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| support_tls1 | <p>Whether or not TLS1.0 support is enabled.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| support_tls1_1 | <p>Whether or not TLS1.1 support is enabled.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| support_tls1_2 | <p>Whether or not TLS1.2 support is enabled.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| support_tls1_3 | <p>Whether or not TLS1.3 support is enabled.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| tickets_enabled | <p>Whether or not session tickets will be issued to and accepted from clients that support them, unless overridden by virtual server settings.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| tickets_reissue_policy | <p>When an SSL session ticket will be reissued (ie when a new ticket will be generated for the same SSL session).</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "never" • Permitted values: "always": always "never": never |

| Property | Description |
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| tickets_ticket_expiry | <p>The length of time for which an SSL session ticket will be accepted by a virtual server after the ticket is created. If a ticket is reissued (if <code>ssl!tickets!reissue_policy</code> is set to 'always') this time starts at the time when the ticket was reissued.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "14400" |
| tickets_ticket_key_expiry | <p>The length of time for which an auto-generated SSL ticket key will be used to decrypt old session ticket, before being deleted from memory. This setting is ignored if there are any entries in the (REST-only) SSL ticket keys catalog.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "86400" |
| tickets_ticket_key_rotation | <p>The length of time for which an auto-generated SSL ticket key will be used to encrypt new session tickets, before a new SSL ticket key is generated. The ticket encryption key will be held in memory for <code>ssl!tickets!ticket_key_expiry</code>, so that tickets encrypted using the key can still be decrypted and used. This setting is ignored if there are any entries in the (REST-only) SSL ticket keys catalog.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "14400" |
| tickets_time_tolerance | <p>How many seconds to allow the current time to be outside the validity time of an SSL ticket before considering it invalid.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| validate_server_certificates_catalog | <p>Whether the traffic manager should validate that SSL server certificates form a matching key pair before the certificate gets used on an SSL decrypting virtual server.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "ssl_hardware" section: | |
| accel | <p>Whether or not the SSL hardware is an "accelerator" (faster than software). By default the traffic manager will only use the SSL hardware if a key requires it (i.e. the key is stored on secure hardware and the traffic manager only has a placeholder/identifier key). With this option enabled, your traffic manager will instead try to use hardware for all SSL decrypts.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
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| azure_client_id | <p>The client identifier used when accessing the Microsoft Azure Key Vault.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| azure_client_secret | <p>The client secret used when accessing the Microsoft Azure Key Vault.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| azure_vault_url | <p>The URL for the REST API of the Microsoft Azure Key Vault.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| azure_verify_rest_api_cert | <p>Whether or not the Azure Key Vault REST API certificate should be verified.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| driver_pkcs11_debug | <p>Print verbose information about the PKCS11 hardware security module to the event log.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| driver_pkcs11_lib | <p>The location of the PKCS#11 library for your SSL hardware if it is not in a standard location. The traffic manager will search the standard locations by default.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| driver_pkcs11_slot_desc | <p>The label of the SSL Hardware slot to use. Only required if you have multiple HW accelerator slots.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| driver_pkcs11_slot_type | <p>The type of SSL hardware slot to use.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "operator" Permitted values: <ul style="list-style-type: none"> "module": Module Protected "operator": Operator Card Set "softcard": Soft Card |

| Property | Description |
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| driver_pkcs11_user_pin | <p>The User PIN for the PKCS token (PKCS#11 devices only).</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| failure_count | <p>The number of consecutive failures from the SSL hardware that will be tolerated before the traffic manager assumes its session with the device is invalid and tries to log in again. This is necessary when the device reboots following a power failure.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "5" |
| library | <p>The type of SSL hardware to use. The drivers for the SSL hardware should be installed and accessible to the traffic manager software.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "none" Permitted values: "azure": Microsoft Azure Key Vault "none": None "pkcs11": PKCS#11 |
| Properties for the "telemetry" section: | |
| enabled | <p>Allow the reporting of anonymized usage data to Pulse Secure for product improvement and customer support purposes.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "trafficscript" section: | |
| data_local_size | <p>The maximum amount of memory available to store TrafficScript data.local.set() information. This can be specified as a percentage of system RAM, 5% for example; or an absolute size such as 200MB.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "5%" |
| data_size | <p>The maximum amount of memory available to store TrafficScript data.set() information. This can be specified as a percentage of system RAM, 5% for example; or an absolute size such as 200MB.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "5%" |

| Property | Description |
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| execution_time_warning | <p>Raise an event if a TrafficScript rule runs for more than this number of milliseconds in a single invocation. If you get such events repeatedly, you may want to consider re-working some of your TrafficScript rules. A value of 0 means no warnings will be issued.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "500" |
| max_instr | <p>The maximum number of instructions a TrafficScript rule will run. A rule will be aborted if it runs more than this number of instructions without yielding, preventing infinite loops.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "100000" |
| memory_warning | <p>Raise an event if a TrafficScript rule requires more than this amount of buffered network data. If you get such events repeatedly, you may want to consider re-working some of your TrafficScript rules to use less memory or to stream the data that they process rather than storing it all in memory. This setting also limits the amount of data that can be returned by request.GetLine().</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1048576" |
| regex_cache_size | <p>The maximum number of regular expressions to cache in TrafficScript. Regular expressions will be compiled in order to speed up their use in the future.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "57" |
| regex_match_limit | <p>The maximum number of ways TrafficScript will attempt to match a regular expression at each position in the subject string, before it aborts the rule and reports a TrafficScript error.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10000000" |
| regex_match_warn_percentage | <p>The percentage of regex_match_limit at which TrafficScript reports a performance warning.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "5" |

| Property | Description |
|--|--|
| variable_pool_use | <p>Allow the pool.use and pool.select TrafficScript functions to accept variables instead of requiring literal strings. Enabling this feature has the following effects1. Your traffic manager may no longer be able to know whether a pool is in use.2. Errors for pools that aren't in use will not be hidden.3. Some settings displayed for a Pool may not be appropriate for the type of traffic being managed.4. Pool usage information on the pool edit pages and config summary may not be accurate.5. Monitors will run for all pools (with this option disabled monitors will only run for Pools that are used).</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| Properties for the "transaction_export" section: | |
| enabled | <p>Export metadata about transactions processed by the traffic manager to an external location.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| endpoint | <p>The endpoint to which transaction metadata should be exported. The endpoint is specified as a hostname or IP address with a port.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| tls | <p>Whether the connection to the specified endpoint should be encrypted.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| tls_verify | <p>Whether the server certificate presented by the endpoint should be verified, preventing a connection from being established if the certificate does not match the server name, is self-signed, is expired, is revoked, or has an unknown CA.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| Properties for the "watchdog" section: | |
| timeout | <p>The maximum time in seconds a process can fail to update its heartbeat, before the watchdog considers it to have stalled.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "5" |
| Properties for the "web_cache" section: | |

| Property | Description |
|-----------------|---|
| avg_path_length | <p>The estimated average length of the path (including query string) for resources being cached. An amount of memory equal to this figure multiplied by max_file_num will be allocated for storing the paths for cache entries. This setting can be increased if your web site makes extensive use of long URLs.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "512" |
| disk | <p>Whether or not to use a disk-backed (typically SSD) cache. If set to Yes cached web pages will be stored in a file on disk. This enables the traffic manager to use a cache that is larger than available RAM. The size setting should also be adjusted to select a suitable maximum size based on your disk space. Note that the disk caching is optimized for use with SSD storage.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| disk_dir | <p>If disk caching is enabled, this sets the directory where the disk cache file will be stored. The traffic manager will create a file called webcache.data in this location. Note that the disk caching is optimized for use with SSD storage.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: "%zeushome%/zxtm/internal" |
| max_file_num | <p>Maximum number of entries in the cache. Approximately 0.9 KB will be pre-allocated per entry for metadata, this is in addition to the memory reserved for the content cache and for storing the paths of the cached resources.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "10000" |
| max_file_size | <p>Largest size of a cacheable object in the cache. This is specified as either a percentage of the total cache size, 2% for example, or an absolute size such as 20MB.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: "2%" |
| max_path_length | <p>The maximum length of the path (including query string) for the resource being cached. If the path exceeds this length then it will not be added to the cache.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "2048" |

| Property | Description |
|-----------------|--|
| normalize_query | Enable normalization (lexical ordering of the parameter-assignments) of the query string. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| size | The maximum size of the HTTP web page cache. This is specified as either a percentage of system RAM, 20% for example, or an absolute size such as 200MB. <ul style="list-style-type: none"> Type: String Required: false Default value: "20%" |
| verbose | Add an X-Cache-Info header to every HTTP response, showing whether the request and/or the response was cacheable. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

Kerberos Configuration File

URI Endpoint: /api/tm/7.1/config/active/kerberos/krb5confs

A Kerberos krb5.conf file that provides the raw configuration for a Kerberos principal.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

Kerberos Keytab

URI Endpoint: /api/tm/7.1/config/active/kerberos/keytabs

A Kerberos keytab file contains credentials to authenticate as (a number of) Kerberos principals.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

Kerberos Principal

URI Endpoint: /api/tm/7.1/config/active/kerberos/principals

A Kerberos principal can be used by the traffic manager to participate in a Kerberos realm.

| Property | Description |
|----------|--|
| kdc | <p>A list of <hostname/ip>:<port> pairs for Kerberos key distribution center (KDC) services to be explicitly used for the realm of the principal. If no KDCs are explicitly configured, DNS will be used to discover the KDC(s) to use.</p> <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| keytab | <p>The name of the Kerberos keytab file containing suitable credentials to authenticate as the specified Kerberos principal.</p> <ul style="list-style-type: none"> Type: String Required: true Default value: <none> |
| krb5conf | <p>The name of an optional Kerberos configuration file (krb5.conf).</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| realm | <p>The Kerberos realm where the principal belongs.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| service | <p>The service name part of the Kerberos principal name the traffic manager should use to authenticate itself.</p> <ul style="list-style-type: none"> Type: String Required: true Default value: <none> |

License

URI Endpoint: /api/tm/7.1/config/active/license_keys

A license key is an encoded text file that controls what functionality is available from each traffic manager in the cluster. Every production traffic manager must have a valid licence key in order to function; a traffic manager without a license will operate as Community Edition, which provides most of the functionality, but places restrictions on bandwidth and cluster size.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

Location

URI Endpoint: /api/tm/7.1/config/active/locations

These are geographic locations as used by Global Load Balancing services. Such a location may not necessarily contain a traffic manager; instead it could refer to the location of a remote datacenter.

| Property | Description |
|-----------|--|
| id | The identifier of this location. <ul style="list-style-type: none"> Type: UInt Required: true Default value: <none> |
| latitude | The latitude of this location. <ul style="list-style-type: none"> Type: Float Required: false Default value: "0.0" |
| longitude | The longitude of this location. <ul style="list-style-type: none"> Type: Float Required: false Default value: "0.0" |
| note | A note, used to describe this location. <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |
| type | Does this location contain traffic managers and configuration or is it a recipient of GLB requests? <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "config" Permitted values: <ul style="list-style-type: none"> "config": Configuration "glb": GLB |

Log Export

URI Endpoint: /api/tm/7.1/config/active/log_export

Definitions of log files which should be exported to the analytics engine

| Property | Description |
|----------------|---|
| appliance_only | Whether entries from the specified log files should be exported only from appliances. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| enabled | Export entries from the log files included in this category. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| files | The set of files to export as part of this category, specified as a list of glob patterns. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| history | How much historic log activity should be exported. <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "none" Permitted values: <ul style="list-style-type: none"> "all": Export all historic entries "none": Do not export any historic entries "recent": Export recent historic entries, according to the 'history_period' setting |
| history_period | The number of days of historic log entries that should be exported. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |

| Property | Description |
|----------|--|
| metadata | <p>This is table 'metadata'</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> name (String): The name of a metadata item which should be sent to the analytics engine along with entries from these log files. (Required) Sub keys: <ul style="list-style-type: none"> value (String): Additional metadata to include with the log entries when exporting them to the configured endpoint. Metadata can be used by the system that is receiving the exported data to categorise and parse the log entries. (Required) |
| note | <p>A description of this category of log files.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |

Monitor

URI Endpoint: /api/tm/7.1/config/active/monitors

Monitors check important remote services are running, by periodically sending them traffic and checking the response is correct. They are used by virtual servers to detect the failure of backend nodes.

| Property | Description |
|-------------|---|
| back_off | <p>Should the monitor slowly increase the delay after it has failed?</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| delay | <p>The minimum time between calls to a monitor.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "3" |
| failures | <p>The number of times in a row that a node must fail execution of the monitor before it is classed as unavailable.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "3" |
| health_only | <p>Should this monitor only report health (ignore load)?</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|----------|---|
| machine | <p>The machine to monitor, where relevant this should be in the form <hostname>:<port>, for "ping" monitors the :<port> part must not be specified.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| note | <p>A description of the monitor.</p> <ul style="list-style-type: none"> • Type: FreeformString • Required: false • Default value: <none> |
| scope | <p>A monitor can either monitor each node in the pool separately and disable an individual node if it fails, or it can monitor a specific machine and disable the entire pool if that machine fails. GLB location monitors must monitor a specific machine.</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "pernode" • Permitted values: "pernode": Node: Monitor each node in the pool separately "poolwide": Pool/GLB: Monitor a specified machine |
| timeout | <p>The maximum runtime for an individual instance of the monitor.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "3" |
| type | <p>The internal monitor implementation of this monitor.</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "ping" • Permitted values: "connect": TCP Connect monitor "http": HTTP monitor "ping": Ping monitor "program": External program monitor "rtsp": RTSP monitor "sip": SIP monitor "tcp_transaction": TCP transaction monitor |
| use_ssl | <p>Whether or not the monitor should connect using SSL.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |

| Property | Description |
|------------------------------------|---|
| verbose | Whether or not the monitor should emit verbose logging. This is useful for diagnosing problems. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "http" section: | |
| authentication | The HTTP basic-auth <user>:<password> to use for the test HTTP request. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| body_regex | A regular expression that the HTTP response body must match. If the response body content doesn't matter then set this to .* (match anything). <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| host_header | The host header to use in the test HTTP request. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| path | The path to use in the test HTTP request. This must be a string beginning with a / (forward slash). <ul style="list-style-type: none"> Type: String Required: false Default value: "/" |
| status_regex | A regular expression that the HTTP status code must match. If the status code doesn't matter then set this to .* (match anything). <ul style="list-style-type: none"> Type: String Required: false Default value: "[234][0-9][0-9]" |
| Properties for the "rtsp" section: | |
| body_regex | The regular expression that the RTSP response body must match. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| path | The path to use in the RTSP request (some servers will return 500 Internal Server Error unless this is a valid media file). <ul style="list-style-type: none"> Type: String Required: false Default value: "/" |

| Property | Description |
|--------------------------------------|---|
| status_regex | <p>The regular expression that the RTSP response status code must match.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "[234][0-9][0-9]" |
| Properties for the "script" section: | |
| arguments | <p>A table containing arguments and argument values to be passed to the monitor program.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> name (String): The name of the argument to be passed to the monitor program. (Required) Sub keys: <ul style="list-style-type: none"> value (String): The value of the argument to be passed to the monitor program. (Required) description (String): A description for the argument provided to the program. |
| program | <p>The program to run. This must be an executable file, either within the monitor scripts directory or specified as an absolute path to some other location on the filesystem.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "sip" section: | |
| body_regex | <p>The regular expression that the SIP response body must match.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| status_regex | <p>The regular expression that the SIP response status code must match.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "[234][0-9][0-9]" |
| transport | <p>Which transport protocol the SIP monitor will use to query the server.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "udp" Permitted values: <ul style="list-style-type: none"> "tcp": TCP "udp": UDP |
| Properties for the "tcp" section: | |

| Property | Description |
|-----------------------------------|--|
| close_string | An optional string to write to the server before closing the connection. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| max_response_len | The maximum amount of data to read back from a server, use 0 for unlimited. Applies to TCP and HTTP monitors. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "2048" |
| response_regex | A regular expression to match against the response from the server. Applies to TCP monitors only. <ul style="list-style-type: none"> Type: String Required: false Default value: ".+" |
| write_string | The string to write down the TCP connection. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "udp" section: | |
| accept_all | If this monitor uses UDP, should it accept responses from any IP and port? <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

Monitor Program

URI Endpoint: /api/tm/7.1/config/active/monitor_scripts

An executable program that can be used to by external program monitors to report the health of backend services.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

NAT Configuration

URI Endpoint: /api/tm/7.1/config/active/appliance/nat

The NAT configuration file stores rules controlling NAT on an appliance.

| Property | Description |
|-------------------------|---|
| many_to_one_all_ports | <p>This is table 'many_to_one_all_ports'</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> rule_number (String): A unique rule identifier (Required) Sub keys: <ul style="list-style-type: none"> pool (String): Pool of a "many to one overload" type NAT rule. (Required) tip (String): TIP Group of a "many to one overload" type NAT rule. (Required) |
| many_to_one_port_locked | <p>This is table 'many_to_one_port_locked'</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> rule_number (String): A unique rule identifier (Required) Sub keys: <ul style="list-style-type: none"> pool (String): Pool of a "many to one port locked" type NAT rule. (Required) port (UInt): Port number of a "many to one port locked" type NAT rule. (Required) protocol (Enum(String)): Protocol of a "many to one port locked" type NAT rule. (Required) <p>Permitted values:</p> <ul style="list-style-type: none"> "icmp": ICMP "sctp": SCTP "tcp": TCP "udp": UDP "udplite": UDPLITE <ul style="list-style-type: none"> tip (String): TIP Group of a "many to one port locked" type NAT rule. (Required) |

| Property | Description |
|--------------|---|
| one_to_one | <p>This is table 'one_to_one'</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> rule_number (String): A unique rule identifier (Required) Sub keys: <ul style="list-style-type: none"> enable_inbound (Boolean): Enabling the inbound part of a "one to one" type NAT rule. (Required) ip (String): IP Address of a "one to one" type NAT rule. (Required) tip (String): TIP group of a "one to one" type NAT rule. (Required) |
| port_mapping | <p>This is table 'port_mapping'</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> rule_number (String): A unique rule identifier (Required) Sub keys: <ul style="list-style-type: none"> dport_first (UInt): First port of the dest. port range of a "port mapping" rule. (Required) dport_last (UInt): Last port of the dest. port range of a "port mapping" rule. (Required) virtual_server (String): Target Virtual Server of a "port mapping" rule. (Required) |

Pool

URI Endpoint: /api/tm/7.1/config/active/pools

The conf/pools directory contains configuration files for backend node pools. The name of a file is the name of the pool it defines. Pools can be configured under the Services > Pools section of the Admin Server UI or by using functions under the Pool section of the SOAP API and CLI.

| Property | Description |
|-----------------|--|
| bandwidth_class | <p>The Bandwidth Management Class this pool uses, if any.</p> <ul style="list-style-type: none"> Type: Reference(config-bandwidth) Required: false Default value: <none> |
| failure_pool | <p>If all of the nodes in this pool have failed, then requests can be diverted to another pool.</p> <ul style="list-style-type: none"> Type: Reference(config-pool) Required: false Default value: <none> |

| Property | Description |
|-----------------------------------|---|
| max_connection_attempts | <p>The maximum number of nodes to which the traffic manager will attempt to send a request before returning an error to the client. Requests that are non-retryable will be attempted against only one node. Zero signifies no limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| max_idle_connections_per_node | <p>The maximum number of unused HTTP keepalive connections that should be maintained to an individual node. Zero signifies no limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "50" |
| max_timed_out_connection_attempts | <p>The maximum number of connection attempts the traffic manager will make where the server fails to respond within the time limit defined by the max_reply_time setting. Zero signifies no limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "2" |
| monitors | <p>The monitors assigned to this pool, used to detect failures in the back end nodes.</p> <ul style="list-style-type: none"> Type: Set(Reference(config-monitor)) Required: false Default value: <none> |
| node_close_with_rst | <p>Whether or not connections to the back-end nodes should be closed with a RST packet, rather than a FIN packet. This avoids the TIME_WAIT state, which on rare occasions allows wandering duplicate packets to be safely ignored.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| node_connection_attempts | <p>The number of times the software will attempt to connect to the same back-end node before marking it as failed. This is only used when passive_monitoring is enabled.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "3" |
| node_delete_behavior | <p>Specify the deletion behavior for nodes in this pool.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "immediate" Permitted values: <ul style="list-style-type: none"> "drain": Allow existing connections to the node to finish before deletion. "immediate": All connections to the node are closed immediately. |

| Property | Description |
|------------------------------|---|
| node_drain_to_delete_timeout | <p>The maximum time that a node will be allowed to remain in a draining state after it has been deleted. A value of 0 means no maximum time.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| nodes_table | <p>A table of all nodes in this pool. A node should be specified as a <ip>:<port> pair, and has a state, weight and priority.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> node (String): A node is a combination of an ip address and port (Required) Sub keys: <ul style="list-style-type: none"> priority (UInt): The priority of the node, higher values signify higher priority. If a priority is not specified for a node it is assumed to be 1. state (Enum(String)): The state of the pool, which can either be Active, Draining or Disabled Permitted values: "active": The node is active. "disabled": The node is disabled. "draining": The node is draining. weight (Int): Weight for the node. The actual value in isolation does not matter: As long as it is a valid integer 1-100, the per-node weightings are calculated on the relative values between the nodes. source_ip (String): The source address the Traffic Manager uses to connect to this node. |
| note | <p>A description of the pool.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| passive_monitoring | <p>Whether or not the software should check that 'real' requests (i.e. not those from monitors) to this pool appear to be working. This should normally be enabled, so that when a node is refusing connections, responding too slowly, or sending back invalid data, it can mark that node as failed, and stop sending requests to it. If this is disabled, you should ensure that suitable health monitors are configured to check your servers instead, otherwise failed requests will not be detected and subsequently retried.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

| Property | Description |
|--|--|
| persistence_class | The default Session Persistence class this pool uses, if any. <ul style="list-style-type: none"> Type: Reference(config-persistence) Required: false Default value: <none> |
| transparent | Whether or not connections to the back-ends appear to originate from the source client IP address. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "auto_scaling" section: | |
| addnode_delaytime | The time in seconds from the creation of the node which the traffic manager should wait before adding the node to the autoscaled pool. Set this to allow applications on the newly created node time to initialize before being sent traffic. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| cloud_credentials | The Cloud Credentials object containing authentication credentials to use in cloud API calls. <ul style="list-style-type: none"> Type: Reference(cloud-api) Required: false Default value: <none> |
| cluster | The ESX host or ESX cluster name to put the new virtual machine instances on. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| data_center | The name of the logical datacenter on the vCenter server. Virtual machines will be scaled up and down under the datacenter root folder. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| data_store | The name of the datastore to be used by the newly created virtual machine. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| enabled | Are the nodes of this pool subject to autoscaling? If yes, nodes will be automatically added and removed from the pool by the chosen autoscaling mechanism. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|---------------------|---|
| external | <p>Whether or not autoscaling is being handled by an external system. Set this value to Yes if all aspects of autoscaling are handled by an external system, such as RightScale. If set to No, the traffic manager will determine when to scale the pool and will communicate with the cloud provider to create and destroy nodes as necessary.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| extraargs | <p>Any extra arguments to the autoscaling API. Each argument can be separated by comma. E.g in case of EC2, it can take extra parameters to the Amazon's RunInstance API say DisableApiTermination=false,Placement.Tenancy=default.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| hysteresis | <p>The time period in seconds for which a change condition must persist before the change is actually instigated.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "20" |
| imageid | <p>The identifier for the image of the instances to create.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| ips_to_use | <p>Which type of IP addresses on the node to use. Choose private IPs if the traffic manager is in the same cloud as the nodes, otherwise choose public IPs.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "publicips" Permitted values: <ul style="list-style-type: none"> "private_ips": Private IP addresses "publicips": Public IP addresses |
| last_node_idle_time | <p>The time in seconds for which the last node in an autoscaled pool must have been idle before it is destroyed. This is only relevant if min_nodes is 0.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "3600" |
| max_nodes | <p>The maximum number of nodes in this autoscaled pool.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "4" |

| Property | Description |
|------------------|---|
| min_nodes | <p>The minimum number of nodes in this autoscaled pool.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1" |
| name | <p>The beginning of the name of nodes in the cloud that are part of this autoscaled pool.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| port | <p>The port number to use for each node in this autoscaled pool.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "80" |
| refractory | <p>The time period in seconds after the instigation of a re-size during which no further changes will be made to the pool size.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "180" |
| response_time | <p>The expected response time of the nodes in ms. This time is used as a reference when deciding whether a node's response time is conforming. All responses from all the nodes will be compared to this reference and the percentage of conforming responses is the base for decisions about scaling the pool up or down.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1000" |
| scale_down_level | <p>The fraction, in percent, of conforming requests above which the pool size is decreased. If the percentage of conforming requests exceeds this value, the pool is scaled down.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "95" |
| scale_up_level | <p>The fraction, in percent, of conforming requests below which the pool size is increased. If the percentage of conforming requests drops below this value, the pool is scaled up.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "40" |
| securitygroupids | <p>List of security group IDs to associate to the new EC2 instance.</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |

| Property | Description |
|--|---|
| size_id | The identifier for the size of the instances to create. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| subnetids | List of subnet IDs where the new EC2-VPC instance(s) will be launched. Instances will be evenly distributed among the subnets. If the list is empty, instances will be launched inside EC2-Classic. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| Properties for the "connection" section: | |
| max_connect_time | How long the pool should wait for a connection to a node to be established before giving up and trying another node. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "4" |
| max_connections_per_node | The maximum number of concurrent connections allowed to each back-end node in this pool per machine. A value of 0 means unlimited connections. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| max_queue_size | The maximum number of connections that can be queued due to connections limits. A value of 0 means unlimited queue size. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| max_reply_time | How long the pool should wait for a response from the node before either discarding the request or trying another node (retryable requests only). <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| max_transactions_per_node | The maximum number of concurrent transactions allowed to each back-end node in this pool per machine. A value of 0 means unlimited transactions. Idle connections kept alive for reuse do not count against this limit. A transaction begins by allocating a connection for sending the request, and ends (for the purposes of queuing) after a complete response has been received from the node. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |

| Property | Description |
|--|--|
| queue_timeout | <p>The maximum time to keep a connection queued in seconds.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| Properties for the "dns_autoscale" section: | |
| enabled | <p>When enabled, the Traffic Manager will periodically resolve the hostnames in the "hostnames" list using a DNS query, and use the results to automatically add, remove or update the IP addresses of the nodes in the pool.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| hostnames | <p>A list of hostnames which will be used for DNS-derived autoscaling</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| port | <p>The port number to use for each node when using DNS-derived autoscaling</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "80" |
| Properties for the "ftp" section: | |
| support_rfc_2428 | <p>Whether or not the backend IPv4 nodes understand the EPRT and EPSV command from RFC 2428. It is always assumed that IPv6 nodes support these commands.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "http" section: | |
| keepalive | <p>Whether or not the pool should maintain HTTP keepalive connections to the nodes.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| keepalive_non_idempotent | <p>Whether or not the pool should maintain HTTP keepalive connections to the nodes for non-idempotent requests.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "kerberos_protocol_transition" section: | |

| Property | Description |
|--|--|
| principal | <p>The Kerberos principal the traffic manager should use when performing Kerberos Protocol Transition.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| target | <p>The Kerberos principal name of the service this pool targets.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "load_balancing" section: | |
| algorithm | <p>The load balancing algorithm that this pool uses to distribute load across its nodes.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "round_robin" Permitted values: <ul style="list-style-type: none"> "fastest_response_time": The Response Time algorithm monitors the response times for recent requests to each node. It sends each new request to the node that has recently been responding the most quickly. "least_connections": This algorithm sends each new request to the node with the fewest currently active connections. "perceptive": The Perceptive algorithm uses a combination of response time data and connection counts to predict which node is likely to have the fastest response time for each request. "random": This algorithm chooses a random node for each request. "round_robin": This algorithm distributes traffic by assigning each request to a new node in turn. "weighted_least_connections": This algorithm works in a similar way to the Least Connections algorithm, but assigns more requests to nodes with a greater 'weight'. "weighted_round_robin": Weighted Round Robin works in a similar way to Round Robin, but assigns more requests to nodes with a greater 'weight'. |
| priority_enabled | <p>Enable priority lists.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| priority_nodes | <p>Minimum number of highest-priority active nodes.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1" |
| Properties for the "node" section: | |

| Property | Description |
|---|---|
| close_on_death | Close all connections to a node once we detect that it has failed. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| retry_fail_time | The amount of time, in seconds, that a traffic manager will wait before re-trying a node that has been marked as failed by passive monitoring. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "60" |
| Properties for the "service_discovery" section: | |
| enabled | Are the nodes of this pool determined by a Service Discovery plugin? If yes, nodes will be automatically added and removed from the pool by the traffic manager. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| interval | The minimum time before rerunning the Service Discovery plugin <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| plugin | The plugin script a Service Discovery autoscaled pool should use to retrieve the list of nodes. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| plugin_args | The arguments for the script specified in "service_discovery!plugin", e.g. a common instance tag, or name of a managed group of cloud instances. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| timeout | The maximum time a plugin should be allowed to run before timing out. Set to 0 for no timeout. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| Properties for the "smtp" section: | |
| send_starttls | If we are encrypting traffic for an SMTP connection, should we upgrade to SSL using STARTTLS. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "ssl" section: | |

| Property | Description |
|-------------------|---|
| cipher_suites | <p>The SSL/TLS cipher suites to allow for connections to a back-end node. Leaving this empty will make the pool use the globally configured cipher suites, see configuration key <code>ssl!cipher_suites</code> in the Global Settings section of the System tab. See there for how to specify SSL/TLS cipher suites.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| client_auth | <p>Whether or not a suitable certificate and private key from the SSL Client Certificates catalog be used if the back-end server requests client authentication.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| common_name_match | <p>A list of names against which the 'common name' of the certificate is matched; these names are used in addition to the node's hostname or IP address as specified in the config file or added by the autoscaler process.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| elliptic_curves | <p>The SSL elliptic curve preference list for SSL connections from this pool using TLS version 1.0 or higher. Leaving this empty will make the pool use the globally configured preference list. The named curves P256, P384 and P521 may be configured.</p> <ul style="list-style-type: none"> • Type: List(String) • Required: false • Default value: <none> |
| enable | <p>Whether or not the pool should encrypt data before sending it to a back-end node.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| enhance | <p>SSL protocol enhancements allow your traffic manager to prefix each new SSL connection with information about the client. This enables Pulse Secure Virtual Traffic Manager virtual servers referenced by this pool to discover the original client's IP address. Only enable this if you are using nodes for this pool which are Pulse Secure vTMs, whose virtual servers have the <code>ssl_trust_magic</code> setting enabled.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |

| Property | Description |
|-------------------------|---|
| middlebox_compatibility | <p>Whether or not TLS 1.3 middlebox compatibility mode as described in RFC 8446 appendix D.4 will be used in connections to pool nodes. Choosing the global setting means the value of configuration key <code>ssl!middlebox_compatibility</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "use_default" • Permitted values: <ul style="list-style-type: none"> "disabled": Disable use of middlebox compatibility "enabled": Enable use of middlebox compatibility "use_default": Use the global setting for use of middlebox compatibility |
| send_close_alerts | <p>Whether or not to send an SSL/TLS "close alert" when initiating a socket disconnection.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| server_name | <p>Whether or not the software should use the TLS 1.0 server_name extension, which may help the back-end node provide the correct certificate. Enabling this setting will force the use of at least TLS 1.0.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| session_cache_enabled | <p>Whether or not the SSL client cache will be used for this pool. Choosing the global setting means the value of the configuration key <code>ssl!client_cache!enabled</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "use_default" • Permitted values: <ul style="list-style-type: none"> "disabled": Disable use of the session cache "enabled": Enable use of the session cache "use_default": Use the global setting for use of the session cache |

| Property | Description |
|------------------------------|--|
| session_tickets_enabled | <p>Whether or not SSL session tickets, including TLS >= 1.3 PSKs, will be used for this pool if the session cache is also enabled. Choosing the global setting means the value of the configuration key <code>ssl!client_cache!tickets_enabled</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable use of session tickets "enabled": Enable use of session tickets "use_default": Use the global setting for use of session tickets |
| signature_algorithms | <p>The SSL signature algorithms preference list for SSL connections from this pool using TLS version 1.2 or higher. Leaving this empty will make the pool use the globally configured preference list, <code>signature_algorithms</code> in the <code>ssl</code> section of the <code>global_settings</code> resource. See there and in the online help for how to specify SSL signature algorithms.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| ssl_fixed_client_certificate | <p>An entry in the SSL client certificates catalog, containing a certificate and private key to be used whenever client authentication is requested. If set, this overrides server request parameters.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| strict_verify | <p>Whether or not strict certificate verification should be performed. This will turn on checks to disallow server certificates that don't match the server name or a name in the <code>ssl_common_name_match</code> list, are self-signed, expired, revoked, or have an unknown CA.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| support_ssl3 | <p>Whether or not SSLv3 is enabled for this pool. Choosing the global setting means the value of the configuration key <code>ssl!support_ssl3</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable SSLv3 "enabled": Enable SSLv3 "use_default": Use the global setting for SSLv3 |

| Property | Description |
|-----------------------------------|---|
| support_tls1 | <p>Whether or not TLSv1.0 is enabled for this pool. Choosing the global setting means the value of the configuration key <code>ssl!support_tls1</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable TLSv1.0 "enabled": Enable TLSv1.0 "use_default": Use the global setting for TLSv1.0 |
| support_tls1_1 | <p>Whether or not TLSv1.1 is enabled for this pool. Choosing the global setting means the value of the configuration key <code>ssl!support_tls1_1</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable TLSv1.1 "enabled": Enable TLSv1.1 "use_default": Use the global setting for TLSv1.1 |
| support_tls1_2 | <p>Whether or not TLSv1.2 is enabled for this pool. Choosing the global setting means the value of the configuration key <code>ssl!support_tls1_2</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable TLSv1.2 "enabled": Enable TLSv1.2 "use_default": Use the global setting for TLSv1.2 |
| support_tls1_3 | <p>Whether or not TLSv1.3 is enabled for this pool. Choosing the global setting means the value of the configuration key <code>ssl!support_tls1_3</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable TLSv1.3 "enabled": Enable TLSv1.3 "use_default": Use the global setting for TLSv1.3 |
| Properties for the "tcp" section: | |

| Property | Description |
|-----------------------------------|--|
| nagle | Whether or not Nagle's algorithm should be used for TCP connections to the back-end nodes. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "udp" section: | |
| accept_from | The IP addresses and ports from which responses to UDP requests should be accepted. If set to accept responses from a specific set of IP addresses, you will need to enter a CIDR Mask (such as 10.100.0.0/16). <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "dest_only" Permitted values: <ul style="list-style-type: none"> "all": Any IP address and any port. "dest_ip_only": Only the IP address to which the request was sent, but from any port. "dest_only": Only the IP address and port to which the request was sent. "ip_mask": Only a specific set of IP addresses, but from any port. |
| accept_from_mask | The CIDR mask that matches IPs we want to receive responses from. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| response_timeout | The maximum length of time that a node is permitted to take after receiving a UDP request packet before sending a reply packet. Zero indicates that there is no maximum, preventing a node that does not send replies from being presumed to have failed. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |

Protection Class

URI Endpoint: /api/tm/7.1/config/active/protection

A protection class specifies the level of protection against network attacks for a virtual server.

| Property | Description |
|--|--|
| debug | Whether or not to output verbose logging. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| enabled | Enable or disable this service protection class. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| log_time | Log service protection messages at these intervals. If set to 0 no messages will be logged and no alerts will be sent. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "60" |
| note | A description of the service protection class. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| rule | A TrafficScript rule that will be run on the connection after the service protection criteria have been evaluated. This rule will be executed prior to normal rules configured for the virtual server. <ul style="list-style-type: none"> Type: Reference(config-trafficscript) Required: false Default value: <none> |
| testing | Place the service protection class into testing mode. (Log when this class would have dropped a connection, but allow all connections through). <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "access_restriction" section: | |
| allowed | Always allow access to these IP addresses. This overrides the connection limits for these machines, but does not stop other restrictions such as HTTP validity checks. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| banned | Disallow access to these IP addresses. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| Properties for the "concurrent_connections" section: | |

| Property | Description |
|---|---|
| max_10_connections | <p>Additional limit on maximum concurrent connections from the top 10 busiest connecting IP addresses combined. The value should be between 1 and 10 times the max_1_connections limit. (This limit is disabled if per_process_connection_count is No, or max_1_connections is 0, or min_connections is 0.)</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "200" |
| max_1_connections | <p>Maximum concurrent connections each connecting IP address is allowed. Set to 0 to disable this limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| min_connections | <p>Entry threshold for the max_10_connections limit: the max_10_connections limit is not applied to connecting IP addresses with this many or fewer concurrent connections. Setting to 0 disables both the max_1_connections and max_10_connections limits, if per_process_connection_count is Yes. (If per_process_connection_count is No, this setting is ignored.)</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "4" |
| per_process_connection_count | <p>Whether concurrent connection counting and limits are per-process. (Each Traffic Manager typically has several processes: one process per available CPU core.) If Yes, a connecting IP address may make that many connections to each process within a Traffic Manager. If No, a connecting IP address may make that many connections to each Traffic Manager as a whole.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "connection_rate" section: | |
| max_connection_rate | <p>Maximum number of new connections each connecting IP address is allowed to make in the rate_timer interval. Set to 0 to disable this limit. If applied to an HTTP Virtual Server each request sent on a connection that is kept alive counts as a new connection. The rate limit is per process: each process within a Traffic Manager accepts new connections from the connecting IP address at this rate. (Each Traffic Manager typically has several processes: one process per available CPU core).</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |

| Property | Description |
|------------------------------------|--|
| rate_timer | <p>How frequently the max_connection_rate is assessed. For example, a value of 1 (second) will impose a limit of max_connection_rate connections per second; a value of 60 will impose a limit of max_connection_rate connections per minute. The valid range is 1-99999 seconds.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "60" |
| Properties for the "http" section: | |
| check_rfc2396 | <p>Whether or not requests with poorly-formed URLs be should be rejected. This tests URL compliance as defined in RFC2396. Note that enabling this may block some older, non-conforming web browsers.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| max_body_length | <p>Maximum permitted length of HTTP request body data, set to 0 to disable the limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| max_header_length | <p>Maximum permitted length of a single HTTP request header (key and value), set to 0 to disable the limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| max_request_length | <p>Maximum permitted size of all the HTTP request headers, set to 0 to disable the limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| max_url_length | <p>Maximum permitted URL length, set to 0 to disable the limit.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |

| Property | Description |
|-----------------|--|
| reject_binary | Whether or not URLs and HTTP request headers that contain binary data (after decoding) should be rejected. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| send_error_page | This setting tells the traffic manager to send an HTTP error message if a connection fails the service protection tests, instead of just dropping it. Details of which HTTP response will be sent when particular tests fail can be found in the Help section for this page. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

Pulse Secure Virtual Web Application Firewall

URI Endpoint: /api/tm/7.1/config/active/application_firewall

The conf/zeusafm.conf file contains configuration files for the application firewall. Some keys present in the zeusafm.conf are not documented here. Refer to the Pulse Secure Web Application Firewall documentation for further details. The configuration can be edited under the System > Application Firewall section of the Administration Server or by using functions under the AFM section of the SOAP API and CLI.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

Rate Shaping Class

URI Endpoint: /api/tm/7.1/config/active/rate

A rate shaping class restricts the number of connections being processed by a virtual server at once.

| Property | Description |
|---------------------|---|
| max_rate_per_minute | Requests that are associated with this rate class will be rate-shaped to this many requests per minute, set to 0 to disable the limit. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| max_rate_per_second | Although requests will be rate-shaped to the max_rate_per_minute, the traffic manager will also rate limit per-second. This smooths traffic so that a full minute's traffic will not be serviced in the first second of the minute, set this to 0 to disable the per-second limit. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| note | A description of the rate class. <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |

Rule

URI Endpoint: /api/tm/7.1/config/active/rules

TrafficScript rules allow traffic inspection and modification.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

SLM Class

URI Endpoint: /api/tm/7.1/config/active/service_level_monitors

Service level monitoring is used to produce alerts when an application's performance is degraded. This is done by monitoring the response time of connections to a virtual server.

| Property | Description |
|-------------------|--|
| note | A description for the SLM class. <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |
| response_time | Responses that start being sent to the client within this time limit, expressed in milliseconds, are treated as conforming. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1000" |
| serious_threshold | When the percentage of conforming responses drops below this level, a serious error level message will be emitted. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| warning_threshold | When the percentage of conforming responses drops below this level, a warning message will be emitted. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "50" |

SSL Client Key Pair

URI Endpoint: /api/tm/7.1/config/active/ssl/client_keys

SSL Client Certificates are used when connecting to backend nodes that require client certificate authentication.

| Property | Description |
|----------|---|
| note | Notes for this certificate <ul style="list-style-type: none"> Type: FreeformString Required: true Default value: <none> |
| private | Private key for certificate <ul style="list-style-type: none"> Type: FreeformString Required: true Default value: <none> |

| Property | Description |
|----------|---|
| public | Public certificate <ul style="list-style-type: none"> Type: FreeformString Required: true Default value: <none> |
| request | Certificate Signing Request for certificate <ul style="list-style-type: none"> Type: FreeformString Required: true Default value: <none> |

SSL Key Pair

URI Endpoint: /api/tm/7.1/config/active/ssl/server_keys

SSL Server Certificates are presented to clients by virtual servers when SSL decryption is enabled.

| Property | Description |
|----------|---|
| note | Notes for this certificate <ul style="list-style-type: none"> Type: FreeformString Required: true Default value: <none> |
| private | Private key for certificate <ul style="list-style-type: none"> Type: FreeformString Required: true Default value: <none> |
| public | Public certificate <ul style="list-style-type: none"> Type: FreeformString Required: true Default value: <none> |
| request | Certificate Signing Request for certificate <ul style="list-style-type: none"> Type: FreeformString Required: true Default value: <none> |

SSL Ticket Key

URI Endpoint: /api/tm/7.1/config/active/ssl/ticket_keys

Configuration for SSL ticket encryption keys when managed externally via the ssl/ticket_keys REST API endpoints.

| Property | Description |
|----------------|---|
| algorithm | <p>The algorithm used to encrypt session tickets. The algorithm determines the length of the key that must be provided.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "aes_256_cbc_hmac_sha256" Permitted values: "aes_256_cbc_hmac_sha256": AES-256 CBC with HMAC-SHA256. Requires a total of 64 bytes of key material. |
| id | <p>A 16-byte key identifier, with each byte encoded as two hexadecimal digits. Key identifiers are transmitted in plaintext at the beginning of a TLS session ticket, and are used to identify the ticket encryption key that was used to encrypt a ticket. (They correspond to the 'key_name' field in RFC 5077.) They are required to be unique across the set of SSL ticket encryption keys.</p> <ul style="list-style-type: none"> Type: String Required: true Default value: <none> |
| key | <p>The session ticket encryption key, with each byte encoded as two hexadecimal digits. The required key length is determined by the chosen key algorithm. See the documentation for the 'algorithm' field for more details.</p> <ul style="list-style-type: none"> Type: Password Required: true Default value: <none> |
| validity_end | <p>The latest time at which this key may be used to encrypt new session tickets. Given as number of seconds since the epoch (1970-01-01T00:00:00Z).</p> <ul style="list-style-type: none"> Type: UInt Required: true Default value: <none> |
| validity_start | <p>The earliest time at which this key may be used to encrypt new session tickets. Given as number of seconds since the epoch (1970-01-01T00:00:00Z).</p> <ul style="list-style-type: none"> Type: UInt Required: true Default value: <none> |

SSL Trusted Certificate

URI Endpoint: /api/tm/7.1/config/active/ssl/cas

SSL certificate authority certificates (CAs) and certificate revocation lists (CRLs) can be used when validating server and client certificates.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

Security Settings

URI Endpoint: /api/tm/7.1/config/active/security

Security settings that restrict remote administration for the cluster. Additional security options can be found in Global Settings.

| Property | Description |
|---|---|
| access | <p>Access to the admin server and REST API is restricted by usernames and passwords. You can further restrict access to just trusted IP addresses, CIDR IP subnets or DNS wildcards. These access restrictions are also used when another traffic manager initially joins the cluster, after joining the cluster these restrictions are no longer used. Care must be taken when changing this setting, as it can cause the administration server to become inaccessible. Access to the admin UI will not be affected until it is restarted.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| Properties for the "ssh_intrusion" section: | |
| bantime | <p>The amount of time in seconds to ban an offending host for.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "600" |
| blacklist | <p>The list of hosts to permanently ban, identified by IP address or DNS hostname in a space-separated list.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| enabled | <p>Whether or not the SSH Intrusion Prevention tool is enabled.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| findtime | <p>The window of time in seconds the maximum number of connection attempts applies to. More than (maxretry) failed attempts in this time span will trigger a ban.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "600" |

| Property | Description |
|-----------|---|
| maxretry | The number of failed connection attempts a host can make before being banned. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "6" |
| whitelist | The list of hosts to never ban, identified by IP address, DNS hostname or subnet mask, in a space-separated list. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |

Service Discovery Plugins

URI Endpoint: /api/tm/7.1/config/active/servicediscovery

The conf/servicediscovery directory contains plugins for use with Service Discovery for pool nodes.

| Property | Description |
|---|-------------|
| There are no properties to display for this resource. | |

Session Persistence Class

URI Endpoint: /api/tm/7.1/config/active/persistence

A session persistence class is used to identify the session a new connection belongs too and deliver it to the same backend node.

| Property | Description |
|----------|---|
| cookie | The cookie name to use for tracking session persistence. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| delete | Whether or not the session should be deleted when a session failure occurs. (Note, setting a failure mode of 'choose a new node' implicitly deletes the session.) <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

| Property | Description |
|-------------------------------|--|
| failure_mode | <p>The action the pool should take if the session data is invalid or it cannot contact the node specified by the session.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "new_node" Permitted values: <ul style="list-style-type: none"> "close": Close the connection (using error_file on Virtual Servers > Edit > Protocol Settings) "new_node": Choose a new node to use "url": Redirect the user to a given URL |
| note | <p>A description of the session persistence class.</p> <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |
| subnet_prefix_length_v4 | <p>When using IP-based session persistence, ensure all requests from this IPv4 subnet, specified as a prefix length, are sent to the same node. If set to 0, requests from different IPv4 addresses will be load-balanced individually.</p> <ul style="list-style-type: none"> Type: Int Required: false Default value: <none> |
| subnet_prefix_length_v6 | <p>When using IP-based session persistence, ensure all requests from this IPv6 subnet, specified as a prefix length, are sent to the same node. If set to 0, requests from different IPv6 addresses will be load-balanced individually.</p> <ul style="list-style-type: none"> Type: Int Required: false Default value: <none> |
| transparent_always_set_cookie | <p>Whether or not the cookie should be inserted in every response sent to the client when using transparent session affinity. If set to No then the cookie is inserted only if the corresponding request did not already contain a matching cookie.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| transparent_directives | <p>The cookie directives to include in the cookie sent when using transparent session affinity. If more than one directive is included, the semi-colon separator between them must be included in this string. The semi-colon separator between the cookie value and the first directive should not be included in this string.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |

| Property | Description |
|----------|--|
| type | <p>The type of session persistence to use.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "ip" Permitted values: <ul style="list-style-type: none"> "asp": ASP and ASP.NET session persistence "cookie": Monitor application cookies "ip": IP-based persistence "j2ee": J2EE session persistence "named": Named Node session persistence "ssl": SSL Session ID persistence "transparent": Transparent session affinity "universal": Universal session persistence "x_zeus": X-Zeus-Backend cookies |
| url | <p>The redirect URL to send clients to if the session persistence is configured to redirect users when a node dies.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |

Traffic IP Group

URI Endpoint: /api/tm/7.1/config/active/traffic_ip_groups

Traffic IP groups are sets of IP addresses that are distributed across a cluster for fault tolerance.

| Property | Description |
|------------------|--|
| enabled | <p>If set to No, the traffic IP group will be disabled and none of the traffic IP addresses will be raised.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| hash_source_port | <p>Whether or not the source port should be taken into account when deciding which traffic manager should handle a request.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|--------------------|--|
| ip_assignment_mode | <p>Configure how traffic IPs are assigned to traffic managers in Single-Hosted mode</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "balanced" • Permitted values: <ul style="list-style-type: none"> "alphabetic": Alphabetical order of traffic manager hostnames "balanced": Approximately balanced between traffic managers |
| ip_mapping | <p>A table assigning traffic IP addresses to machines that should host them. Traffic IP addresses not specified in this table will automatically be assigned to a machine.</p> <ul style="list-style-type: none"> • Type: Table • Required: false • Primary key: <ul style="list-style-type: none"> - ip (String): A traffic IP address (from the ipaddresses property). (Required) • Sub keys: <ul style="list-style-type: none"> - traffic_manager (String): The name of the traffic manager that should host the IP address. (Required) |
| ipaddresses | <p>The IP addresses that belong to the Traffic IP group.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| keeptogether | <p>If set to Yes then all the traffic IPs will be raised on a single traffic manager. By default they're distributed across all active traffic managers in the traffic IP group.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| location | <p>The location in which the Traffic IP group is based.</p> <ul style="list-style-type: none"> • Type: Int • Required: false • Default value: <none> |
| machines | <p>The traffic managers that can host the traffic IP group's IP addresses.</p> <ul style="list-style-type: none"> • Type: Set(Reference(config-tm)) • Required: false • Default value: <none> |

| Property | Description |
|-------------------------------|--|
| mode | <p>The method used to distribute traffic IPs across machines in the cluster. If "multihosted" is used then multicast must be set to an appropriate multicast IP address.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "singlehosted" Permitted values: <ul style="list-style-type: none"> "ec2elastic": Use an EC2-Classic Elastic IP address. "ec2vpcelastic": Use an EC2-VPC Elastic IP address. "ec2vpccprivate": Use an EC2-VPC Private IP address. "gceexternal": Use GCE External IP addresses. "multihosted": Raise each address on every machine in the group (Multi-Hosted mode) - IPv4 only "rhi": Use route health injection to route traffic to the active machine - IPv4 only "singlehosted": Raise each address on a single machine (Single-Hosted mode) |
| multicast | <p>The multicast IP address used to duplicate traffic to all traffic managers in the group.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| note | <p>A note, used to describe this Traffic IP Group</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| rhi_bgp_metric_base | <p>The base BGP routing metric for this Traffic IP group. This is the advertised routing cost for the active traffic manager in the cluster. It can be used to set up inter-cluster failover.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| rhi_bgp_passive_metric_offset | <p>The BGP routing metric offset for this Traffic IP group. This is the difference between the advertised routing cost for the active and passive traffic manager in the cluster.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| rhi_ospfv2_metric_base | <p>The base OSPFv2 routing metric for this Traffic IP group. This is the advertised routing cost for the active traffic manager in the cluster. It can be used to set up inter-cluster failover.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |

| Property | Description |
|----------------------------------|---|
| rhi_ospfv2_passive_metric_offset | <p>The OSPFv2 routing metric offset for this Traffic IP group. This is the difference between the advertised routing cost for the active and passive traffic manager in the cluster.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| rhi_protocols | <p>A list of protocols to be used for RHI. Currently must be 'ospf' or 'bgp' or both. The default, if empty, is 'ospf', which means that it is not possible to specify no protocol.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "ospf" |
| slaves | <p>A list of traffic managers that are in 'passive' mode. This means that in a fully working environment, they will not have any traffic IP addresses assigned to them.</p> <ul style="list-style-type: none"> Type: Set(Reference(config-tm)) Required: false Default value: <none> |

Traffic Manager

URI Endpoint: /api/tm/7.1/config/active/traffic_managers

The conf/zxtms directory contains a configuration file for each traffic manager in your cluster. The name of each file is the hostname of the traffic manager it represents. These files contain host-specific configuration data and on each installation of the software, the conf/./global.cfg file is sym-linked to the host's own configuration in the conf/zxtms directory. The files may contain a variety of configuration options that are configured in various locations under the System section of the Admin Server UI and the System section of the SOAP API and CLI.

| Property | Description |
|------------------|--|
| adminMasterXMLIP | <p>The Application Firewall master XML IP.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "0.0.0.0" |
| adminSlaveXMLIP | <p>The Application Firewall slave XML IP.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "0.0.0.0" |

| Property | Description |
|------------------------|--|
| appliance_card | <p>The table of network cards of a hardware appliance</p> <ul style="list-style-type: none"> • Type: Table • Required: false • Primary key: <ul style="list-style-type: none"> - name (String): Network card PCI ID (Required) • Sub keys: <ul style="list-style-type: none"> - interfaces (List(String)): The order of the interfaces of a network card (Required) - label (String): The labels of the installed network cards |
| appliance_sysctl | <p>Custom kernel parameters applied by the user with sysctl interface</p> <ul style="list-style-type: none"> • Type: Table • Required: false • Primary key: <ul style="list-style-type: none"> - sysctl (String): The name of the kernel parameter, e.g. net.ipv4.forward (Required) • Sub keys: <ul style="list-style-type: none"> - description (String): Associated optional description for the sysctl - value (String): The value of the kernel parameter (Required) |
| authenticationServerIP | <p>The Application Firewall Authentication Server IP.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: "0.0.0.0" |
| cloud_platform | <p>Cloud platform where the traffic manager is running.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| location | <p>This is the location of the local traffic manager is in.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| nameip | <p>Replace Traffic Manager name with an IP address.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| num_optimizer_threads | <p>How many worker threads the Web Accelerator process should create to optimise content. By default, one thread will be created for each CPU on the system.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: <none> |

| Property | Description |
|---|--|
| num_children | <p>The number of worker processes the software will run. By default, one child process will be created for each CPU on the system. You may wish to reduce this to effectively "reserve" CPU(s) for other processes running on the host system.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| numberOfCPUs | <p>The number of Application Firewall decider process to run.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| restServerPort | <p>The Application Firewall REST Internal API port, this port should not be accessed directly</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| trafficip | <p>A table mapping interfaces to networks, used by the traffic manager to select which interface to raise a Traffic IP on.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> name (String): A network interface. (Required) Sub keys: <ul style="list-style-type: none"> networks (Set(String)): A set of IP/masks to which the network interface maps. (Required) |
| updaterIP | <p>The Application Firewall Updater IP.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "0.0.0.0" |
| Properties for the "appliance" section: | |
| disable_kpti | <p>Whether the traffic manager appliance should run without kernel page table isolation (KPTI). KPTI provides protection to prevent unprivileged software from being potentially able to read arbitrary memory from the kernel (i.e. the Meltdown attack, CVE-2017-5754); however this protection incurs a general system performance penalty. If you are running trusted software on the appliance, and the trade-off between performance at the cost of 'defense in depth' favors the former in your deployment, you may wish to enable this configuration key. If you are unsure, it is recommended that you leave this key disabled, which is also the default.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|--------------|---|
| dnscache | <p>The DNS cache setting the appliance should use and place in /etc/systemd/resolved.conf.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| dnssec | <p>The DNSSEC setting the appliance should use and place in /etc/systemd/resolved.conf.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "no" Permitted values: <ul style="list-style-type: none"> "allow_downgrade": Use DNSSEC when available "no": DNSSEC disabled "yes": DNSSEC enabled |
| gateway_ipv4 | <p>The default gateway.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| gateway_ipv6 | <p>The default IPv6 gateway.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| hostname | <p>Name (hostname.domainname) of the appliance.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| hosts | <p>A table of hostname to static ip address mappings, to be placed in the /etc/hosts file.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> name (String): The name of a host. (Required) Sub keys: <ul style="list-style-type: none"> ip_address (String): The static IP address of the host. (Required) |

| Property | Description |
|----------|--|
| if | <p>A table of network interface specific settings.</p> <ul style="list-style-type: none"> • Type: Table • Required: false • Primary key: <ul style="list-style-type: none"> - name (String): A network interface name. (Required) • Sub keys: <ul style="list-style-type: none"> - autoneg (Boolean): Whether auto-negotiation should be enabled for the interface. - bmode (Enum(String)): The trunking mode used for the interface (only 802.3ad is currently supported). <p>Permitted values:</p> <p>"802_3ad": IEEE 802.3ad</p> <p>"balance_alb": Adaptive Load Balancing</p> <ul style="list-style-type: none"> - bond (String): The trunk of which the interface should be a member. - duplex (Boolean): Whether full-duplex should be enabled for the interface. - mode (Enum(String)): Set the configuration mode of an interface, the interface name is used in place of the * (asterisk). <p>Permitted values:</p> <p>"dhcp": DHCP</p> <p>"static": Static</p> <ul style="list-style-type: none"> - mtu (UInt): The maximum transmission unit (MTU) of the interface. - speed (Enum(String)): The speed of the interface. <p>Permitted values:</p> <p>"10": 10Mbps</p> <p>"100": 100Mbps</p> <p>"1000": 1Gbs</p> <p>"10000": 10Gbs</p> <p>"100000": 100Gbs</p> <p>"40000": 40Gbs</p> |
| ip | <p>A table of network interfaces and their network settings.</p> <ul style="list-style-type: none"> • Type: Table • Required: false • Primary key: <ul style="list-style-type: none"> - name (String): A network interface name. (Required) • Sub keys: <ul style="list-style-type: none"> - addr (String): The IP address for the interface. (Required) - isexternal (Boolean): Whether the interface is externally facing. - mask (String): The IP mask (netmask) for the interface. (Required) |

| Property | Description |
|-------------------|---|
| ipmi_lan_access | Whether IPMI LAN access should be enabled or not. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| ipmi_lan_addr | The IP address of the appliance IPMI LAN channel. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| ipmi_lan_gateway | The default gateway of the IPMI LAN channel. <ul style="list-style-type: none"> Type: String Required: false Default value: "0.0.0.0" |
| ipmi_lan_ipsrc | The addressing mode the IPMI LAN channel operates. <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "static" Permitted values: <ul style="list-style-type: none"> "dhcp": Address obtained by DHCP "static": Static IP Address |
| ipmi_lan_mask | Set the IP netmask for the IPMI LAN channel. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| ipv4_forwarding | Whether or not IPv4 forwarding is enabled. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| ipv6_forwarding | Whether or not IPv6 forwarding is enabled. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| licence_agreed | Whether or not the license agreement has been accepted. This determines whether or not the Initial Configuration wizard is displayed. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| manageazureroutes | Whether or not the software manages the Azure policy routing. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

| Property | Description |
|---------------------|--|
| manageec2conf | Whether or not the software manages the EC2 config. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| managegceroutes | Whether or not the software manages the GCE routing. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| manageiptrans | Whether or not the software manages the IP transparency <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| managereservedports | Whether or not the software manages the system configuration for reserved ports <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| managereturnpath | Whether or not the software manages return path routing. If disabled, the appliance won't modify iptables / rules / routes for this feature. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| manageservices | Whether or not the software manages the system services <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| managevpconf | Whether or not the software manages the EC2-VPC secondary IPs. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| name_servers | The IP addresses of the nameservers the appliance should use and place in /etc/systemd/resolved.conf. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| ntpervers | The NTP servers the appliance should use to synchronize its clock. <ul style="list-style-type: none"> Type: List(String) Required: false Default value: "0.zeus.pool.ntp.org 1.zeus.pool.ntp.org 2.zeus.pool.ntp.org 3.zeus.pool.ntp.org" |

| Property | Description |
|---|--|
| routes | <p>A table of destination IP addresses and routing details to reach them.</p> <ul style="list-style-type: none"> • Type: Table • Required: false • Primary key: <ul style="list-style-type: none"> - name (String): A destination IP address. (Required) • Sub keys: <ul style="list-style-type: none"> - gw (String): The gateway IP to configure for the route. (Required) - if (String): The network interface to configure for the route. (Required) - mask (String): The netmask to apply to the IP address. (Required) |
| search_domains | <p>The search domains the appliance should use and place in /etc/systemd/resolved.conf.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| ssh_enabled | <p>Whether or not the SSH server is enabled on the appliance.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| ssh_password_allowed | <p>Whether or not the SSH server allows password based login.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| ssh_port | <p>The port that the SSH server should listen on.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "22" |
| timezone | <p>The timezone the appliance should use. This must be a path to a timezone file that exists under /usr/share/zoneinfo/.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: "US/Pacific" |
| vlan | <p>The VLANs the software should raise. A VLAN should be configured using the format <dev>.<vlanid>, where <dev> is the name of a network device that exists in the host system, eth0.100 for example.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| Properties for the "cluster_comms" section: | |

| Property | Description |
|---|---|
| allow_update | <p>Whether or not this instance of the software can send configuration updates to other members of the cluster. When not clustered this key is ignored. When clustered the value can only be changed by another machine in the cluster that has allow_update set to true. If set to false then it will not be possible to log into the admin server for this instance.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| bind_ip | <p>The IP address that the software should bind to for internal administration communications. See also port. If the software is not part of a cluster the default is to use 127.0.0.1 and there should be no reason to touch this setting. If the software is part of a cluster then the default is to listen on all raised IPs, in this case an alternative configuration is to listen on a single IP address. This may be useful if you have a separate management network and wish to restrict control messages to it. It is important to ensure that the allowed_update_hosts (in the Global Settings resource) is compatible with the IP configured here.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "*" |
| external_ip | <p>This is the optional external ip of the traffic manager, which is used to circumvent natting when traffic managers in a cluster span different networks.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| port | <p>The port that the software should listen on for internal administration communications. See also bind_ip.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "9080" |
| Properties for the "ec2" section: | |
| trafficips_public_enis | <p>List of MAC addresses of interfaces which the traffic manager can use to associate the EC2 elastic IPs (Traffic IPs) to the instance.</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| Properties for the "fault_tolerance" section: | |

| Property | Description |
|--|--|
| bgp_router_id | <p>The BGP router id. If set to empty, then the IPv4 address used to communicate with the default IPv4 gateway is used instead. Specifying 0.0.0.0 will stop the traffic manager routing software from running the BGP protocol.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| ospfv2_ip | <p>The traffic manager's permanent IPv4 address which the routing software will use for peering and transit traffic, and as its OSPF router ID. If set to empty, then the address used to communicate with the default IPv4 gateway is used instead. Specifying 0.0.0.0 will stop the traffic manager routing software from running the OSPF protocol.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| ospfv2_neighbor_addrs | <p>The IP addresses of routers which are expected to be found as OSPFv2 neighbors of the traffic manager. A warning will be reported if some of the expected routers are not peered, and an error will be reported if none of the expected routers are peered. An empty list disables monitoring. The special value %gateway% is a placeholder for the default gateway.</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: "%gateway%" |
| Properties for the "iptables" section: | |
| config_enabled | <p>Whether the Traffic Manager should configure the iptables built-in chains to call Traffic Manager defined rules (e.g. the IP transparency chain). This should only be disabled in case of conflict with other software that manages iptables, e.g. firewalls. When disabled, you will need to add rules manually to use these features - see the user manual for details.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "iptrans" section: | |
| fwmark | <p>The netfilter forwarding mark to use for IP transparency rules</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "320" |
| iptables_enabled | <p>Whether IP transparency may be used via netfilter/iptables. This requires Linux 2.6.24 and the iptables socket extension. For older Linux versions, the "ztrans" kernel module may be used instead.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

| Property | Description |
|--|---|
| routing_table | <p>The special routing table ID to use for IP transparency rules</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "320" |
| Properties for the "java" section: | |
| port | <p>The port the Java Extension handler process should listen on. This port will be bound for localhost communications only.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "9060" |
| Properties for the "remote_licensing" section: | |
| email_address | <p>The e-mail address sent as part of a remote licensing request.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| message | <p>A free-text field sent as part of a remote licensing request.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "rest_api" section: | |
| bind_ips | <p>A list of IP Addresses which the REST API will listen on for connections. The list should contain IP addresses (IPv4 or IPv6) or a single entry containing an asterisk (*). This indicates that the REST API should listen on all IP Addresses.</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: "*" |
| port | <p>The port on which the REST API should listen for requests.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "9070" |
| Properties for the "snmp" section: | |
| allow | <p>Restrict which IP addresses can access the SNMP command responder service. The value can be all, localhost, or a list of IP CIDR subnet masks. For example 10.100.0.0/16 would allow connections from any IP address beginning with 10.100.</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: "all" |

| Property | Description |
|----------------|--|
| auth_password | <p>The authentication password. Required (minimum length 8 characters) if security_level includes authentication.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| bind_ip | <p>The IP address the SNMP service should bind its listen port to. The value * (asterisk) means SNMP will listen on all IP addresses.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "*" |
| community | <p>The community string required for SNMPv1 and SNMPv2c commands. (If empty, all SNMPv1 and SNMPv2c commands will be rejected).</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "public" |
| enabled | <p>Whether or not the SNMP command responder service should be enabled on this traffic manager.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| hash_algorithm | <p>The hash algorithm for authenticated SNMPv3 communications.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "md5" Permitted values: "md5": MD5 "sha1": SHA-1 |
| port | <p>The port the SNMP command responder service should listen on. The value default denotes port 161 if the software is running with root privileges, and 1161 otherwise.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "default" |
| priv_password | <p>The privacy password. Required (minimum length 8 characters) if security_level includes privacy (message encryption).</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |

| Property | Description |
|----------------|--|
| security_level | <p>The security level for SNMPv3 communications.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "noauthnopriv" Permitted values: <ul style="list-style-type: none"> "authnopriv": Authentication only "authpriv": Authentication and Privacy "noauthnopriv": No Authentication, No Privacy |
| username | <p>The username required for SNMPv3 commands. (If empty, all SNMPv3 commands will be rejected).</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |

TrafficScript Authenticator

URI Endpoint: /api/tm/7.1/config/active/rule_authenticators

TrafficScript authenticators define remote authentication services that can be queried via a TrafficScript rule.

| Property | Description |
|------------------------------------|---|
| host | <p>The hostname or IP address of the remote authenticator.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| note | <p>A description of the authenticator.</p> <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |
| port | <p>The port on which the remote authenticator should be contacted.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "389" |
| Properties for the "ldap" section: | |
| attributes | <p>A list of attributes to return from the search. If blank, no attributes will be returned. If set to '*' then all user attributes will be returned.</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |

| Property | Description |
|----------------|--|
| bind_dn | <p>The distinguished name (DN) of the 'bind' user. The traffic manager will connect to the LDAP server as this user when searching for user records.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| bind_password | <p>The password for the bind user.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| filter | <p>The filter used to locate the LDAP record for the user being authenticated. Any occurrences of '%u' in the filter will be replaced by the name of the user being authenticated.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| filter_base_dn | <p>The base distinguished name (DN) under which user records are located on the server.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| ssl_cert | <p>The SSL certificate that the traffic manager should use to validate the remote server. If no certificate is specified then no signature validation will be performed.</p> <ul style="list-style-type: none"> Type: Reference(config-ssl-cacrl) Required: false Default value: <none> |
| ssl_enabled | <p>Whether or not to enable SSL encryption to the LDAP server.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| ssl_type | <p>The type of LDAP SSL encryption to use.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "ldaps" Permitted values: <ul style="list-style-type: none"> "ldaps": LDAPS "starttls": Start TLS |

Trusted SAML Identity Provider

URI Endpoint: /api/tm/7.1/config/active/saml/trustedidps

Configuration for SAML IDP trust relationships.

| Property | Description |
|-----------------|---|
| add_zlib_header | Whether or not to add the zlib header when compressing the AuthnRequest <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| certificate | The certificate used to verify Assertions signed by the identity provider <ul style="list-style-type: none"> Type: String Required: true Default value: <none> |
| entity_id | The entity id of the IDP <ul style="list-style-type: none"> Type: String Required: true Default value: <none> |
| strict_verify | Whether or not SAML responses will be verified strictly <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| url | The IDP URL to which Authentication Requests should be sent <ul style="list-style-type: none"> Type: String Required: true Default value: <none> |

User Authenticator

URI Endpoint: /api/tm/7.1/config/active/user_authenticators

A user authenticator is used to allow access to the UI and REST API by querying a remote authentication service.

| Property | Description |
|-------------|--|
| description | A description of the authenticator. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| enabled | Whether or not this authenticator is enabled. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|------------------------------------|--|
| type | <p>The type and protocol used by this authentication service.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: true Default value: <none> Permitted values: <ul style="list-style-type: none"> "ldap": LDAP "radius": RADIUS "tacacs_plus": TACACS+ |
| Properties for the "ldap" section: | |
| base_dn | <p>The base DN (Distinguished Name) under which directory searches will be applied. The entries for your users should all appear under this DN. An example of a typical base DN is: OU=users, DC=mycompany, DC=local</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| bind_dn | <p>Template to construct the bind DN (Distinguished Name) from the username. The string %u will be replaced by the username. Examples: %u@mycompany.local for Active Directory or cn=%u, dc=mycompany, dc=local for both LDAP and Active Directory.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| dn_method | <p>The bind DN (Distinguished Name) for a user can either be searched for in the directory using the base distinguished name and filter values, or it can be constructed from the username.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "none" Permitted values: <ul style="list-style-type: none"> "construct": Construct "none": No setting configured "search": Search |
| fallback_group | <p>If the group attribute is not defined, or returns no results for the user logging in, the group named here will be used. If not specified, users will be denied access to the traffic manager if no groups matching a Permission Group can be found for them in the directory.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |

| Property | Description |
|-----------------|---|
| filter | <p>A filter that can be used to extract a unique user record located under the base DN (Distinguished Name). The string %u will be replaced by the username. This filter is used to find a user's bind DN when dn_method is set to "Search", and to extract group information if the group filter is not specified. Examples: sAMAccountName=%u for Active Directory, or uid=%u for some Unix LDAP schemas.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| group_attribute | <p>The LDAP attribute that gives a user's group. If there are multiple entries for the attribute all will be extracted and they'll be lexicographically sorted, then the first one to match a Permission Group name will be used.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| group_field | <p>The sub-field of the group attribute that gives a user's group. For example, if group_attribute is memberOf and this retrieves values of the form CN=mygroup, OU=groups, OU=users, DC=mycompany, DC=local you would set group_field to CN. If there are multiple matching fields only the first matching field will be used.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| group_filter | <p>If the user record returned by filter does not contain the required group information you may specify an alternative group search filter here. This will usually be required if you have Unix/POSIX-style user records. If multiple records are returned the list of group names will be extracted from all of them. The string %u will be replaced by the username. Example: (&(memberUid=%u)(objectClass=posixGroup))</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| port | <p>The port to connect to the LDAP server on.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "389" |
| search_dn | <p>The bind DN (Distinguished Name) to use when searching the directory for a user's bind DN. You can leave this blank if it is possible to perform the bind DN search using an anonymous bind.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |

| Property | Description |
|--------------------------------------|---|
| search_password | <p>If binding to the LDAP server using search_dn requires a password, enter it here.</p> <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| server | <p>The IP or hostname of the LDAP server.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| timeout | <p>Connection timeout in seconds.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| Properties for the "radius" section: | |
| fallback_group | <p>If no group is found using the vendor and group identifiers, or the group found is not valid, the group specified here will be used.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| group_attribute | <p>The RADIUS identifier for the attribute that specifies an account's group. May be left blank if fallback group is specified.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1" |
| group_vendor | <p>The RADIUS identifier for the vendor of the RADIUS attribute that specifies an account's group. Leave blank if using a standard attribute (i.e. for Filter-Id set group_attribute to 11).</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "7146" |
| nas_identifier | <p>This value is sent to the RADIUS server.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| nas_ip_address | <p>This value is sent to the RADIUS server, if left blank the address of the interfaced used to connect to the server will be used.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| port | <p>The port to connect to the RADIUS server on.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1812" |

| Property | Description |
|---|--|
| secret | Secret key shared with the RADIUS server. <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |
| server | The IP or hostname of the RADIUS server. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| timeout | Connection timeout in seconds. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| Properties for the "tacacs_plus" section: | |
| auth_type | Authentication type to use. <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "pap" Permitted values: "ascii": ASCII "pap": PAP |
| fallback_group | If group_service is not used, or no group value is provided for the user by the TACACS+ server, the group specified here will be used. If this is not specified, users with no TACACS+ defined group will be denied access. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| group_field | The TACACS+ "service" field that provides each user's group. <ul style="list-style-type: none"> Type: String Required: false Default value: "permission-group" |
| group_service | The TACACS+ "service" that provides each user's group field. <ul style="list-style-type: none"> Type: String Required: false Default value: "zeus" |
| port | The port to connect to the TACACS+ server on. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "49" |
| secret | Secret key shared with the TACACS+ server. <ul style="list-style-type: none"> Type: Password Required: false Default value: <none> |

| Property | Description |
|----------|--|
| server | The IP or hostname of the TACACS+ server. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| timeout | Connection timeout in seconds. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |

User Group

URI Endpoint: /api/tm/7.1/config/active/user_groups

Permission groups specify permissions for groups of users. These groups can be given read-write or read-only access to different parts of the configuration hierarchy. Each group will contain a table of permissions. Each table entry has a name that corresponds to a part of the configuration hierarchy, and a corresponding access level. The access level may have values of either none, ro (read only, this is the default), or full. Some permissions have sub-permissions, these are denoted by following the parent permission name with a colon (:) followed by the sub-permission name. The built-in admin group has a special permission key of all with the value full, this must not be altered for the admin group but can be used in other group configuration files to change the default permission level for the group.

| Property | Description |
|----------------------|---|
| description | A description for the group. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| password_expire_time | Members of this group must renew their passwords after this number of days. To disable password expiry for the group set this to 0 (zero). Note that this setting applies only to local users. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |

| Property | Description |
|-------------|--|
| permissions | <p>A table defining which level of permission this group has for specific configuration elements.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> name (String): Configuration element to which this group has a level of permission. (Required) Sub keys: <ul style="list-style-type: none"> access_level (String): Permission level for the configuration element (none, ro or full) (Required) |
| timeout | <p>Inactive UI sessions will timeout after this number of seconds. To disable inactivity timeouts for the group set this to 0 (zero).</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |

Virtual Server

URI Endpoint: /api/tm/7.1/config/active/virtual_servers

The conf/vservers directory contains configuration files that define virtual servers. The name of a file is the name of the virtual server it defines. Virtual servers can be configured under the Services > Virtual Servers section of the Admin Server UI or by using functions under the VirtualServer section of the SOAP API and CLI.

| Property | Description |
|------------------|--|
| bandwidth_class | <p>The bandwidth management class that this server should use, if any.</p> <ul style="list-style-type: none"> Type: Reference(config-bandwidth) Required: false Default value: <none> |
| completion_rules | <p>Rules that are run at the end of a transaction, in order, comma separated.</p> <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| connect_timeout | <p>The time, in seconds, for which an established connection can remain idle waiting for some initial data to be received from the client. The initial data is defined as a complete set of request headers for HTTP, SIP and RTSP services, or the first byte of data for all other services. A value of 0 will disable the timeout.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |

| Property | Description |
|----------------------------|---|
| enabled | Whether the virtual server is enabled. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| glb_services | The associated GLB services for this DNS virtual server. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| listen_on_any | Whether to listen on all IP addresses <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| listen_on_hosts | Hostnames and IP addresses to listen on <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| listen_on_traffic_ips | Traffic IP Groups to listen on <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| max_concurrent_connections | The maximum number of concurrent TCP connections that will be handled by this virtual server. If set to a non-zero value, the traffic manager will limit the number of concurrent TCP connections that this virtual server will accept to the value specified. When the limit is reached, new connections to this virtual server will not be accepted. If set to 0 the number of concurrent TCP connections will not be limited. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| note | A description for the virtual server. <ul style="list-style-type: none"> Type: FreeformString Required: false Default value: <none> |
| pool | The default pool to use for traffic. <ul style="list-style-type: none"> Type: Reference(config-pool) Required: true Default value: <none> |
| port | The port on which to listen for incoming connections. <ul style="list-style-type: none"> Type: UInt Required: true Default value: <none> |

| Property | Description |
|------------------|---|
| protection_class | <p>The service protection class that should be used to protect this server, if any.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| protocol | <p>The protocol that the virtual server is using.</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "http" • Permitted values: <ul style="list-style-type: none"> "client_first": Generic client first "dns": DNS (UDP) "dns_tcp": DNS (TCP) "ftp": FTP "http": HTTP "https": SSL (HTTPS) "imaps": SSL (IMAPS) "imapv2": IMAPv2 "imapv3": IMAPv3 "imapv4": IMAPv4 "ldap": LDAP "ldaps": SSL (LDAPS) "pop3": POP3 "pop3s": SSL (POP3S) "rtsp": RTSP "server_first": Generic server first "siptcp": SIP (TCP) "sipudp": SIP (UDP) "smtp": SMTP "ssl": SSL "stream": Generic streaming "telnet": Telnet "udp": UDP "udpstreaming": UDP - Streaming |

| Property | Description |
|---|---|
| proxy_protocol | <p>Expect connections to the traffic manager to be prefixed with a PROXY protocol header. If enabled, the information contained in the PROXY header will be available in TrafficScript. Connections that are not prefixed with a valid PROXY protocol header will be discarded.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| request_rules | <p>Rules to be applied to incoming requests, in order, comma separated.</p> <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| response_rules | <p>Rules to be applied to responses, in order, comma separated.</p> <ul style="list-style-type: none"> Type: List(Reference(config-trafficscript)) Required: false Default value: <none> |
| slm_class | <p>The service level monitoring class that this server should use, if any.</p> <ul style="list-style-type: none"> Type: Reference(config-slm) Required: false Default value: <none> |
| ssl_decrypt | <p>Whether or not the virtual server should decrypt incoming SSL traffic.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| transparent | <p>Whether or not bound sockets should be configured for transparent proxying.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "optimizer" section: | |
| enabled | <p>Whether the virtual server should optimize web content.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| profile | <p>A table of Optimizer profiles and the application scopes that apply to them.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> name (String): The name of an Optimizer acceleration profile. (Required) Sub keys: <ul style="list-style-type: none"> urls (Set(String)): The application scopes which apply to the acceleration profile. (Required) |
| Properties for the "auth" section: | |

| Property | Description |
|---------------------------|---|
| saml_idp | <p>Name of the Trusted Identity Provider configuration to use. To create Identity Providers, please visit section Trusted Identity Providers</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| saml_nameid_format | <p>The NameID format to request and expect from the identity provider.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "none" Permitted values: "emailaddress": emailAddress "none": none "unspecified": unspecified |
| saml_sp_acs_url | <p>The 'Assertion Consumer Service' endpoint for the SAML service provider on this virtual server, ie the endpoint to which the identity provider will cause the user agent to send SAML assertions. This should be an HTTPS URL, must be in the same cookie domain as all hostnames used by the end user to access the virtual server (see cookie configuration) and the port must be the port on which this virtual server is listening. It must match the URI placed by the identity provider in the 'Recipient' attribute in the SAML assertion, if present.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| saml_sp_entity_id | <p>The entity ID to be used by the SAML service provider function on this virtual server. This should usually be a URL, or a URN, however it may be any string. It must match the entity ID placed by the identity provider in the 'Audience' field in the SAML assertion.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| saml_time_tolerance | <p>Time tolerance on authentication checks. When checking time-stamps and expiry dates against the current time on the system, allow a tolerance of this many seconds. For example, if a SAML response contains a 'NotOnOrAfter' that is 4 seconds in the past according to the local time, and the tolerance is set to 5 seconds, it will still be accepted. This is to prevent a lack of clock synchronization from resulting in rejection of SAML responses.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "5" |
| session_cookie_attributes | <p>Attributes of cookie used for authentication session.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "HttpOnly; SameSite=Strict" |

| Property | Description |
|--|---|
| session_cookie_name | Name of cookie used for authentication session. <ul style="list-style-type: none"> Type: String Required: false Default value: "VS_SamlSP_Auth" |
| session_log_external_state | Whether or not to include state of authentication sessions stored encrypted on the client as plaintext in the logs. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| session_timeout | Timeout on authentication session. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "7200" |
| type | Type of authentication to apply to requests to the virtual server. <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "none" Permitted values: <ul style="list-style-type: none"> "none": None "saml_sp": SAML Service Provider |
| verbose | Whether or not detailed messages about virtual server authentication should be written to the error log. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "connection" section: | |
| keepalive | Whether or not the virtual server should use keepalive connections with the remote clients. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| keepalive_timeout | The length of time that the virtual server should keep an idle keepalive connection before discarding it. A value of 0 (zero) will mean that the keepalives are never closed by the traffic manager. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| max_client_buffer | The amount of memory, in bytes, that the virtual server should use to store data sent by the client. Larger values will use more memory, but will minimise the number of read() and write() system calls that the traffic manager must perform. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "65536" |

| Property | Description |
|---|---|
| max_server_buffer | <p>The amount of memory, in bytes, that the virtual server should use to store data returned by the server. Larger values will use more memory, but will minimise the number of read() and write() system calls that the traffic manager must perform.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "65536" |
| max_transaction_duration | <p>The total amount of time a transaction can take, counted from the first byte being received until the transaction is complete. For HTTP, this can mean all data has been written in both directions, or the connection has been closed; in most other cases it is the same as the connection being closed. The default value of 0 means there is no maximum duration, i.e., transactions can take arbitrarily long if none of the other timeouts occur.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| server_first_banner | <p>If specified, the traffic manager will use the value as the banner to send for server-first protocols such as FTP, POP, SMTP and IMAP. This allows rules to use the first part of the client data (such as the username) to select a pool. The banner should be in the correct format for the protocol, e.g. for FTP it should start with "220 "</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| timeout | <p>A connection should be closed if no additional data has been received for this period of time. A value of 0 (zero) will disable this timeout.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "300" |
| Properties for the "connection_errors" section: | |
| error_file | <p>The error message to be sent to the client when the traffic manager detects an internal or backend error for the virtual server.</p> <ul style="list-style-type: none"> Type: Reference(config-extra-file) Required: false Default value: "Default" |
| Properties for the "cookie" section: | |

| Property | Description |
|-----------------------------------|---|
| domain | <p>The way in which the traffic manager should rewrite the domain portion of any cookies set by a back-end web server.</p> <ul style="list-style-type: none"> Type: Enum(UInt) Required: false Default value: "no_rewrite" Permitted values: <ul style="list-style-type: none"> "no_rewrite": Do not rewrite the domain "set_to_named": Rewrite the domain to the named domain value "set_to_request": Rewrite the domain to the host header of the request |
| new_domain | <p>The domain to use when rewriting a cookie's domain to a named value.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| path_regex | <p>If you wish to rewrite the path portion of any cookies set by a back-end web server, provide a regular expression to match the path:</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| path_replace | <p>If cookie path regular expression matches, it will be replaced by this substitution. Parameters \$1-\$9 can be used to represent bracketed parts of the regular expression.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| secure | <p>Whether or not the traffic manager should modify the "secure" tag of any cookies set by a back-end web server.</p> <ul style="list-style-type: none"> Type: Enum(UInt) Required: false Default value: "no_modify" Permitted values: <ul style="list-style-type: none"> "no_modify": Do not modify the 'secure' tag "set_secure": Set the 'secure' tag "unset_secure": Unset the 'secure' tag |
| Properties for the "dns" section: | |
| edns_client_subnet | <p>Enable/Disable use of EDNS client subnet option</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| edns_udpsize | <p>EDNS UDP size advertised in responses.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "4096" |

| Property | Description |
|-----------------------------------|---|
| max_udpsize | Maximum UDP answer size. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "4096" |
| rrset_order | Response record ordering. <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "fixed" Permitted values: "cyclic": Cyclic "fixed": Fixed |
| verbose | Whether or not the DNS Server should emit verbose logging. This is useful for diagnosing problems. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| zones | The DNS zones <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| Properties for the "ftp" section: | |
| data_source_port | The source port to be used for active-mode FTP data connections. If 0, a random high port will be used, otherwise the specified port will be used. If a port below 1024 is required you must first explicitly permit use of low ports with the data_bind_low global setting. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| force_client_secure | Whether or not the virtual server should require that incoming FTP data connections from the client originate from the same IP address as the corresponding client control connection. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| force_server_secure | Whether or not the virtual server should require that incoming FTP data connections from the nodes originate from the same IP address as the node. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

| Property | Description |
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| port_range_high | <p>If non-zero, then this controls the upper bound of the port range to use for FTP data connections.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| port_range_low | <p>If non-zero, then this controls the lower bound of the port range to use for FTP data connections.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| ssl_data | <p>Use SSL on the data connection as well as the control connection (if not enabled it is left to the client and server to negotiate this).</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "gzip" section: | |
| compress_level | <p>Compression level (1-9, 1=low, 9=high).</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1" |
| enabled | <p>Compress web pages sent back by the server.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| etag_rewrite | <p>How the ETag header should be manipulated when compressing content.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "wrap" Permitted values: <ul style="list-style-type: none"> "delete": Delete the ETag header "ignore": Leave the ETag unchanged "weaken": Change the ETag header to specify a weak match "wrap": Wrap the ETag, and attempt to unwrap safe conditional requests |
| include_mime | <p>MIME types to compress. Complete MIME types can be used, or a type can end in a '*' to match multiple types.</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: "text/html text/plain" |

| Property | Description |
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| max_size | Maximum document size to compress (0 means unlimited). <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10000000" |
| min_size | Minimum document size to compress. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1000" |
| no_size | Compress documents with no given size. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "http" section: | |
| add_cluster_ip | Whether or not the virtual server should add an "X-Cluster-Client-Ip" header to the request that contains the remote client's IP address. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| add_x_forwarded_for | Whether or not the virtual server should append the remote client's IP address to the X-Forwarded-For header. If the header does not exist, it will be added. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| add_x_forwarded_proto | Whether or not the virtual server should add an "X-Forwarded-Proto" header to the request that contains the original protocol used by the client to connect to the traffic manager. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| autodetect_upgrade_headers | Whether the traffic manager should check for HTTP responses that confirm an HTTP connection is transitioning to the WebSockets protocol. If that such a response is detected, the traffic manager will cease any protocol-specific processing on the connection and just pass incoming data to the client/server as appropriate. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

| Property | Description |
|---------------------------|---|
| chunk_overhead_forwarding | <p>Handling of HTTP chunk overhead. When vTM receives data from a server or client that consists purely of protocol overhead (contains no payload), forwarding of such segments is delayed until useful payload data arrives (setting "lazy"). Changing this key to "eager" will make vTM incur the overhead of immediately passing such data on; it should only be used with HTTP peers whose chunk handling requires it.</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "lazy" • Permitted values: <ul style="list-style-type: none"> "eager": Forward all data, even when no new payload information is available. "lazy": Only forward segments when useful payload data is available. |
| location_regex | <p>If the 'Location' header matches this regular expression, rewrite the header using the 'location_replace' pattern.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| location_replace | <p>If the 'Location' header matches the 'location_regex' regular expression, rewrite the header with this pattern (parameters such as \$1-\$9 can be used to match parts of the regular expression):</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| location_rewrite | <p>The action the virtual server should take if the "Location" header does not match the location_regex regular expression.</p> <ul style="list-style-type: none"> • Type: Enum(UInt) • Required: false • Default value: "if_host_matches" • Permitted values: <ul style="list-style-type: none"> "always": Rewrite the hostname to the request's "Host" header, and rewrite the protocol and port if necessary; "if_host_matches": Do not rewrite the hostname. Rewrite the protocol and port if the hostname matches the request's "Host" header. "never": Nothing; |
| mime_default | <p>Auto-correct MIME types if the server sends the "default" MIME type for files.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: "text/plain" |

| Property | Description |
|-------------------------------------|---|
| mime_detect | Auto-detect MIME types if the server does not provide them. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| strip_x_forwarded_proto | Whether or not the virtual server should strip the 'X-Forwarded-Proto' header from incoming requests. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "http2" section: | |
| connect_timeout | The time, in seconds, to wait for a request on a new HTTP/2 connection. If no request is received within this time, the connection will be closed. This setting overrides the connect_timeout setting. If set to 0 (zero), the value of connect_timeout will be used instead. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| data_frame_size | This setting controls the preferred frame size used when sending body data to the client. If the client specifies a smaller maximum size than this setting, the client's maximum size will be used. Every data frame sent has at least a 9-byte header, in addition to this frame size, prepended to it. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "4096" |
| enabled | This setting allows the HTTP/2 protocol to be used by a HTTP virtual server. Unless use of HTTP/2 is negotiated by the client, the virtual server will fall back to HTTP 1.x automatically. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| header_table_size | This setting controls the amount of memory allowed for header compression on each HTTP/2 connection. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "4096" |
| headers_index_blacklist | A list of header names that should never be compressed using indexing. <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |

| Property | Description |
|---------------------------|---|
| headers_index_default | <p>The HTTP/2 HPACK compression scheme allows for HTTP headers to be compressed using indexing. Sensitive headers can be marked as "never index", which prevents them from being compressed using indexing. When this setting is Yes, only headers included in http2!headers_index_blacklist are marked as "never index". When this setting is No, all headers will be marked as "never index" unless they are included in http2!headers_index_whitelist.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: true |
| headers_index_whitelist | <p>A list of header names that can be compressed using indexing when the value of http2!headers_index_default is set to No.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| headers_size_limit | <p>The maximum size, in bytes, of decompressed headers for an HTTP/2 request. If the limit is exceeded, the connection on which the request was sent will be dropped. A value of 0 disables the limit check. If a service protection class with http!max_header_length configured is associated with this service then that setting will take precedence.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "262144" |
| idle_timeout_no_streams | <p>The time, in seconds, to wait for a new HTTP/2 request on a previously used HTTP/2 connection that has no open HTTP/2 streams. If an HTTP/2 request is not received within this time, the connection will be closed. A value of 0 (zero) will disable the timeout.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "120" |
| idle_timeout_open_streams | <p>The time, in seconds, to wait for data on an idle HTTP/2 connection, which has open streams, when no data has been sent recently (e.g. for long-poll requests). If data is not sent within this time, all open streams and the HTTP/2 connection will be closed. A value of 0 (zero) will disable the timeout.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "600" |
| max_concurrent_streams | <p>This setting controls the number of streams a client is permitted to open concurrently on a single connection.</p> <ul style="list-style-type: none"> • Type: UInt • Required: false • Default value: "200" |

| Property | Description |
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| max_frame_size | <p>This setting controls the maximum HTTP/2 frame size clients are permitted to send to the traffic manager.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "16384" |
| max_header_padding | <p>The maximum size, in bytes, of the random-length padding to add to HTTP/2 header frames. The padding, a random number of zero bytes up to the maximum specified.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| merge_cookie_headers | <p>Whether Cookie headers received from an HTTP/2 client should be merged into a single Cookie header using RFC6265 rules before forwarding to an HTTP/1.1 server. Some web applications do not handle multiple Cookie headers correctly.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| stream_window_size | <p>This setting controls the flow control window for each HTTP/2 stream. This will limit the memory used for buffering when the client is sending body data faster than the pool node is reading it.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "65535" |
| Properties for the "kerberos_protocol_transition" section: | |
| enabled | <p>Whether or not the virtual server should use Kerberos Protocol Transition.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| principal | <p>The Kerberos principal this virtual server should use to perform Kerberos Protocol Transition.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| target | <p>The Kerberos principal name of the service this virtual server targets.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| Properties for the "log" section: | |

| Property | Description |
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| client_connection_failures | Should the virtual server log failures occurring on connections to clients. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| enabled | Whether or not to log connections to the virtual server to a disk on the file system. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| filename | The name of the file in which to store the request logs. The filename can contain macros which will be expanded by the traffic manager to generate the full filename. <ul style="list-style-type: none"> Type: String Required: false Default value: "%zeushome%/zxtm/log/%v.log" |
| format | The log file format. This specifies the line of text that will be written to the log file when a connection to the traffic manager is completed. Many parameters from the connection can be recorded using macros. <ul style="list-style-type: none"> Type: String Required: false Default value: "%h %l %u %t \"%r\" %s %b \"%{Referer}i\" \"%{User-agent}i\"" |
| save_all | Whether to log all connections by default, or log no connections by default. Specific connections can be selected for addition to or exclusion from the log using the TrafficScript function requestlog.include(). <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| server_connection_failures | Should the virtual server log failures occurring on connections to nodes. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| session_persistence_verbose | Should the virtual server log session persistence events. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| ssl_failures | Should the virtual server log failures occurring on SSL secure negotiation. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
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| ssl_resumption_failures | <p>Should the virtual server log messages when attempts to resume SSL sessions (either from the session cache or a session ticket) fail. Note that failure to resume an SSL session does not result in the SSL connection being closed, but it does cause a full SSL handshake to take place.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "recent_connections" section: | |
| enabled | <p>Whether or not connections handled by this virtual server should be shown on the Activity > Connections page.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| save_all | <p>Whether or not all connections handled by this virtual server should be shown on the Connections page. Individual connections can be selectively shown on the Connections page using the recentconns.include() TrafficScript function.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "request_tracing" section: | |
| enabled | <p>Record a trace of major connection processing events for each request and response.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| trace_io | <p>Include details of individual I/O events in request and response traces. Requires request tracing to be enabled.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "rtsp" section: | |
| streaming_port_range_high | <p>If non-zero this controls the upper bound of the port range to use for streaming data connections.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| streaming_port_range_low | <p>If non-zero this controls the lower bound of the port range to use for streaming data connections.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |

| Property | Description |
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| streaming_timeout | <p>If non-zero data-streams associated with RTSP connections will timeout if no data is transmitted for this many seconds.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| Properties for the "sip" section: | |
| dangerous_requests | <p>The action to take when a SIP request with body data arrives that should be routed to an external IP.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "node" Permitted values: <ul style="list-style-type: none"> "forbid": Send a 403 Forbidden response to the client "forward": Forward the request to its target URI (dangerous) "node": Send the request to a back-end node |
| follow_route | <p>Should the virtual server follow routing information contained in SIP requests. If set to No requests will be routed to the chosen back-end node regardless of their URI or Route header.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| max_connection_mem | <p>SIP clients can have several pending requests at one time. To protect the traffic manager against DoS attacks, this setting limits the amount of memory each client can use. When the limit is reached new requests will be sent a 413 response. If the value is set to 0 (zero) the memory limit is disabled.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "65536" |
| mode | <p>The mode that this SIP virtual server should operate in.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "sip_gateway" Permitted values: <ul style="list-style-type: none"> "full_gateway": All SIP requests and responses and all session data will pass through vTM. A port range to use for the session data and a timeout value for inactive data connections can be specified in the additional settings that are displayed when the Full Gateway mode is selected. "route": The first SIP request in a session will pass through vTM, along with its responses, but all future requests that are part of the same session will go directly to the back-end node that was chosen by the traffic manager. "sip_gateway": All SIP requests and responses will pass through the traffic manager. |

| Property | Description |
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| rewrite_uri | <p>Replace the Request-URI of SIP requests with the address of the selected back-end node.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| streaming_port_range_high | <p>If non-zero this controls the upper bound of the port range to use for streaming data connections.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| streaming_port_range_low | <p>If non-zero, then this controls the lower bound of the port range to use for streaming data connections.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| streaming_timeout | <p>If non-zero a UDP stream will timeout when no data has been seen within this time.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "60" |
| timeout_messages | <p>When timing out a SIP transaction, send a 'timed out' response to the client and, in the case of an INVITE transaction, a CANCEL request to the server.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| transaction_timeout | <p>The virtual server should discard a SIP transaction when no further messages have been seen within this time.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| udp_associate_by_source | <p>Require that SIP datagrams which are part of the same transaction are received from the same address and port.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "smtp" section: | |
| expect_starttls | <p>Whether or not the traffic manager should expect the connection to start off in plain text and then upgrade to SSL using STARTTLS when handling SMTP traffic.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| Properties for the "ssl" section: | |

| Property | Description |
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| add_http_headers | <p>Whether or not the virtual server should add HTTP headers to each request to show the SSL connection parameters.</p> <ul style="list-style-type: none"> • Type: Boolean • Required: false • Default value: false |
| cipher_suites | <p>The SSL/TLS cipher suites to allow for connections to this virtual server. Leaving this empty will make the virtual server use the globally configured cipher suites, see configuration key <code>ssl:cipher_suites</code> in the Global Settings section of the System tab. See there for how to specify SSL/TLS cipher suites.</p> <ul style="list-style-type: none"> • Type: String • Required: false • Default value: <none> |
| client_cert_cas | <p>The certificate authorities that this virtual server should trust to validate client certificates. If no certificate authorities are selected, and client certificates are requested, then all client certificates will be accepted.</p> <ul style="list-style-type: none"> • Type: Set(String) • Required: false • Default value: <none> |
| client_cert_headers | <p>What HTTP headers the virtual server should add to each request to show the data in the client certificate.</p> <ul style="list-style-type: none"> • Type: Enum(String) • Required: false • Default value: "none" • Permitted values: <ul style="list-style-type: none"> "all": Certificate fields and certificate text "none": No data "simple": Certificate fields |
| elliptic_curves | <p>The SSL elliptic curve preference list for SSL connections to this virtual server using TLS version 1.0 or higher. Leaving this empty will make the virtual server use the globally configured curve preference list. The named curves P256, P384 and P521 may be configured.</p> <ul style="list-style-type: none"> • Type: List(String) • Required: false • Default value: <none> |

| Property | Description |
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| honor_fallback_scsv | <p>Whether or not the Fallback SCSV sent by TLS clients is honored by this virtual server. Choosing the global setting means the value of configuration key <code>ssl!honor_fallback_scsv</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable Fallback SCSV "enabled": Enable Fallback SCSV "use_default": Use the global setting for Fallback SCSV |
| issued_certs_never_expire | <p>When the virtual server verifies certificates signed by these certificate authorities, it doesn't check the 'not after' date, i.e., they are considered valid even after their expiration date has passed (but not if they have been revoked).</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: <none> |
| issued_certs_never_expire_depth | <p>This setting gives the number of certificates in a certificate chain beyond those listed as <code>issued_certs_never_expire</code> whose certificate expiry will not be checked. For example "0" will result in the expiry checks being made for certificates issued by <code>issued_certs_never_expire</code> certificates, "1" will result in no expiry checks being performed for the certificates directly issued by <code>issued_certs_never_expire</code> certificates, "2" will avoid checking expiry for certificates issued by certificates issued by the <code>issued_certs_never_expire</code> certificates as well, and so on.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "1" |
| ocsp_enable | <p>Whether or not the traffic manager should use OCSP to check the revocation status of client certificates.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|-----------------------|---|
| ocsp_issuers | <p>A table of certificate issuer specific OCSP settings.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> issuer (String): The name of an issuer (or DEFAULT for default OCSP settings). (Required) Sub keys: <ul style="list-style-type: none"> aia (Boolean): Whether the traffic manager should use AIA information contained in a client certificate to determine which OCSP responder to contact. nonce (Enum(String)): How to use the OCSP nonce extension, which protects against OCSP replay attacks. Some OCSP servers do not support nonces. Permitted values: <ul style="list-style-type: none"> "off": No nonce check "on": Use nonce, server does not have to reply with nonce "strict": Use nonce, server must reply with nonce required (Enum(String)): Whether we should do an OCSP check for this issuer, and whether it is required or optional. Permitted values: <ul style="list-style-type: none"> "none": None "optional": OCSP check optional "strict": OCSP check required responder_cert (String): The expected responder certificate. signer (String): The certificate with which to sign the request, if any. url (String): Which OCSP responders this virtual server should use to verify client certificates. |
| ocsp_max_response_age | <p>The number of seconds for which an OCSP response is considered valid if it has not yet exceeded the time specified in the 'nextUpdate' field. If set to 0 (zero) then OCSP responses are considered valid until the time specified in their 'nextUpdate' field.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| ocsp_stapling | <p>If OCSP URIs are present in certificates used by this virtual server, then enabling this option will allow the traffic manager to provide OCSP responses for these certificates as part of the handshake, if the client sends a TLS status_request extension in the ClientHello.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|------------------------------|--|
| ocsp_time_tolerance | <p>The number of seconds outside the permitted range for which the 'thisUpdate' and 'nextUpdate' fields of an OCSP response are still considered valid.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |
| ocsp_timeout | <p>The number of seconds after which OCSP requests will be timed out.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "10" |
| request_client_cert | <p>Whether or not the virtual server should request an identifying SSL certificate from each client.</p> <ul style="list-style-type: none"> Type: Enum(UInt) Required: false Default value: "dont_request" Permitted values: <ul style="list-style-type: none"> "dont_request": Do not request a client certificate "request": Request, but do not require a client certificate "require": Require a client certificate |
| send_close_alerts | <p>Whether or not to send an SSL/TLS "close alert" when the traffic manager is initiating an SSL socket disconnection.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| server_cert_alt_certificates | <p>The SSL certificates and corresponding private keys.</p> <ul style="list-style-type: none"> Type: List(String) Required: false Default value: <none> |
| server_cert_default | <p>The default SSL certificate to use for this virtual server.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| server_cert_host_mapping | <p>Host specific SSL server certificate mappings.</p> <ul style="list-style-type: none"> Type: Table Required: false Primary key: <ul style="list-style-type: none"> host (String): Host which this entry refers to. (Required) Sub keys: <ul style="list-style-type: none"> certificate (String): The SSL server certificate for a particular destination site IP. (Required) alt_certificates (List(String)): The SSL server certificates for a particular destination site IP. |

| Property | Description |
|-------------------------|--|
| session_cache_enabled | <p>Whether or not use of the session cache is enabled for this virtual server. Choosing the global setting means the value of configuration key <code>ssl!session_cache_enabled</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable use of the session cache "enabled": Enable use of the session cache "use_default": Use the global setting for use of the session cache |
| session_tickets_enabled | <p>Whether or not use of session tickets is enabled for this virtual server. Choosing the global setting means the value of configuration key <code>ssl!tickets!enabled</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable use of the session tickets "enabled": Enable use of the session tickets "use_default": Use the global setting for use of session tickets |
| signature_algorithms | <p>The SSL signature algorithms preference list for SSL connections to this virtual server using TLS version 1.2 or higher. Leaving this empty will make the virtual server use the globally configured preference list, <code>signature_algorithms</code> in the <code>ssl</code> section of the <code>global_settings</code> resource. See there and in the online help for how to specify SSL signature algorithms.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| support_ssl3 | <p>Whether or not SSLv3 is enabled for this virtual server. Choosing the global setting means the value of configuration key <code>ssl!support_ssl3</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable SSLv3 "enabled": Enable SSLv3 "use_default": Use the global setting for SSLv3 |

| Property | Description |
|----------------|---|
| support_tls1 | <p>Whether or not TLSv1.0 is enabled for this virtual server. Choosing the global setting means the value of configuration key <code>ssl!support_tls1</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable TLSv1.0 "enabled": Enable TLSv1.0 "use_default": Use the global setting for TLSv1.0 |
| support_tls1_1 | <p>Whether or not TLSv1.1 is enabled for this virtual server. Choosing the global setting means the value of configuration key <code>ssl!support_tls1_1</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable TLSv1.1 "enabled": Enable TLSv1.1 "use_default": Use the global setting for TLSv1.1 |
| support_tls1_2 | <p>Whether or not TLSv1.2 is enabled for this virtual server. Choosing the global setting means the value of configuration key <code>ssl!support_tls1_2</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable TLSv1.2 "enabled": Enable TLSv1.2 "use_default": Use the global setting for TLSv1.2 |
| support_tls1_3 | <p>Whether or not TLSv1.3 is enabled for this virtual server. Choosing the global setting means the value of configuration key <code>ssl!support_tls1_3</code> from the Global Settings section of the System tab will be enforced.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "use_default" Permitted values: <ul style="list-style-type: none"> "disabled": Disable TLSv1.3 "enabled": Enable TLSv1.3 "use_default": Use the global setting for TLSv1.3 |

| Property | Description |
|--------------------------------------|--|
| trust_magic | <p>If the traffic manager is receiving traffic sent from another traffic manager, then enabling this option will allow it to decode extra information on the true origin of the SSL connection. This information is supplied by the first traffic manager.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "syslog" section: | |
| enabled | <p>Whether or not to log connections to the virtual server to a remote syslog host.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| format | <p>The log format for the remote syslog. This specifies the line of text that will be sent to the remote syslog when a connection to the traffic manager is completed. Many parameters from the connection can be recorded using macros.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: "%h %l %u %t \"%r\" %s %b \"%{Referer}\" \"%{User-agent}\"" |
| ip_end_point | <p>The remote host and port (default is 514) to send request log lines to.</p> <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| msg_len_limit | <p>Maximum length in bytes of a message sent to the remote syslog. Messages longer than this will be truncated before they are sent.</p> <ul style="list-style-type: none"> Type: UInt Required: false Default value: "2048" |
| Properties for the "tcp" section: | |
| close_with_rst | <p>Whether or not connections from clients should be closed with a RST packet, rather than a FIN packet. This avoids the TIME_WAIT state, which on rare occasions allows wandering duplicate packets to be safely ignored.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| nagle | <p>Whether or not Nagle's algorithm should be used for TCP connections.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|--|--|
| proxy_close | <p>If set to Yes the traffic manager will send the client FIN to the back-end server and wait for a server response instead of closing the connection immediately. This is only necessary for protocols that require half-close support to function correctly, such as "rsh". If the traffic manager is responding to the request itself, setting this key to Yes will cause the traffic manager to continue writing the response even after it has received a FIN from the client.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| Properties for the "transaction_export" section: | |
| brief | <p>Whether to export a restricted set of metadata about transactions processed by this virtual server. If enabled, more verbose information such as client and server headers and request tracing events will be omitted from the exported data.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| enabled | <p>Export metadata about transactions handled by this service to the globally configured endpoint. Data will be exported only if the global transaction_export!enabled setting is enabled.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |
| hi_res | <p>Whether the transaction processing timeline included in the metadata export is recorded with a high, microsecond, resolution. If set to No, timestamps will be recorded with a resolution of milliseconds.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| http_header_blacklist | <p>The set of HTTP header names for which corresponding values should be redacted from the metadata exported by this virtual server.</p> <ul style="list-style-type: none"> Type: Set(String) Required: false Default value: "Authorization" |
| Properties for the "udp" section: | |
| end_point_persistence | <p>Whether UDP datagrams received from the same IP address and port are sent to the same pool node if they match an existing UDP session. Sessions are defined by the protocol being handled, for example SIP datagrams are grouped based on the value of the Call-ID header.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: true |

| Property | Description |
|---|---|
| port_smp | Whether or not UDP datagrams should be distributed across all traffic manager processes. This setting is not recommended if the traffic manager will be handling connection-based UDP protocols. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| response_datagrams_expected | The virtual server should discard any UDP connection and reclaim resources when the node has responded with this number of datagrams. For simple request/response protocols this can be often set to 1. If set to -1, the connection will not be discarded until the timeout is reached. <ul style="list-style-type: none"> Type: Int Required: false Default value: "1" |
| timeout | The virtual server should discard any UDP connection and reclaim resources when no further UDP traffic has been seen within this time. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "7" |
| Properties for the "web_cache" section: | |
| control_out | The "Cache-Control" header to add to every cached HTTP response, no-cache or max-age=600 for example. <ul style="list-style-type: none"> Type: String Required: false Default value: <none> |
| enabled | If set to Yes the traffic manager will attempt to cache web server responses. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |
| error_page_time | Time period to cache error pages for. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "30" |

| Property | Description |
|--------------|---|
| max_time | Maximum time period to cache web pages for. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "600" |
| refresh_time | If a cached page is about to expire within this time, the traffic manager will start to forward some new requests on to the web servers. A maximum of one request per second will be forwarded; the remainder will continue to be served from the cache. This prevents "bursts" of traffic to your web servers when an item expires from the cache. Setting this value to 0 will stop the traffic manager updating the cache before it expires. <ul style="list-style-type: none"> Type: UInt Required: false Default value: "2" |

Web Accelerator Profile

URI Endpoint: /api/tm/7.1/config/active/optimizer/profiles

A Web Accelerator profile can be applied to an HTTP virtual server to enable automatic web content optimization.

| Property | Description |
|------------------------------------|--|
| background_after | If Web Accelerator can finish optimizing the resource within this time limit then serve the optimized content to the client, otherwise complete the optimization in the background and return the original content to the client. If set to 0, Web Accelerator will always wait for the optimization to complete before sending a response to the client. <ul style="list-style-type: none"> Type: UInt Required: false Default value: <none> |
| background_on_additional_resources | If a web page contains resources that have not yet been optimized, fetch and optimize those resources in the background and send a partially optimized web page to clients until all resources on that page are ready. <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

| Property | Description |
|---------------|---|
| mode | <p>Set the Web Accelerator mode to turn acceleration on or off.</p> <ul style="list-style-type: none"> Type: Enum(String) Required: false Default value: "active" Permitted values: <ul style="list-style-type: none"> "active": On - Web Accelerator acceleration is enabled "idle": Off - Acceleration is disabled, but requests for Web Accelerator resources are served "stealth": Stealth - Acceleration is controlled by a cookie |
| show_info_bar | <p>Show the Web Accelerator information bar on optimized web pages. This requires HTML optimization to be enabled in the acceleration settings.</p> <ul style="list-style-type: none"> Type: Boolean Required: false Default value: false |

SNMP Counter Values

Actions

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/actions/*

Actions statistics values.

| Counter | Description |
|-----------|--|
| processed | <p>Number of times this action has been processed.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "actionsProcessed" |

Asp session cache

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/cache/asp_session_cache

Asp session cache statistics values.

| Counter | Description |
|-------------|---|
| entries | The total number of ASP sessions stored in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "aspSessionCacheEntries" |
| entries_max | The maximum number of ASP sessions in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "aspSessionCacheEntriesMax" |
| hit_rate | The percentage of ASP session lookups that succeeded. <ul style="list-style-type: none"> Type: UInt SNMP name: "aspSessionCacheHitRate" |
| hits | Number of times a ASP session entry has been successfully found in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "aspSessionCacheHits" |
| lookups | Number of times a ASP session entry has been looked up in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "aspSessionCacheLookups" |
| misses | Number of times a ASP session entry has not been available in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "aspSessionCacheMisses" |
| oldest | The age of the oldest ASP session in the cache (in seconds). <ul style="list-style-type: none"> Type: UInt SNMP name: "aspSessionCacheOldest" |

Bandwidth

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/bandwidth/*

Bandwidth statistics values.

| Counter | Description |
|-----------|--|
| bytes_out | Bytes output by connections assigned to this bandwidth class. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "bandwidthClassBytesOut" |

| Counter | Description |
|-----------|---|
| guarantee | Guaranteed bandwidth class limit (kbits/s). Currently unused. <ul style="list-style-type: none"> Type: UInt SNMP name: "bandwidthClassGuarantee" |
| maximum | Maximum bandwidth class limit (kbits/s). <ul style="list-style-type: none"> Type: UInt SNMP name: "bandwidthClassMaximum" |

Cloud api credentials

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/cloud_api_credentials/*

Cloud api credentials statistics values.

| Counter | Description |
|-----------------|--|
| node_creations | The number of instance creation API requests made with this set of cloud credentials. <ul style="list-style-type: none"> Type: UInt SNMP name: "cloudcredentialsNodeCreations" |
| node_deletions | The number of instance destruction API requests made with this set of cloud credentials. <ul style="list-style-type: none"> Type: UInt SNMP name: "cloudcredentialsNodeDeletions" |
| status_requests | The number of status API requests made with this set of cloud credentials. <ul style="list-style-type: none"> Type: UInt SNMP name: "cloudcredentialsStatusRequests" |

Connection rate limit

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/connection_rate_limit/*

Connection rate limit statistics values.

| Counter | Description |
|------------------|---|
| conns_entered | Connections that have entered the rate class and have been queued. <ul style="list-style-type: none"> Type: UInt SNMP name: "rateClassConnsEntered" |
| conns_left | Connections that have left the rate class. <ul style="list-style-type: none"> Type: UInt SNMP name: "rateClassConnsLeft" |
| current_rate | The average rate that requests are passing through this rate class. <ul style="list-style-type: none"> Type: UInt SNMP name: "rateClassCurrentRate" |
| dropped | Requests dropped from this rate class without being processed (e.g. timeouts). <ul style="list-style-type: none"> Type: UInt SNMP name: "rateClassDropped" |
| max_rate_per_min | The maximum rate that requests may pass through this rate class (requests/min). <ul style="list-style-type: none"> Type: UInt SNMP name: "rateClassMaxRatePerMin" |
| max_rate_per_sec | The maximum rate that requests may pass through this rate class (requests/sec). <ul style="list-style-type: none"> Type: UInt SNMP name: "rateClassMaxRatePerSec" |
| queue_length | The current number of requests queued by this rate class. <ul style="list-style-type: none"> Type: UInt SNMP name: "rateClassQueueLength" |

Events

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/events/*

Events statistics values.

| Counter | Description |
|---------|--|
| matched | Number of times this event configuration has matched. <ul style="list-style-type: none"> Type: UInt SNMP name: "eventsMatched" |

Glb services

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/glb_services/*

Glb services statistics values.

| Counter | Description |
|------------|--|
| discarded | Number of A records this GLB Service has discarded. <ul style="list-style-type: none"> Type: UInt SNMP name: "glbServiceDiscarded" |
| responses | Number of A records this GLB Service has altered. <ul style="list-style-type: none"> Type: UInt SNMP name: "glbServiceResponses" |
| unmodified | Number of A records this GLB Service has passed through unmodified. <ul style="list-style-type: none"> Type: UInt SNMP name: "glbServiceUnmodified" |

Globals

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/globals

Globals statistics values.

| Counter | Description |
|-------------------------------------|---|
| analytics_transactions_dropped | Count of transaction metadata records that have been dropped <ul style="list-style-type: none"> Type: UInt SNMP name: "analyticsTransactionsDropped" |
| analytics_transactions_exported | Count of transaction metadata records that have been exported <ul style="list-style-type: none"> Type: UInt SNMP name: "analyticsTransactionsExported" |
| analytics_transactions_memory_usage | Number of bytes queued in the transaction export transmit buffers. <ul style="list-style-type: none"> Type: UInt SNMP name: "analyticsTransactionsMemoryUsage" |
| data_entries | Number of entries in the TrafficScript data.get()/set() storage. <ul style="list-style-type: none"> Type: UInt SNMP name: "dataEntries" |
| data_memory_usage | Number of bytes used in the TrafficScript data.get()/set() storage. <ul style="list-style-type: none"> Type: UInt SNMP name: "dataMemoryUsage" |
| events_seen | Events seen by the traffic Manager's event handling process. <ul style="list-style-type: none"> Type: UInt SNMP name: "eventsSeen" |

| Counter | Description |
|--|--|
| hourly_peak_bytes_in_per_second | The peak bytes received from clients per second in the last hour. <ul style="list-style-type: none"> Type: UInt SNMP name: "hourlyPeakBytesInPerSecond" |
| hourly_peak_bytes_out_per_second | The peak bytes sent to clients per second in the last hour. <ul style="list-style-type: none"> Type: UInt SNMP name: "hourlyPeakBytesOutPerSecond" |
| hourly_peak_requests_per_second | The peak requests per second in the last hour. <ul style="list-style-type: none"> Type: UInt SNMP name: "hourlyPeakRequestsPerSecond" |
| hourly_peak_ssl_connections_per_second | The peak ssl connections per second in the last hour. <ul style="list-style-type: none"> Type: UInt SNMP name: "hourlyPeakSSLConnectionsPerSecond" |
| num_idle_connections | Total number of idle HTTP connections to all nodes (used for future HTTP requests). <ul style="list-style-type: none"> Type: UInt SNMP name: "numIdleConnections" |
| number_child_processes | The number of traffic manager child processes. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberChildProcesses" |
| number_dnsa_cache_hits | Requests for DNS A records resolved from the traffic manager's local cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberDNSACacheHits" |
| number_dnsa_requests | Requests for DNS A records (hostname->IP address) made by the traffic manager. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberDNSARequests" |
| number_dnsptr_cache_hits | Requests for DNS PTR records resolved from the traffic manager's local cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberDNSPTRCacheHits" |
| number_dnsptr_requests | Requests for DNS PTR records (IP address->hostname) made by the traffic manager. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberDNSPTRRequests" |
| number_snmp_bad_requests | Malformed SNMP requests received. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberSNMPBadRequests" |
| number_snmp_get_bulk_requests | SNMP GetBulkRequests received. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberSNMPGetBulkRequests" |

| Counter | Description |
|-----------------------------------|--|
| number_snmp_get_next_requests | SNMP GetNextRequests received. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberSNMPGetNextRequests" |
| number_snmp_get_requests | SNMP GetRequests received. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberSNMPGetRequests" |
| number_snmp_unauthorised_requests | SNMP requests dropped due to access restrictions. <ul style="list-style-type: none"> Type: UInt SNMP name: "numberSNMPUnauthorisedRequests" |
| ssl_cipher_3des_decrypts | Bytes decrypted with 3DES. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipher3DESDecrypts" |
| ssl_cipher_3des_encrypts | Bytes encrypted with 3DES. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipher3DESEncrypts" |
| ssl_cipher_aes_decrypts | Bytes decrypted with AES. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherAESDecrypts" |
| ssl_cipher_aes_encrypts | Bytes encrypted with AES. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherAESEncrypts" |
| ssl_cipher_aes_gcm_decrypts | Bytes decrypted with AES-GCM. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherAESGCMDecrypts" |
| ssl_cipher_aes_gcm_encrypts | Bytes encrypted with AES-GCM. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherAESGCMEncrypts" |
| ssl_cipher_decrypts | Bytes decrypted with a symmetric cipher. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherDecrypts" |
| ssl_cipher_des_decrypts | Bytes decrypted with DES. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherDESDecrypts" |
| ssl_cipher_des_encrypts | Bytes encrypted with DES. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherDESEncrypts" |
| ssl_cipher_dh_agreements | Number of Diffie Hellman key agreements. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherDHAgreements" |

| Counter | Description |
|----------------------------------|---|
| ssl_cipher_dh_generates | Number of Diffie Hellman keys generated. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherDHGenerates" |
| ssl_cipher_dsa_signs | Number of DSA signing operations. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherDSASigns" |
| ssl_cipher_dsa_verifies | Number of DSA verifications. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherDSAVerifies" |
| ssl_cipher_ecdh_agreements | Number of Elliptic Curve Diffie Hellman key agreements. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherECDHAgreements" |
| ssl_cipher_ecdh_generates | Number of Elliptic Curve Diffie Hellman keys generated. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherECDHGenerates" |
| ssl_cipher_ecdsa_signs | Number of ECDSA signing operations. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherECDSASigns" |
| ssl_cipher_ecdsa_verifies | Number of ECDSA verifications. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherECDSAVerifies" |
| ssl_cipher_encrypts | Bytes encrypted with a symmetric cipher. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherEncrypts" |
| ssl_cipher_rc4_decrypts | Bytes decrypted with RC4. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherRC4Decrypts" |
| ssl_cipher_rc4_encrypts | Bytes encrypted with RC4. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherRC4Encrypts" |
| ssl_cipher_rsa_decrypts | Number of RSA decrypts. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherRSADecrypts" |
| ssl_cipher_rsa_decrypts_external | Number of external RSA decrypts. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherRSADecryptsExternal" |
| ssl_cipher_rsa_encrypts | Number of RSA encrypts. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherRSAEncrypts" |

| Counter | Description |
|----------------------------------|---|
| ssl_cipher_rsa_encrypts_external | Number of external RSA encrypts. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCipherRSAEncryptsExternal" |
| ssl_client_cert_expired | Number of times a client certificate has expired. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslClientCertExpired" |
| ssl_client_cert_invalid | Number of times a client certificate was invalid. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslClientCertInvalid" |
| ssl_client_cert_not_sent | Number of times a client certificate was required but not supplied. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslClientCertNotSent" |
| ssl_client_cert_revoked | Number of times a client certificate was revoked. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslClientCertRevoked" |
| ssl_connections | Number of SSL connections negotiated. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslConnections" |
| ssl_handshake_sslv3 | Number of SSLv3 handshakes. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslHandshakeSSLv3" |
| ssl_handshake_tlsv1 | Number of TLSv1.0 handshakes. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslHandshakeTLSv1" |
| ssl_handshake_tlsv11 | Number of TLSv1.1 handshakes. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslHandshakeTLSv11" |
| ssl_handshake_tlsv12 | Number of TLSv1.2 handshakes. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslHandshakeTLSv12" |
| ssl_handshake_tlsv13 | Number of TLSv1.3 handshakes. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslHandshakeTLSv13" |
| ssl_session_id_mem_cache_hit | Number of times the SSL session id was found in the cache and reused. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslSessionIDMemCacheHit" |
| ssl_session_id_mem_cache_miss | Number of times the SSL session id was not found in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslSessionIDMemCacheMiss" |

| Counter | Description |
|-----------------------------|--|
| sys_cpu_busy_percent | Percentage of time that the CPUs are busy. <ul style="list-style-type: none"> Type: UInt SNMP name: "sysCPUBusyPercent" |
| sys_cpu_idle_percent | Percentage of time that the CPUs are idle. <ul style="list-style-type: none"> Type: UInt SNMP name: "sysCPUIdlePercent" |
| sys_cpu_system_busy_percent | Percentage of time that the CPUs are busy running system code. <ul style="list-style-type: none"> Type: UInt SNMP name: "sysCPUSystemBusyPercent" |
| sys_cpu_user_busy_percent | Percentage of time that the CPUs are busy running user-space code. <ul style="list-style-type: none"> Type: UInt SNMP name: "sysCPUUserBusyPercent" |
| sys_fds_free | Number of free file descriptors. <ul style="list-style-type: none"> Type: UInt SNMP name: "sysFDsFree" |
| sys_mem_buffered | Buffer memory (MBytes). <ul style="list-style-type: none"> Type: UInt SNMP name: "sysMemBuffered" |
| sys_mem_free | Free memory (MBytes). <ul style="list-style-type: none"> Type: UInt SNMP name: "sysMemFree" |
| sys_mem_in_use | Memory used (MBytes). <ul style="list-style-type: none"> Type: UInt SNMP name: "sysMemInUse" |
| sys_mem_swap_total | Total swap space (MBytes). <ul style="list-style-type: none"> Type: UInt SNMP name: "sysMemSwapTotal" |
| sys_mem_swapped | Amount of swap space in use (MBytes). <ul style="list-style-type: none"> Type: UInt SNMP name: "sysMemSwapped" |
| sys_mem_total | Total memory (MBytes). <ul style="list-style-type: none"> Type: UInt SNMP name: "sysMemTotal" |
| time_last_config_update | The time (in hundredths of a second) since the configuration of traffic manager was updated (this value will wrap if no configuration changes are made for 497 days). <ul style="list-style-type: none"> Type: UInt SNMP name: "timeLastConfigUpdate" |

| Counter | Description |
|-----------------------------|--|
| total_backend_server_errors | Total errors returned from the backend servers. <ul style="list-style-type: none"> Type: UInt SNMP name: "totalBackendServerErrors" |
| total_bad_dns_packets | Total number of malformed DNS response packets encountered from the backend servers. <ul style="list-style-type: none"> Type: UInt SNMP name: "totalBadDNSPackets" |
| total_bytes_in | Bytes received by the traffic manager from clients. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "totalBytesIn" |
| total_bytes_out | Bytes sent by the traffic manager to clients. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "totalBytesOut" |
| total_conn | Total number of TCP connections received. <ul style="list-style-type: none"> Type: UInt SNMP name: "totalConn" |
| total_current_conn | Number of TCP connections currently established. <ul style="list-style-type: none"> Type: UInt SNMP name: "totalCurrentConn" |
| total_dns_responses | Total number of DNS response packets handled. <ul style="list-style-type: none"> Type: UInt SNMP name: "totalDNSResponses" |
| total_requests | Total number of TCP requests received. <ul style="list-style-type: none"> Type: UInt SNMP name: "totalRequests" |
| total_transactions | Total number of TCP requests being processed, after applying TPS limits. <ul style="list-style-type: none"> Type: UInt SNMP name: "totalTransactions" |
| up_time | The time (in hundredths of a second) that vTM software has been operational for (this value will wrap if it has been running for more than 497 days). <ul style="list-style-type: none"> Type: UInt SNMP name: "upTime" |

Ip gateway

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/traffic_ips/ip_gateway

Ip gateway statistics values.

| Counter | Description |
|------------------------|--|
| arp_message | Number of ARP messages sent for raised Traffic IP Addresses. <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPARPMessages" |
| gateway_ping_requests | Number of ping requests sent to the gateway machine. <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPGatewayPingRequests" |
| gateway_ping_responses | Number of ping responses received from the gateway machine. <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPGatewayPingResponses" |
| node_ping_requests | Number of ping requests sent to the backend nodes. <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPNodePingRequests" |
| node_ping_responses | Number of ping responses received from the backend nodes. <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPNodePingResponses" |
| number_inet46 | The number of traffic IP addresses on this system (includes IPv4 and IPv6 addresses). <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPNumberInet46" |
| number_raised_inet46 | The number of traffic IP addresses currently raised on this system (includes IPv4 and IPv6 addresses). <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPNumberRaisedInet46" |
| ping_response_errors | Number of ping response errors. <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPPingResponseErrors" |

Ip session cache

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/cache/ip_session_cache

Ip session cache statistics values.

| Counter | Description |
|-------------|---|
| entries | The total number of IP sessions stored in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "ipSessionCacheEntries" |
| entries_max | The maximum number of IP sessions in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "ipSessionCacheEntriesMax" |
| expiries | Number of times an expired IP session entry has been dropped on lookup. <ul style="list-style-type: none"> Type: UInt SNMP name: "ipSessionCacheExpiries" |
| hit_rate | The percentage of IP session lookups that succeeded. <ul style="list-style-type: none"> Type: UInt SNMP name: "ipSessionCacheHitRate" |
| hits | Number of times a IP session entry has been successfully found in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "ipSessionCacheHits" |
| lookups | Number of times a IP session entry has been looked up in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "ipSessionCacheLookups" |
| misses | Number of times a IP session entry has not been available in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "ipSessionCacheMisses" |
| oldest | The age of the oldest IP session in the cache (in seconds). <ul style="list-style-type: none"> Type: UInt SNMP name: "ipSessionCacheOldest" |

J2ee session cache

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/cache/j2ee_session_cache

J2ee session cache statistics values.

| Counter | Description |
|-------------|---|
| entries | The total number of J2EE sessions stored in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "j2eeSessionCacheEntries" |
| entries_max | The maximum number of J2EE sessions in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "j2eeSessionCacheEntriesMax" |
| expiries | Number of times an expired J2EE session entry has been dropped on lookup. <ul style="list-style-type: none"> Type: UInt SNMP name: "j2eeSessionCacheExpiries" |
| hit_rate | The percentage of J2EE session lookups that succeeded. <ul style="list-style-type: none"> Type: UInt SNMP name: "j2eeSessionCacheHitRate" |
| hits | Number of times a J2EE session entry has been successfully found in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "j2eeSessionCacheHits" |
| lookups | Number of times a J2EE session entry has been looked up in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "j2eeSessionCacheLookups" |
| misses | Number of times a J2EE session entry has not been available in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "j2eeSessionCacheMisses" |
| oldest | The age of the oldest J2EE session in the cache (in seconds). <ul style="list-style-type: none"> Type: UInt SNMP name: "j2eeSessionCacheOldest" |

Listen ips

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/listen_ips/*

Listen ips statistics values.

| Counter | Description |
|----------------|---|
| bytes_in | Bytes sent to this listening IP. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "listenIPBytesIn" |
| bytes_out | Bytes sent from this listening IP. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "listenIPBytesOut" |
| current_conn | TCP connections currently established to this listening IP. <ul style="list-style-type: none"> Type: UInt SNMP name: "listenIPCurrentConn" |
| max_conn | Maximum number of simultaneous TCP connections this listening IP has processed at any one time. <ul style="list-style-type: none"> Type: UInt SNMP name: "listenIPMaxConn" |
| total_requests | Requests sent to this listening IP. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "listenIPTotalRequests" |

Locations

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/locations/*

Locations statistics values.

| Counter | Description |
|-----------|---|
| load | The mean load metric for this location. <ul style="list-style-type: none"> Type: UInt SNMP name: "locationLoad" |
| responses | Number of A records that have been altered to point to this location. <ul style="list-style-type: none"> Type: UInt SNMP name: "locationResponses" |

Network interface

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/network_interface/*

Network interface statistics values.

| Counter | Description |
|------------|---|
| collisions | The number of collisions reported by this interface. <ul style="list-style-type: none"> Type: UInt SNMP name: "interfaceCollisions" |
| rx_bytes | Bytes received by this interface. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "interfaceRxBytes" |
| rx_errors | The number of receive errors reported by this interface. <ul style="list-style-type: none"> Type: UInt SNMP name: "interfaceRxErrors" |
| rx_packets | The number of packets received by this interface. <ul style="list-style-type: none"> Type: UInt SNMP name: "interfaceRxPackets" |
| tx_bytes | Bytes transmitted by this interface. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "interfaceTxBytes" |
| tx_errors | The number of transmit errors reported by this interface. <ul style="list-style-type: none"> Type: UInt SNMP name: "interfaceTxErrors" |
| tx_packets | The number of packets transmitted by this interface. <ul style="list-style-type: none"> Type: UInt SNMP name: "interfaceTxPackets" |

Node

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/nodes/node/*

Node statistics values.

| Counter | Description |
|--------------------|--|
| bytes_from_node_hi | Bytes received from this node (high 32bits). <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeBytesFromNodeHi" |
| bytes_from_node_lo | Bytes received from this node (low 32bits). <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeBytesFromNodeLo" |
| bytes_to_node_hi | Bytes sent to this node (high 32bits). <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeBytesToNodeHi" |

| Counter | Description |
|------------------|--|
| bytes_to_node_lo | Bytes sent to this node (low 32bits). <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeBytesToNodeLo" |
| current_conn | Requests currently established to this node. (does not include idle keepalives). <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeCurrentConn" |
| current_requests | Connections currently established to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeCurrentRequests" |
| errors | Number of timeouts, connection problems and other errors for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeErrors" |
| failures | Failures of this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeFailures" |
| new_conn | Requests that created a new connection to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeNewConn" |
| pooled_conn | Requests that reused an existing pooled/keepalive connection rather than creating a new TCP connection. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodePooledConn" |
| port | The port this node listens on. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodePort" |
| response_max | Maximum response time (ms) in the last second for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeResponseMax" |
| response_mean | Mean response time (ms) in the last second for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeResponseMean" |
| response_min | Minimum response time (ms) in the last second for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeResponseMin" |

| Counter | Description |
|------------|---|
| state | <p>The state of this node.</p> <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "nodeState" Permitted values: <ul style="list-style-type: none"> "alive": alive(1) "dead": dead(2) "unknown": unknown(3) |
| total_conn | <p>Requests sent to this node.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeTotalConn" |

Node inet46

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/nodes/node_inet46/*

Node inet46 statistics values.

| Counter | Description |
|------------------|--|
| bytes_from_node | <p>Bytes received from this node.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "nodeInet46BytesFromNode" |
| bytes_to_node | <p>Bytes sent to this node.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "nodeInet46BytesToNode" |
| current_conn | <p>Current connections established to this node, includes idle connections and connections being established.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46CurrentConn" |
| current_requests | <p>Active connections established to this node, does not include idle connections.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46CurrentRequests" |
| errors | <p>Number of timeouts, connection problems and other errors for this node.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46Errors" |
| failures | <p>Failures of this node.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46Failures" |

| Counter | Description |
|---------------|--|
| idle_conns | Number of idle HTTP connections to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46IdleConns" |
| new_conn | Requests that created a new connection to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46NewConn" |
| pooled_conn | Requests that reused an existing pooled/keepalive connection rather than creating a new TCP connection. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46PooledConn" |
| port | The port this node listens on. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46Port" |
| response_max | Maximum response time (ms) in the last second for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46ResponseMax" |
| response_mean | Mean response time (ms) in the last second for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46ResponseMean" |
| response_min | Minimum response time (ms) in the last second for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46ResponseMin" |
| state | The state of this node. <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "nodeInet46State" Permitted values: "alive": alive(1) "dead": dead(2) "unknown": unknown(3) |
| total_conn | Requests sent to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "nodeInet46TotalConn" |

Per location service

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/per_location_service/*

Per location service statistics values.

| Counter | Description |
|----------------|---|
| draining | <p>The draining state of this location for this GLB Service.</p> <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "perLocationServiceDraining" Permitted values: <ul style="list-style-type: none"> "draining": draining(1) "active": active(2) |
| frontend_state | <p>The frontend state of this location for this GLB Service.</p> <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "perLocationServiceFrontendState" Permitted values: <ul style="list-style-type: none"> "alive": alive(1) "dead": dead(2) |
| load | <p>The load metric for this location for this GLB Service.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "perLocationServiceLoad" |
| monitor_state | <p>The monitor state of this location for this GLB Service.</p> <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "perLocationServiceMonitorState" Permitted values: <ul style="list-style-type: none"> "alive": alive(1) "dead": dead(2) |
| responses | <p>Number of A records that have been altered to point to this location for this GLB Service.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "perLocationServiceResponses" |
| state | <p>The state of this location for this GLB Service.</p> <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "perLocationServiceState" Permitted values: <ul style="list-style-type: none"> "alive": alive(1) "dead": dead(2) |

Per node service level

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/per_node_slm/per_node_service_level/*

Per node service level statistics values.

| Counter | Description |
|----------------|---|
| node_port | The port number of this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelNodePort" |
| response_max | Maximum response time (ms) in the last second for this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelResponseMax" |
| response_mean | Mean response time (ms) in the last second for this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelResponseMean" |
| response_min | Minimum response time (ms) in the last second for this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelResponseMin" |
| total_conn | Requests handled by this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelTotalConn" |
| total_non_conf | Non-conforming requests handled by this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelTotalNonConf" |

Per node service level inet46

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/per_node_slm/per_node_service_level_inet46/*

Per node service level inet46 statistics values.

| Counter | Description |
|--------------|---|
| node_port | The port number of this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelInet46NodePort" |
| response_max | Maximum response time (ms) in the last second for this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelInet46ResponseMax" |

| Counter | Description |
|----------------|---|
| response_mean | Mean response time (ms) in the last second for this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelInet46ResponseMean" |
| response_min | Minimum response time (ms) in the last second for this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelInet46ResponseMin" |
| total_conn | Requests handled by this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelInet46TotalConn" |
| total_non_conf | Non-conforming requests handled by this SLM class to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perNodeServiceLevelInet46TotalNonConf" |

Per pool node

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/nodes/per_pool_node/*

Per pool node statistics values.

| Counter | Description |
|------------------|--|
| bytes_from_node | Bytes received from this node. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "perPoolNodeBytesFromNode" |
| bytes_to_node | Bytes sent to this node. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "perPoolNodeBytesToNode" |
| current_conn | Current connections established to a node, includes idle connections and connections being established. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeCurrentConn" |
| current_requests | Active connections established to this node, does not include idle connections. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeCurrentRequests" |
| errors | Number of timeouts, connection problems and other errors for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeErrors" |

| Counter | Description |
|---------------|---|
| failures | Failures of this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeFailures" |
| idle_conns | Number of idle HTTP connections to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeIdleConns" |
| new_conn | Requests that created a new connection to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeNewConn" |
| node_port | The port that this node listens on. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeNodePort" |
| pooled_conn | Requests that reused an existing pooled/keepalive connection rather than creating a new TCP connection. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodePooledConn" |
| response_max | Maximum response time (ms) in the last second for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeResponseMax" |
| response_mean | Mean response time (ms) in the last second for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeResponseMean" |
| response_min | Minimum response time (ms) in the last second for this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeResponseMin" |
| state | The state of this node. <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "perPoolNodeState" Permitted values: "alive": alive(1) "dead": dead(2) "unknown": unknown(3) "draining": draining(4) "drainingtodelete": drainingtodelete(5) |
| total_conn | Requests sent to this node. <ul style="list-style-type: none"> Type: UInt SNMP name: "perPoolNodeTotalConn" |

Pools

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/pools/*

Pools statistics values.

| Counter | Description |
|-------------------|---|
| algorithm | <p>The load-balancing algorithm the pool uses.</p> <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "poolAlgorithm" Permitted values: <ul style="list-style-type: none"> "roundrobin": roundrobin(1) "weightedRoundRobin": weightedRoundRobin(2) "perceptive": perceptive(3) "leastConnections": leastConnections(4) "fastestResponseTime": fastestResponseTime(5) "random": random(6) "weightedLeastConnections": weightedLeastConnections(7) |
| bytes_in | <p>Bytes received by this pool from nodes.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "poolBytesIn" |
| bytes_out | <p>Bytes sent by this pool to nodes.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "poolBytesOut" |
| conns_queued | <p>Total connections currently queued to this pool.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "poolConnsQueued" |
| disabled | <p>The number of nodes in this pool that are disabled.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "poolDisabled" |
| draining | <p>The number of nodes in this pool which are draining.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "poolDraining" |
| http1xx_responses | <p>Number of HTTP 1xx responses returned by this pool.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "poolHTTP1xxResponses" |
| http2xx_responses | <p>Number of HTTP 2xx responses returned by this pool.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "poolHTTP2xxResponses" |
| http3xx_responses | <p>Number of HTTP 3xx responses returned by this pool.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "poolHTTP3xxResponses" |

| Counter | Description |
|-------------------|--|
| http4xx_responses | Number of HTTP 4xx responses returned by this pool. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "poolHTTP4xxResponses" |
| http503_retries | Number of times the pool received an HTTP 503 response from a node and retried it against a different node. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "poolHTTP503Retries" |
| http5xx_responses | Number of HTTP 5xx responses returned by this pool. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "poolHTTP5xxResponses" |
| max_queue_time | Maximum time a connection was queued for, over the last second. <ul style="list-style-type: none"> Type: UInt SNMP name: "poolMaxQueueTime" |
| mean_queue_time | Mean time a connection was queued for, over the last second. <ul style="list-style-type: none"> Type: UInt SNMP name: "poolMeanQueueTime" |
| min_queue_time | Minimum time a connection was queued for, over the last second. <ul style="list-style-type: none"> Type: UInt SNMP name: "poolMinQueueTime" |
| nodes | The number of nodes registered with this pool. <ul style="list-style-type: none"> Type: UInt SNMP name: "poolNodes" |
| persistence | The session persistence method this pool uses <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "poolPersistence" Permitted values: <ul style="list-style-type: none"> "none": none(1) "ip": ip(2) "rule": rule(3) "transparent": transparent(4) "applicationCookie": applicationCookie(5) "xZeusBackend": xZeusBackend(6) "ssl": ssl(7) |
| queue_timeouts | Total connections that timed-out while queued. <ul style="list-style-type: none"> Type: UInt SNMP name: "poolQueueTimeouts" |
| session_migrated | Sessions migrated to a new node because the desired node was unavailable. <ul style="list-style-type: none"> Type: UInt SNMP name: "poolSessionMigrated" |

| Counter | Description |
|------------|---|
| state | <p>The state of this pool.</p> <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "poolState" Permitted values: <ul style="list-style-type: none"> "active": active(1) "disabled": disabled(2) "draining": draining(3) "unused": unused(4) "unknown": unknown(5) |
| total_conn | <p>Requests sent to this pool.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "poolTotalConn" |

Rule authenticators

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/rule_authenticators/*

Rule authenticators statistics values.

| Counter | Description |
|----------|--|
| errors | <p>Number of connection errors that have occurred when trying to connect to an authentication server.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "authenticatorErrors" |
| fails | <p>Number of times this Authenticator has failed to authenticate.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "authenticatorFails" |
| passes | <p>Number of times this Authenticator has successfully authenticated.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "authenticatorPasses" |
| requests | <p>Number of times this Authenticator has been asked to authenticate.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "authenticatorRequests" |

Rules

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/rules/*

Rules statistics values.

| Counter | Description |
|-------------------------|--|
| aborts | Number of times this TrafficScript rule has aborted. <ul style="list-style-type: none"> Type: UInt SNMP name: "ruleAborts" |
| discards | Number of times this TrafficScript rule has discarded the connection. <ul style="list-style-type: none"> Type: UInt SNMP name: "ruleDiscards" |
| execution_time_warnings | Number of times this TrafficScript rule has exceeded the execution time warning threshold. <ul style="list-style-type: none"> Type: UInt SNMP name: "ruleExecutionTimeWarnings" |
| executions | Number of times this TrafficScript rule has been executed. <ul style="list-style-type: none"> Type: UInt SNMP name: "ruleExecutions" |
| pool_select | Number of times this TrafficScript rule has selected a pool to use. <ul style="list-style-type: none"> Type: UInt SNMP name: "rulePoolSelect" |
| responds | Number of times this TrafficScript rule has responded directly to the client. <ul style="list-style-type: none"> Type: UInt SNMP name: "ruleResponds" |
| retries | Number of times this TrafficScript rule has forced the request to be retried. <ul style="list-style-type: none"> Type: UInt SNMP name: "ruleRetries" |

Service level monitors

URI Endpoint: `/api/tm/7.1/status/local_tm/statistics/service_level_monitors/*`

Service level monitors statistics values.

| Counter | Description |
|---------------|--|
| conforming | Percentage of requests associated with this SLM class that are conforming <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceLevelConforming" |
| current_conns | The number of connections currently associated with this SLM class. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceLevelCurrentConns" |

| Counter | Description |
|----------------|---|
| is_o_k | Indicates if this SLM class is currently conforming. <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "serviceLevelIsOK" Permitted values: <ul style="list-style-type: none"> "notok": notok(1) "ok": ok(2) |
| response_max | Maximum response time (ms) in the last second for this SLM class. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceLevelResponseMax" |
| response_mean | Mean response time (ms) in the last second for this SLM class. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceLevelResponseMean" |
| response_min | Minimum response time (ms) in the last second for this SLM class. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceLevelResponseMin" |
| total_conn | Requests handled by this SLM class. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceLevelTotalConn" |
| total_non_conf | Non-conforming requests handled by this SLM class. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceLevelTotalNonConf" |

Service protection

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/service_protection/*

Service protection statistics values.

| Counter | Description |
|-------------------|--|
| last_refusal_time | The time (in hundredths of a second) since this service protection class last refused a connection (this value will wrap if no connections are refused in more than 497 days). <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceProtLastRefusalTime" |
| refusal_binary | Connections refused by this service protection class because the request contained disallowed binary content. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceProtRefusalBinary" |

| Counter | Description |
|-------------------|---|
| refusal_conc10_ip | Connections refused by this service protection class because the top 10 source IP addresses issued too many concurrent connections. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceProtRefusalConc10IP" |
| refusal_conc1_ip | Connections refused by this service protection class because the source IP address issued too many concurrent connections. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceProtRefusalConc1IP" |
| refusal_conn_rate | Connections refused by this service protection class because the source IP address issued too many connections within 60 seconds. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceProtRefusalConnRate" |
| refusal_ip | Connections refused by this service protection class because the source IP address was banned. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceProtRefusalIP" |
| refusal_rfc2396 | Connections refused by this service protection class because the HTTP request was not RFC 2396 compliant. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceProtRefusalRFC2396" |
| refusal_size | Connections refused by this service protection class because the request was larger than the defined limits allowed. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceProtRefusalSize" |
| total_refusal | Connections refused by this service protection class. <ul style="list-style-type: none"> Type: UInt SNMP name: "serviceProtTotalRefusal" |

Ssl cache

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/cache/ssl_cache

Ssl cache statistics values.

| Counter | Description |
|-------------|---|
| entries | The total number of SSL sessions stored in the server cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCacheEntries" |
| entries_max | The maximum number of SSL entries in the server cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCacheEntriesMax" |

| Counter | Description |
|----------|---|
| hit_rate | The percentage of SSL server cache lookups that succeeded. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCacheHitRate" |
| hits | Number of times a SSL entry has been successfully found in the server cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCacheHits" |
| lookups | Number of times a SSL entry has been looked up in the server cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCacheLookups" |
| misses | Number of times a SSL entry has not been available in the server cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCacheMisses" |
| oldest | The age of the oldest SSL session in the server cache (in seconds). <ul style="list-style-type: none"> Type: UInt SNMP name: "sslCacheOldest" |

Ssl ocsdp stapling

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/ssl_ocsp_stapling

Ssl ocsp stapling statistics values.

| Counter | Description |
|---------------|--|
| cache_count | The number of entries in the OCSP stapling cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslOcspStaplingCacheCount" |
| count | The number of outgoing OCSP requests for OCSP stapling. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslOcspStaplingCount" |
| failure_count | The number of failed outgoing OCSP requests for OCSP stapling. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslOcspStaplingFailureCount" |
| good_count | The number of 'good' OCSP responses for OCSP stapling. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslOcspStaplingGoodCount" |
| revoked_count | The number of 'revoked' OCSP responses for OCSP stapling. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslOcspStaplingRevokedCount" |

| Counter | Description |
|---------------|---|
| success_count | The number of successful outgoing OCSP requests for OCSP stapling. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslOcsStaplingSuccessCount" |
| unknown_count | The number of 'unknown' OCSP requests for OCSP stapling. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslOcsStaplingUnknownCount" |

Ssl session cache

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/cache/ssl_session_cache

Ssl session cache statistics values.

| Counter | Description |
|-------------|---|
| entries | The total number of SSL session persistence entries stored in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslSessionCacheEntries" |
| entries_max | The maximum number of SSL session persistence entries in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslSessionCacheEntriesMax" |
| hit_rate | The percentage of SSL session persistence lookups that succeeded. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslSessionCacheHitRate" |
| hits | Number of times a SSL session persistence entry has been successfully found in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslSessionCacheHits" |
| lookups | Number of times a SSL session persistence entry has been looked up in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslSessionCacheLookups" |
| misses | Number of times a SSL session persistence entry has not been available in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "sslSessionCacheMisses" |
| oldest | The age of the oldest SSL session in the cache (in seconds). <ul style="list-style-type: none"> Type: UInt SNMP name: "sslSessionCacheOldest" |

Traffic ip

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/traffic_ips/traffic_ip/*

Traffic ip statistics values.

| Counter | Description |
|---------|---|
| state | Whether this traffic IP address is currently being hosted by this traffic manager. <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "trafficIPState" Permitted values: <ul style="list-style-type: none"> "raised": raised(1) "lowered": lowered(2) |
| time | The time (in hundredths of a second) since trafficIPState last changed (this value will wrap if the state hasn't changed for 497 days). <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPTime" |

Traffic ip inet46

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/traffic_ips/traffic_ip_inet46/*

Traffic ip inet46 statistics values.

| Counter | Description |
|---------|---|
| state | Whether this traffic IP address is currently being hosted by this traffic manager. <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "trafficIPInet46State" Permitted values: <ul style="list-style-type: none"> "raised": raised(1) "lowered": lowered(2) |
| time | The time (in hundredths of a second) since trafficIPState last changed (this value will wrap if the state hasn't changed for 497 days). <ul style="list-style-type: none"> Type: UInt SNMP name: "trafficIPInet46Time" |

Uni session cache

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/cache/uni_session_cache

Uni session cache statistics values.

| Counter | Description |
|-------------|---|
| entries | The total number of universal sessions stored in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "uniSessionCacheEntries" |
| entries_max | The maximum number of universal sessions in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "uniSessionCacheEntriesMax" |
| expiries | Number of times an expired universal session entry has been dropped on lookup. <ul style="list-style-type: none"> Type: UInt SNMP name: "uniSessionCacheExpiries" |
| hit_rate | The percentage of universal session lookups that succeeded. <ul style="list-style-type: none"> Type: UInt SNMP name: "uniSessionCacheHitRate" |
| hits | Number of times a universal session entry has been successfully found in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "uniSessionCacheHits" |
| lookups | Number of times a universal session entry has been looked up in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "uniSessionCacheLookups" |
| misses | Number of times a universal session entry has not been available in the cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "uniSessionCacheMisses" |
| oldest | The age of the oldest universal session in the cache (in seconds). <ul style="list-style-type: none"> Type: UInt SNMP name: "uniSessionCacheOldest" |

User counters 32

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/extras/user_counters_32

User counters 32 statistics values.

| Counter | Description |
|---------|---|
| counter | The value of the user counter. <ul style="list-style-type: none"> Type: UInt SNMP name: "userCounterValue" |

User counters 64

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/extras/user_counters_64

User counters 64 statistics values.

| Counter | Description |
|---------|--|
| counter | <p>The value of the 64-bit user counter.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "userCounter64Value" |

Virtual servers

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/virtual_servers/*

Virtual servers statistics values.

| Counter | Description |
|------------------------------|---|
| auth_saml_redirects | <p>Number of times a user agent was redirected to SAML Identity Provider.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverAuthSamlRedirects" |
| auth_saml_responses | <p>Number of times a SAML Response was processed.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverAuthSamlResponses" |
| auth_saml_responses_accepted | <p>Number of times a SAML Response was accepted.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverAuthSamlResponsesAccepted" |
| auth_saml_responses_rejected | <p>Number of times a SAML Response was rejected.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverAuthSamlResponsesRejected" |
| auth_sessions_created | <p>Number of times an authentication session was created.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverAuthSessionsCreated" |
| auth_sessions_rejected | <p>Number of times an authentication session was rejected.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverAuthSessionsRejected" |
| auth_sessions_used | <p>Number of times an authentication session was used.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverAuthSessionsUsed" |

| Counter | Description |
|-----------------------|---|
| bytes_in | Bytes received by this virtual server from clients. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverBytesIn" |
| bytes_out | Bytes sent by this virtual server to clients. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverBytesOut" |
| cert_status_requests | Number of incoming TLS handshakes for this virtual server with certificate status requests. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverCertStatusRequests" |
| cert_status_responses | Number of incoming TLS handshakes for this virtual server to which certificate status responses were attached. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverCertStatusResponses" |
| connect_timed_out | Connections closed by this virtual server because the 'connect_timeout' interval was exceeded. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverConnectTimedOut" |
| connection_errors | Number of transaction or protocol errors in this virtual server. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverConnectionErrors" |
| connection_failures | Number of connection failures in this virtual server. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverConnectionFailures" |
| current_conn | TCP connections currently established to this virtual server. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverCurrentConn" |
| data_timed_out | Connections closed by this virtual server because the 'timeout' interval was exceeded. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverDataTimedOut" |
| direct_replies | Direct replies from this virtual server, without forwarding to a node. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverDirectReplies" |
| discard | Connections discarded by this virtual server. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverDiscard" |
| gzip | Responses which have been compressed by content compression. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverGzip" |

| Counter | Description |
|-------------------------|--|
| gzip_bytes_saved | Bytes of network traffic saved by content compression. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverGzipBytesSaved" |
| http1xx_responses | Number of HTTP 1xx responses returned by this virtual server. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTP1xxResponses" |
| http2xx_responses | Number of HTTP 2xx responses returned by this virtual server. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTP2xxResponses" |
| http3xx_responses | Number of HTTP 3xx responses returned by this virtual server. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTP3xxResponses" |
| http4xx_responses | Number of HTTP 4xx responses returned by this virtual server. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTP4xxResponses" |
| http5xx_responses | Number of HTTP 5xx responses returned by this virtual server. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTP5xxResponses" |
| http_cache2xx_responses | Number of HTTP 2xx responses returned from webcache by this virtual server. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPCache2xxResponses" |
| http_cache3xx_responses | Number of HTTP 3xx responses returned from webcache by this virtual server. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPCache3xxResponses" |
| http_cache4xx_responses | Number of HTTP 4xx responses returned from webcache by this virtual server. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPCache4xxResponses" |
| http_cache5xx_responses | Number of HTTP 5xx responses returned from webcache by this virtual server. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPCache5xxResponses" |
| http_cache_hit_rate | Percentage hit rate of the web cache for this virtual server. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverHttpCacheHitRate" |
| http_cache_hits | HTTP responses sent directly from the web cache by this virtual server. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverHttpCacheHits" |

| Counter | Description |
|-----------------------------|---|
| http_cache_lookups | <p>HTTP requests that are looked up in the web cache by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverHttpCacheLookups" |
| http_generated2xx_responses | <p>Number of HTTP 2xx responses generated by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPGenerated2xxResponses" |
| http_generated3xx_responses | <p>Number of HTTP 3xx responses generated by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPGenerated3xxResponses" |
| http_generated4xx_responses | <p>Number of HTTP 4xx responses generated by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPGenerated4xxResponses" |
| http_generated5xx_responses | <p>Number of HTTP 5xx responses generated by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPGenerated5xxResponses" |
| http_rewrite_cookie | <p>HTTP Set-Cookie headers, supplied by a node, that have been rewritten.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverHttpRewriteCookie" |
| http_rewrite_location | <p>HTTP Location headers, supplied by a node, that have been rewritten.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverHttpRewriteLocation" |
| http_server1xx_responses | <p>Number of HTTP 1xx responses returned from a backend server or TrafficScript rule by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPServer1xxResponses" |
| http_server2xx_responses | <p>Number of HTTP 2xx responses returned from a backend server or TrafficScript rule by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPServer2xxResponses" |
| http_server3xx_responses | <p>Number of HTTP 3xx responses returned from a backend server or TrafficScript rule by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPServer3xxResponses" |
| http_server4xx_responses | <p>Number of HTTP 4xx responses returned from a backend server or TrafficScript rule by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPServer4xxResponses" |

| Counter | Description |
|--------------------------|---|
| http_server5xx_responses | <p>Number of HTTP 5xx responses returned from a backend server or TrafficScript rule by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverHTTPServer5xxResponses" |
| keepalive_timed_out | <p>Connections closed by this virtual server because the 'keepalive_timeout' interval was exceeded.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverKeepaliveTimedOut" |
| max_conn | <p>Maximum number of simultaneous TCP connections this virtual server has processed at any one time.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverMaxConn" |
| max_duration_timed_out | <p>Connections closed by this virtual server because the 'max_transaction_duration' interval was exceeded.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverMaxDurationTimedOut" |
| port | <p>The port the virtual server listens on.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverPort" |
| processing_timed_out | <p>Connections closed by this virtual server because the 'timeout' interval was exceeded while waiting for rules or external processing.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverProcessingTimedOut" |

| Counter | Description |
|-----------------------|---|
| protocol | <p>The protocol the virtual server is operating.</p> <ul style="list-style-type: none"> Type: Enum(String) SNMP name: "virtualserverProtocol" Permitted values: <p>"http": http(1)</p> <p>"https": https(2)</p> <p>"ftp": ftp(3)</p> <p>"imaps": imaps(4)</p> <p>"imapv2": imapv2(5)</p> <p>"imapv3": imapv3(6)</p> <p>"imapv4": imapv4(7)</p> <p>"pop3": pop3(8)</p> <p>"pop3s": pop3s(9)</p> <p>"smtp": smtp(10)</p> <p>"ldap": ldap(11)</p> <p>"ldaps": ldaps(12)</p> <p>"telnet": telnet(13)</p> <p>"sslforwarding": sslforwarding(14)</p> <p>"udpstreaming": udpstreaming(15)</p> <p>"udp": udp(16)</p> <p>"dns": dns(17)</p> <p>"genericserverfirst": genericserverfirst(18)</p> <p>"genericclientfirst": genericclientfirst(19)</p> <p>"dnstcp": dnstcp(20)</p> <p>"sipudp": sipudp(21)</p> <p>"siptcp": siptcp(22)</p> <p>"rtsp": rtsp(23)</p> <p>"stream": stream(24)</p> <p>"l4accltcp": l4accltcp(25)</p> <p>"l4accludp": l4accludp(26)</p> <p>"l4acclgeneric": l4acclgeneric(27)</p> <p>"l4acclstateless": l4acclstateless(28)</p> |
| sip_rejected_requests | <p>Number of SIP requests rejected due to them exceeding the maximum amount of memory allocated to the connection.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverSIPRejectedRequests" |

| Counter | Description |
|---------------------------|--|
| sip_total_calls | Total number of SIP INVITE requests seen by this virtual server. <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverSIPTotalCalls" |
| ssl_cache_lookup | Number of times a lookup for an existing SSL session was performed. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslCacheLookup" |
| ssl_cache_miss | Number of times a lookup failed to find an existing SSL session. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslCacheMiss" |
| ssl_cache_rejected | Number of times an SSL session was found in the cache but rejected and not resumed. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslCacheRejected" |
| ssl_cache_resumed | Number of times an SSL session was resumed from the cache. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslCacheResumed" |
| ssl_cache_saved | Number of times an SSL session was saved to the cache. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslCacheSaved" |
| ssl_hello_retry_requested | Number of times a HelloRetryRequest message was sent to TLS clients. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslHelloRetryRequested" |
| ssl_new_session | Number of times a new SSL session was created. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslNewSession" |
| ssl_ticket_expired | Number of SSL session tickets that were rejected because they had expired. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslTicketExpired" |
| ssl_ticket_issued | Number of SSL session tickets that were issued to clients. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslTicketIssued" |
| ssl_ticket_key_not_found | Number of SSL session tickets that could not be decrypted because the ticket key they referenced could not be found. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslTicketKeyNotFound" |
| ssl_ticket_received | Number of SSL session tickets received. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslTicketReceived" |

| Counter | Description |
|----------------------|---|
| ssl_ticket_rejected | <p>Number of SSL session tickets that were rejected for a reason other than because they had expired.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslTicketRejected" |
| ssl_ticket_resumed | <p>Number of SSL session tickets that were successfully used to resume a session.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverSslTicketResumed" |
| total_dgram | <p>UDP datagrams processed by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverTotalDgram" |
| total_http1_requests | <p>HTTP/1.x Requests received by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverTotalHTTP1Requests" |
| total_http2_requests | <p>HTTP/2 Requests received by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverTotalHTTP2Requests" |
| total_http_requests | <p>HTTP Requests received by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverTotalHTTPRequests" |
| total_requests | <p>Requests received by this virtual server.</p> <ul style="list-style-type: none"> Type: UInt64 SNMP name: "virtualserverTotalRequests" |
| udp_timed_out | <p>Connections closed by this virtual server because the 'udp_timeout' interval was exceeded.</p> <ul style="list-style-type: none"> Type: UInt SNMP name: "virtualserverUdpTimedOut" |

Web cache

URI Endpoint: /api/tm/7.1/status/local_tm/statistics/cache/web_cache

Web cache statistics values.

| Counter | Description |
|-----------------------------|---|
| entries | The number of items in the web cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "webCacheEntries" |
| hit_rate | The percentage of web cache lookups that succeeded. <ul style="list-style-type: none"> Type: UInt SNMP name: "webCacheHitRate" |
| hits | Number of times a page has been successfully found in the web cache. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "webCacheHits" |
| lookups | Number of times a page has been looked up in the web cache. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "webCacheLookups" |
| max_entries | The maximum number of items in the web cache. <ul style="list-style-type: none"> Type: UInt SNMP name: "webCacheMaxEntries" |
| mem_maximum | The maximum amount of memory the web cache can use in kilobytes. <ul style="list-style-type: none"> Type: UInt SNMP name: "webCacheMemMaximum" |
| mem_used | Total memory used by the web cache in kilobytes. <ul style="list-style-type: none"> Type: UInt SNMP name: "webCacheMemUsed" |
| misses | Number of times a page has not been found in the web cache. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "webCacheMisses" |
| oldest | The age of the oldest item in the web cache (in seconds). <ul style="list-style-type: none"> Type: UInt SNMP name: "webCacheOldest" |
| url_store_allocated | Amount of allocated space in the web cache URL store. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "webCacheURLStoreAllocated" |
| url_store_free | Amount of free space in the web cache URL store. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "webCacheURLStoreFree" |
| url_store_size | Total amount of space in the web cache URL store. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "webCacheURLStoreSize" |
| url_store_total_allocations | Total number of allocations for the web cache URL store. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "webCacheURLStoreTotalAllocations" |

| Counter | Description |
|--------------------------|--|
| url_store_total_failures | Total number of allocation failures for the web cache URL store. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "webCacheURLStoreTotalFailures" |
| url_store_total_frees | Total number of blocks freed in the web cache URL store. <ul style="list-style-type: none"> Type: UInt64 SNMP name: "webCacheURLStoreTotalFrees" |

System Information Resources

Backups

URI Endpoint: /api/tm/7.1/status/local_tm/backups/full/*

Full backups.

| Property | Description |
|--------------------------------------|--|
| Properties for the "backup" section: | |
| description | Description of the backup <ul style="list-style-type: none"> Type: String |
| time_stamp | Time the backup was created. Expressed as a UTC value. <ul style="list-style-type: none"> Type: Int |
| version | Version of the traffic manager used to create the backup <ul style="list-style-type: none"> Type: String |

Information

URI Endpoint: /api/tm/7.1/status/local_tm/information

Static information for the system.

| Property | Description |
|----------|---|
| platform | The type of platform on which the Traffic Manager instance is running on. <ul style="list-style-type: none"> Type: String |

| Property | Description |
|------------|---|
| tm_version | Version number of the Traffic Manager instance. • Type: String |
| uuid | The universally unique identifier for the Traffic Manager instance. • Type: String |

State

URI Endpoint: /api/tm/7.1/status/local_tm/state

State information for the traffic manager.

| Property | Description |
|-------------------------------------|--|
| Properties for the "state" section: | |
| error_level | The error_level of the traffic manager. • Type: Enum(String) • Permitted values: "ok": System has no problems "warn": System has minor issues "error": System has major issues "fatal": System has issues which causes it to die/crash/fail to startup |
| errors | List of configuration errors for the traffic manager • Type: Set(String) |
| failed_nodes | A table of nodes which have failed on the traffic manager • Type: Table • Required: false • Primary key: - node (String): A node which has failed (Required) • Sub keys: - pools (Set(String)): List of pools which use this node. |
| license | Current active license or Community_Edition • Type: String |

| Property | Description |
|-----------------|---|
| pools | <ul style="list-style-type: none"> • Type: Table • Required: false • Primary key: <ul style="list-style-type: none"> - name (String): Name of the pool (Required) • Sub keys: <ul style="list-style-type: none"> - failure_pool (String): Failure pool associated with this pool. - active_nodes (Set(String)): List of nodes which are in the active state. - draining_nodes (Set(String)): List of nodes which are in the draining state. - disabled_nodes (Set(String)): List of nodes which are in the disabled state. |
| tip_errors | List of traffic IP errors for the traffic manager <ul style="list-style-type: none"> • Type: Set(String) |
| virtual_servers | A table of virtual server status <ul style="list-style-type: none"> • Type: Table • Required: false • Primary key: <ul style="list-style-type: none"> - name (String): Name of the virtual server (Required) • Sub keys: <ul style="list-style-type: none"> - pool (String): Pool associated with this virtual server. - port (UInt): Port the virtual server listens on. - throughput (UInt64): Through put for the virtual server. - ts_redirect_pools (Set(String)): List of pools which may be selected by Traffic Script Request Rules. |

APPENDIX A

Handling Updates to the REST API

This appendix contains the following sections:

- [REST API Support in the Traffic Manager..... 219](#)
- [Updating Your Applications to Use a New Version of the API..... 220](#)

REST API Support in the Traffic Manager

The Traffic Manager typically supports several major versions of its REST API in any one release, and can additionally support several minor versions of each major version. The Traffic Manager employs this system to facilitate upgrading from an older supported version to a newer version with the least possible constraints on development time. Pulse Secure operates a policy of always warning about the impending removal of an API version in the release notes of the preceding Traffic Manager release.

The REST API version number is split into a major and minor component, and is two sets of digits separated by a dot. Using BNF notation, the follows rules apply:

```
<REST API version> ::= <major> "." <minor>
<major> ::= <non-negative integer>
<minor> ::= <non-negative integer>
```

Pulse Secure typically increments the version number in each release of the Traffic Manager, with the extent of the increment dependent on the changes introduced to the API since the preceding release. A significant API update necessitates incrementing the major component of the version number (with the minor version reset to 0). For example, from 3.4 to 4.0. A smaller API change increments only the minor component by 1, for example, from 3.4 to 3.5.

Major changes typically occur in the following situations:

- Removing or renaming a resource.
- Removing or renaming a property within a resource.
- Adding a property without a default to an existing resource.

Minor changes typically occur in the following situations:

- Adding a new resource to the API.
- Adding a new property with a default value to an existing JSON resource.

For more information, contact Pulse Secure Technical Support.

Updating Your Applications to Use a New Version of the API

If you are considering adopting a new version of the Traffic Manager REST API for your existing scripts and applications, Pulse Secure strongly recommends you take the following steps in order to minimize the impact of the update:

- Avoid hard-coding the API version number in multiple places in a script or application.
- Avoid mixing requests to different major API versions across a single Traffic Manager cluster. For example, it is unsafe to access a resource at a 3.x API version in one script and a 4.x API version in another.

Changes Involving a Minor API Update

For upgrades involving a minor increment to a currently used major version, for example 3.4 to 3.5, PUTs and GETs made to the previous API version are expected to operate as intended with the newer API version. Pulse Secure recommends you verify that the client behaves as expected when any new keys or resources are returned.

Changes Involving a Major API Update

For upgrades involving a new major API version, for example 3.11 to 4.0, first audit your scripts and applications to determine the list of resources and properties you are accessing. Next, refer to [“REST API Change History” on page 221](#) for the change history since your current version up to and including the desired new version. Compare your set of accessed resources and properties to the changes listed and note where a resource or properties has been affected, with specific reference to any renames or deletes. Finally, modify your scripts and applications accordingly.

APPENDIX B

REST API Change History

Pulse Secure Virtual Traffic Manager release 19.3 includes version 7.1 of the REST API.

This appendix lists the changes introduced in each supported API version. Applications that were developed against older versions of the Traffic Manager REST API might be affected by the updates listed here. Use the information contained in this appendix to identify the necessary updates.

This appendix contains the following sections:

| | |
|---------------------------------|-----|
| • Changes in Version 7.1 | 221 |
| • Changes in Version 7.0 | 221 |
| • Changes in Version 6.2 | 222 |
| • Changes in Version 6.1 | 223 |
| • Changes in Version 6.0 | 224 |
| • Changes in Version 5.2 | 240 |
| • Changes in Version 5.1 | 240 |
| • Changes in Version 5.0 | 242 |
| • Changes in Version 4.0 | 247 |
| • Changes in Version 3.11 | 250 |
| • Changes in Version 3.10 | 251 |
| • Changes in Version 3.9 | 251 |
| • Changes in Version 3.8 | 253 |
| • Changes in Version 3.7 | 254 |
| • Changes in Version 3.6 | 255 |
| • Changes in Version 3.5 | 255 |
| • Changes in Version 3.4 | 257 |
| • Changes in Version 3.3 | 258 |
| • Changes in Version 3.2 | 259 |
| • Changes in Version 3.1 | 260 |
| • Changes in Version 3.0 | 261 |

Changes in Version 7.1

The following properties in 'Global Settings' (/api/tm/7.1/config/active/global_settings) have been added:

- Property 'basic/http2_conn_frame_queue_limit' was added.

Changes in Version 7.0

The following properties in 'Ip session cache' (/api/tm/7.0/status/local_tm/statistics/cache/ip_session_cache) have been added:

- Property 'statistics/expiries' was added.

The following properties in 'J2ee session cache' (/api/tm/7.0/status/local_tm/statistics/cache/j2ee_session_cache) have been added:

- Property 'statistics/expiries' was added.

The following properties in 'Virtual Server' (/api/tm/7.0/config/active/virtual_servers) have been added:

- Property 'sip/udp_associate_by_source' was added.

The following properties in 'Uni session cache' (/api/tm/7.0/status/local_tm/statistics/cache/uni_session_cache) have been added:

- Property 'statistics/expiries' was added.

The following properties in 'Global Settings' (/api/tm/7.0/config/active/global_settings) have been added:

- Property 'session/ip_cache_expiry' was added.
- Property 'session/j2ee_cache_expiry' was added.
- Property 'session/universal_cache_expiry' was added.

The following properties in 'Global Settings' (/api/tm/7.0/config/active/global_settings) have been removed:

- Property 'admin/ssl_prevent_timing_side_channels' was removed.
- Property 'ssl/prevent_timing_side_channels' was removed.

Changes in Version 6.2

The following properties in 'Traffic Manager' (/api/tm/6.2/config/active/traffic_managers) have been added:

- Property 'appliance/managedroutes' was added.
- Property 'appliance/manageresolved' was added.
- Property 'remote_licensing/is_template' was added.
- Property 'remote_licensing/registration_identifier' was added.
- Property 'soap/max_requests' was added.

The following properties in 'Global Settings' (/api/tm/6.2/config/active/global_settings) have been added:

- Property 'gce/action_timeout' was added.
- Property 'remote_licensing/comm_channel_enabled' was added.
- Property 'remote_licensing/comm_channel_port' was added.
- Property 'remote_licensing/server_certificate_secondary' was added.
- Property 'rest_api/maxfds' was added.
- Property 'ssl/middlebox_compatibility' was added.
- Property 'watchdog/timeout' was added.

The following properties in 'Information' (/api/tm/6.2/status/local_tm/information) have been added:

- Property 'information/platform' was added.

The following properties in 'Pool' (/api/tm/6.2/config/active/pools) have been added:

- Property 'connection/max_transactions_per_node' was added.
- Property 'ssl/middlebox_compatibility' was added.
- Property 'ssl/ssl_fixed_client_certificate' was added.
- Property 'ssl/support_tls1_3' was added.

Changes in Version 6.1

The following properties in 'Session Persistence Class' (/api/tm/6.1/config/active/persistence) have been added:

- Property 'basic/transparent_always_set_cookie' was added.
- Property 'basic/transparent_directives' was added.

The following properties in 'Virtual Server' (/api/tm/6.1/config/active/virtual_servers) have been added:

- Property 'ssl/support_tls1_3' was added.

The following properties in 'Globals' (/api/tm/6.1/status/local_tm/statistics/globals) have been added:

- Property 'statistics/ssl_handshake_tlsv13' was added.

The following properties in 'Virtual servers' (/api/tm/6.1/status/local_tm/statistics/virtual_servers/*) have been added:

- Property 'statistics/ssl_hello_retry_requested' was added.

The following properties in 'Global Settings' (/api/tm/6.1/config/active/global_settings) have been added:

- Property 'admin/support_tls1_3' was added.
- Property 'fault_tolerance/multicast_version' was added.
- Property 'ssl/log_keys' was added.
- Property 'ssl/support_tls1_3' was added.
- Property 'telemetry/autotest_schedule' was added.

The following properties in 'Traffic Manager' (/api/tm/6.1/config/active/traffic_managers) have been renamed:

- Property 'basic/developer_mode_accepted' was renamed to 'basic/community_edition_accepted'.

Changes in Version 6.0

The following properties in 'Virtual Server' (/api/tm/6.0/config/active/virtual_servers) have been added:

- Property 'basic/proxy_protocol_optional' was added.

The following properties in 'Pools' (/api/tm/6.0/status/local_tm/statistics/pools/*) have been added:

- Property 'statistics/http1xx_responses' was added.
- Property 'statistics/http2xx_responses' was added.
- Property 'statistics/http3xx_responses' was added.
- Property 'statistics/http4xx_responses' was added.
- Property 'statistics/http503_retries' was added.
- Property 'statistics/http5xx_responses' was added.

The following properties in 'GLB Service' (/api/tm/6.0/config/active/glb_services) have been added:

- Property 'basic/optimistic_location_health' was added.

The following properties in 'Virtual servers' (/api/tm/6.0/status/local_tm/statistics/virtual_servers/*) have been added:

- Property 'statistics/http1xx_responses' was added.
- Property 'statistics/http2xx_responses' was added.

- Property 'statistics/http3xx_responses' was added.
- Property 'statistics/http4xx_responses' was added.
- Property 'statistics/http5xx_responses' was added.
- Property 'statistics/http_cache2xx_responses' was added.
- Property 'statistics/http_cache3xx_responses' was added.
- Property 'statistics/http_cache4xx_responses' was added.
- Property 'statistics/http_cache5xx_responses' was added.
- Property 'statistics/http_generated2xx_responses' was added.
- Property 'statistics/http_generated3xx_responses' was added.
- Property 'statistics/http_generated4xx_responses' was added.
- Property 'statistics/http_generated5xx_responses' was added.
- Property 'statistics/http_server1xx_responses' was added.
- Property 'statistics/http_server2xx_responses' was added.
- Property 'statistics/http_server3xx_responses' was added.
- Property 'statistics/http_server4xx_responses' was added.
- Property 'statistics/http_server5xx_responses' was added.

The following properties in 'Traffic Manager' (/api/tm/6.0/config/active/traffic_managers) have been added:

- Property 'appliance/dnscache' was added.
- Property 'appliance/dnssec' was added.

The following properties in 'Web cache' (/api/tm/6.0/status/local_tm/statistics/cache/web_cache) have been removed:

- Property 'statistics/hits_hi' was removed.
- Property 'statistics/hits_lo' was removed.
- Property 'statistics/lookups_hi' was removed.
- Property 'statistics/lookups_lo' was removed.
- Property 'statistics/misses_hi' was removed.
- Property 'statistics/misses_lo' was removed.

The following properties in 'Pools' (/api/tm/6.0/status/local_tm/statistics/pools/*) have been removed:

- Property 'statistics/bw_limit_bytes_drop' was removed.

- Property 'statistics/bw_limit_bytes_drop_hi' was removed.
- Property 'statistics/bw_limit_bytes_drop_lo' was removed.
- Property 'statistics/bw_limit_pkts_drop' was removed.
- Property 'statistics/bw_limit_pkts_drop_hi' was removed.
- Property 'statistics/bw_limit_pkts_drop_lo' was removed.
- Property 'statistics/bytes_in_hi' was removed.
- Property 'statistics/bytes_in_lo' was removed.
- Property 'statistics/bytes_out_hi' was removed.
- Property 'statistics/bytes_out_lo' was removed.

The following properties in 'Globals' (/api/tm/6.0/status/local_tm/statistics/globals) have been removed:

- Property 'statistics/ssl_handshake_sslv2' was removed.
- Property 'statistics/ssl_session_id_disk_cache_hit' was removed.
- Property 'statistics/ssl_session_id_disk_cache_miss' was removed.
- Property 'statistics/total_bytes_in_hi' was removed.
- Property 'statistics/total_bytes_in_lo' was removed.
- Property 'statistics/total_bytes_out_hi' was removed.
- Property 'statistics/total_bytes_out_lo' was removed.

The following properties in 'State' (/api/tm/6.0/status/local_tm/state) have been removed:

- Property 'data_plane_acceleration/capable' was removed.
- Property 'data_plane_acceleration/configured' was removed.
- Property 'data_plane_acceleration/failed_to_start' was removed.
- Property 'data_plane_acceleration/running' was removed.

The following properties in 'Bandwidth' (/api/tm/6.0/status/local_tm/statistics/bandwidth/*) have been removed:

- Property 'statistics/bytes_drop' was removed.
- Property 'statistics/bytes_drop_hi' was removed.
- Property 'statistics/bytes_drop_lo' was removed.
- Property 'statistics/bytes_out_hi' was removed.
- Property 'statistics/bytes_out_lo' was removed.

- Property 'statistics/pkts_drop' was removed.
- Property 'statistics/pkts_drop_hi' was removed.
- Property 'statistics/pkts_drop_lo' was removed.

The following properties in 'Node inet46' (/api/tm/6.0/status/local_tm/statistics/nodes/node_inet46/*) have been removed:

- Property 'statistics/bytes_from_node_hi' was removed.
- Property 'statistics/bytes_from_node_lo' was removed.
- Property 'statistics/bytes_to_node_hi' was removed.
- Property 'statistics/bytes_to_node_lo' was removed.

The following properties in 'Virtual Server' (/api/tm/6.0/config/active/virtual_servers) have been removed:

- Property 'basic/bypass_data_plane_acceleration' was removed.
- Property 'l4accel/rst_on_service_failure' was removed.
- Property 'l4accel/service_ip_snat' was removed.
- Property 'l4accel/state_sync' was removed.
- Property 'l4accel/tcp_msl' was removed.
- Property 'l4accel/timeout' was removed.
- Property 'l4accel/udp_count_requests' was removed.
- Property 'l4stateless/initial_ring_size' was removed.
- Property 'l4stateless/num_replicas' was removed.
- Property 'udp/udp_end_transaction' was removed.

The following properties in 'Per pool node' (/api/tm/6.0/status/local_tm/statistics/nodes/per_pool_node/*) have been removed:

- Property 'statistics/bytes_from_node_hi' was removed.
- Property 'statistics/bytes_from_node_lo' was removed.
- Property 'statistics/bytes_to_node_hi' was removed.
- Property 'statistics/bytes_to_node_lo' was removed.
- Property 'statistics/l4_stateless_buckets' was removed.
- Property 'statistics/pkts_from_node' was removed.
- Property 'statistics/pkts_from_node_hi' was removed.

- Property 'statistics/pkts_from_node_lo' was removed.
- Property 'statistics/pkts_to_node' was removed.
- Property 'statistics/pkts_to_node_hi' was removed.
- Property 'statistics/pkts_to_node_lo' was removed.

The following properties in 'Virtual servers' (/api/tm/6.0/status/local_tm/statistics/virtual_servers/*) have been removed:

- Property 'statistics/auth_saml_redirects_hi' was removed.
- Property 'statistics/auth_saml_redirects_lo' was removed.
- Property 'statistics/auth_saml_responses_accepted_hi' was removed.
- Property 'statistics/auth_saml_responses_accepted_lo' was removed.
- Property 'statistics/auth_saml_responses_hi' was removed.
- Property 'statistics/auth_saml_responses_lo' was removed.
- Property 'statistics/auth_saml_responses_rejected_hi' was removed.
- Property 'statistics/auth_saml_responses_rejected_lo' was removed.
- Property 'statistics/auth_sessions_created_hi' was removed.
- Property 'statistics/auth_sessions_created_lo' was removed.
- Property 'statistics/auth_sessions_rejected_hi' was removed.
- Property 'statistics/auth_sessions_rejected_lo' was removed.
- Property 'statistics/auth_sessions_used_hi' was removed.
- Property 'statistics/auth_sessions_used_lo' was removed.
- Property 'statistics/bw_limit_bytes_drop' was removed.
- Property 'statistics/bw_limit_bytes_drop_hi' was removed.
- Property 'statistics/bw_limit_bytes_drop_lo' was removed.
- Property 'statistics/bw_limit_pkts_drop' was removed.
- Property 'statistics/bw_limit_pkts_drop_hi' was removed.
- Property 'statistics/bw_limit_pkts_drop_lo' was removed.
- Property 'statistics/bytes_in_hi' was removed.
- Property 'statistics/bytes_in_lo' was removed.
- Property 'statistics/bytes_out_hi' was removed.
- Property 'statistics/bytes_out_lo' was removed.
- Property 'statistics/gzip_bytes_saved_hi' was removed.
- Property 'statistics/gzip_bytes_saved_lo' was removed.

- Property 'statistics/pkts_in' was removed.
- Property 'statistics/pkts_in_hi' was removed.
- Property 'statistics/pkts_in_lo' was removed.
- Property 'statistics/pkts_out' was removed.
- Property 'statistics/pkts_out_hi' was removed.
- Property 'statistics/pkts_out_lo' was removed.
- Property 'statistics/ssl_cache_lookup_hi' was removed.
- Property 'statistics/ssl_cache_lookup_lo' was removed.
- Property 'statistics/ssl_cache_miss_hi' was removed.
- Property 'statistics/ssl_cache_miss_lo' was removed.
- Property 'statistics/ssl_cache_rejected_hi' was removed.
- Property 'statistics/ssl_cache_rejected_lo' was removed.
- Property 'statistics/ssl_cache_resumed_hi' was removed.
- Property 'statistics/ssl_cache_resumed_lo' was removed.
- Property 'statistics/ssl_cache_saved_hi' was removed.
- Property 'statistics/ssl_cache_saved_lo' was removed.
- Property 'statistics/ssl_new_session_hi' was removed.
- Property 'statistics/ssl_new_session_lo' was removed.
- Property 'statistics/ssl_ticket_expired_hi' was removed.
- Property 'statistics/ssl_ticket_expired_lo' was removed.
- Property 'statistics/ssl_ticket_issued_hi' was removed.
- Property 'statistics/ssl_ticket_issued_lo' was removed.
- Property 'statistics/ssl_ticket_key_not_found_hi' was removed.
- Property 'statistics/ssl_ticket_key_not_found_lo' was removed.
- Property 'statistics/ssl_ticket_received_hi' was removed.
- Property 'statistics/ssl_ticket_received_lo' was removed.
- Property 'statistics/ssl_ticket_rejected_hi' was removed.
- Property 'statistics/ssl_ticket_rejected_lo' was removed.
- Property 'statistics/ssl_ticket_resumed_hi' was removed.
- Property 'statistics/ssl_ticket_resumed_lo' was removed.
- Property 'statistics/total_conn' was removed.
- Property 'statistics/total_http1_requests_hi' was removed.
- Property 'statistics/total_http1_requests_lo' was removed.

- Property 'statistics/total_http2_requests_hi' was removed.
- Property 'statistics/total_http2_requests_lo' was removed.
- Property 'statistics/total_http_requests_hi' was removed.
- Property 'statistics/total_http_requests_lo' was removed.
- Property 'statistics/total_requests_hi' was removed.
- Property 'statistics/total_requests_lo' was removed.
- Property 'statistics/total_tcp_reset' was removed.
- Property 'statistics/total_udp_unreachables' was removed.

The following properties in 'Global Settings' (/api/tm/6.0/config/active/global_settings) have been removed:

- Property 'basic/data_plane_acceleration_cores' was removed.
- Property 'basic/data_plane_acceleration_mode' was removed.
- Property 'data_plane_acceleration/tcp_delay_ack' was removed.
- Property 'data_plane_acceleration/tcp_win_scale' was removed.
- Property 'fault_tolerance/l4accel_child_timeout' was removed.
- Property 'fault_tolerance/l4accel_sync_port' was removed.
- Property 'l4accel/max_concurrent_connections' was removed.
- Property 'source_nat/clist_locks' was removed.
- Property 'source_nat/ip_limit' was removed.
- Property 'source_nat/ip_local_port_range_high' was removed.
- Property 'source_nat/portmaphashtable_locks' was removed.
- Property 'source_nat/shared_pool_size' was removed.

The following properties in 'Listen ips' (/api/tm/6.0/status/local_tm/statistics/listen_ips/*) have been removed:

- Property 'statistics/bytes_in_hi' was removed.
- Property 'statistics/bytes_in_lo' was removed.
- Property 'statistics/bytes_out_hi' was removed.
- Property 'statistics/bytes_out_lo' was removed.
- Property 'statistics/total_conn' was removed.
- Property 'statistics/total_requests_hi' was removed.
- Property 'statistics/total_requests_lo' was removed.

The following properties in 'Ip gateway' (/api/tm/6.0/status/local_tm/statistics/traffic_ips/ip_gateway) have been removed:

- Property 'statistics/number' was removed.
- Property 'statistics/number_raised' was removed.

The following properties in 'Pool' (/api/tm/6.0/config/active/pools) have been removed:

- Property 'l4accel/snat' was removed.

The following properties in 'Traffic IP Group' (/api/tm/6.0/config/active/traffic_ip_groups) have been removed:

- Property 'basic/backend_traffic_ips' was removed.

The following properties in 'Traffic Manager' (/api/tm/6.0/config/active/traffic_managers) have been removed:

- Property 'appliance/managedpa' was removed.
- Property 'basic/num_l4_children' was removed.
- Property 'basic/num_l7_children' was removed.
- Property 'fault_tolerance/lss_dedicated_ips' was removed.
- Property 'iop/enable_lb' was removed.
- Property 'iop/is_standalone' was removed.
- Property 'iop/l4_event_driven_mode' was removed.
- Property 'iop/l7_event_driven_mode' was removed.
- Property 'iop/linux_interface' was removed.
- Property 'iop/num_hugepages' was removed.
- Property 'iop/num_mbufs_per_mpool' was removed.
- Property 'iop/send_to_linux' was removed.
- Property 'iop/size_hugepage' was removed.

The following properties in 'Network interface' (/api/tm/6.0/status/local_tm/statistics/network_interface/*) have been removed:

- Property 'statistics/rx_bytes_hi' was removed.
- Property 'statistics/rx_bytes_lo' was removed.
- Property 'statistics/tx_bytes_hi' was removed.
- Property 'statistics/tx_bytes_lo' was removed.

The following properties for 'Monitor' (/api/tm/6.0/config/active/monitors) have had flags change:

- Property 'basic/machine' has had the following flags added: [HTML]
- Property 'basic/scope' has had the following flags added: [HTML]
- Property 'http/authentication' has had the following flags added: [HTML]
- Property 'http/body_regex' has had the following flags added: [HTML]
- Property 'http/path' has had the following flags added: [HTML]
- Property 'http/status_regex' has had the following flags added: [HTML]
- Property 'script/program' has had the following flags added: [HTML]
- Table property 'script/arguments' field 'description' has had the following flags added: [HTML]
- Table property 'script/arguments' field 'value' has had the following flags added: [HTML]

The following properties for 'Virtual Server' (/api/tm/6.0/config/active/virtual_servers) have had flags change:

- Property 'auth/saml_idp' has had the following flags added: [HTML]
- Property 'basic/connect_timeout' has had the following flags added: [HTML]
- Property 'basic/max_concurrent_connections' has had the following flags added: [HTML]
- Property 'connection/keepalive_timeout' has had the following flags added: [HTML]
- Property 'connection/max_client_buffer' has had the following flags added: [HTML]
- Property 'connection/max_server_buffer' has had the following flags added: [HTML]
- Property 'connection/max_transaction_duration' has had the following flags added: [HTML]
- Property 'connection/timeout' has had the following flags added: [HTML]
- Property 'connection_errors/error_file' has had the following flags added: [HTML]
- Property 'ftp/data_source_port' has had the following flags added: [HTML]
- Property 'http/location_replace' has had the following flags added: [HTML]
- Property 'http/location_rewrite' has had the following flags added: [HTML]
- Property 'http2/connect_timeout' has had the following flags added: [HTML]
- Property 'http2/headers_index_default' has had the following flags added: [HTML]
- Property 'http2/headers_index_whitelist' has had the following flags added: [HTML]
- Property 'http2/headers_size_limit' has had the following flags added: [HTML]
- Property 'http2/idle_timeout_no_streams' has had the following flags added: [HTML]
- Property 'http2/idle_timeout_open_streams' has had the following flags added: [HTML]
- Property 'http2/max_header_padding' has had the following flags added: [HTML]

- Property 'log/filename' has had the following flags added: [[HTML](#)]
- Property 'log/format' has had the following flags added: [[HTML](#)]
- Property 'log/save_all' has had the following flags added: [[HTML](#)]
- Property 'log/server_connection_failures' has had the following flags added: [[HTML](#)]
- Property 'recent_connections/enabled' has had the following flags added: [[HTML](#)]
- Property 'recent_connections/save_all' has had the following flags added: [[HTML](#)]
- Property 'sip/follow_route' has had the following flags added: [[HTML](#)]
- Property 'sip/max_connection_mem' has had the following flags added: [[HTML](#)]
- Property 'ssl/cipher_suites' has had the following flags added: [[HTML](#)]
- Property 'ssl/elliptic_curves' has had the following flags added: [[HTML](#)]
- Property 'ssl/honor_fallback_scsv' has had the following flags added: [[HTML](#)]
- Property 'ssl/ocsp_max_response_age' has had the following flags added: [[HTML](#)]
- Property 'ssl/send_close_alerts' has had the following flags added: [[HTML](#)]
- Property 'ssl/session_cache_enabled' has had the following flags added: [[HTML](#)]
- Property 'ssl/session_tickets_enabled' has had the following flags added: [[HTML](#)]
- Property 'ssl/signature_algorithms' has had the following flags added: [[HTML](#)]
- Property 'ssl/support_ssl3' has had the following flags added: [[HTML](#)]
- Property 'ssl/support_tls1' has had the following flags added: [[HTML](#)]
- Property 'ssl/support_tls1_1' has had the following flags added: [[HTML](#)]
- Property 'ssl/support_tls1_2' has had the following flags added: [[HTML](#)]
- Property 'ssl/trust_magic' has had the following flags added: [[HTML](#)]
- Property 'syslog/format' has had the following flags added: [[HTML](#)]
- Property 'tcp/proxy_close' has had the following flags added: [[HTML](#)]
- Property 'transaction_export/enabled' has had the following flags added: [[HTML](#)]
- Property 'transaction_export/hi_res' has had the following flags added: [[HTML](#)]
- Property 'udp/end_point_persistence' has had the following flags added: [[HTML](#)]
- Property 'udp/response_datagrams_expected' has had the following flags added: [[HTML](#)]
- Property 'web_cache/control_out' has had the following flags added: [[HTML](#)]
- Property 'web_cache/enabled' has had the following flags added: [[HTML](#)]
- Property 'web_cache/refresh_time' has had the following flags added: [[HTML](#)]

The following properties for 'Pool' (/api/tm/6.0/config/active/pools) have had flags change:

- Property 'auto_scaling/extraargs' has had the following flags removed: [[EXPERT](#)]
- Property 'basic/max_timed_out_connection_attempts' has had the following flags added: [[HTML](#)]
- Property 'basic/node_connection_attempts' has had the following flags added: [[HTML](#)]
- Property 'basic/node_delete_behavior' has had the following flags added: [[HTML](#)]
- Property 'basic/passive_monitoring' has had the following flags added: [[HTML](#)]
- Property 'dns_autoscale/enabled' has had the following flags added: [[HTML](#)]
- Property 'dns_autoscale/hostnames' has had the following flags added: [[HTML](#)]
- Property 'ssl/cipher_suites' has had the following flags added: [[HTML](#)]
- Property 'ssl/elliptic_curves' has had the following flags added: [[HTML](#)]
- Property 'ssl/enhance' has had the following flags added: [[HTML](#)]
- Property 'ssl/send_close_alerts' has had the following flags added: [[HTML](#)]
- Property 'ssl/session_cache_enabled' has had the following flags added: [[HTML](#)]
- Property 'ssl/session_tickets_enabled' has had the following flags added: [[HTML](#)]
- Property 'ssl/signature_algorithms' has had the following flags added: [[HTML](#)]
- Property 'ssl/support_ssl3' has had the following flags added: [[HTML](#)]
- Property 'ssl/support_tls1' has had the following flags added: [[HTML](#)]
- Property 'ssl/support_tls1_1' has had the following flags added: [[HTML](#)]
- Property 'ssl/support_tls1_2' has had the following flags added: [[HTML](#)]
- Property 'udp/accept_from' has had the following flags added: [[HTML](#)]
- Property 'udp/accept_from_mask' has had the following flags added: [[HTML](#)]

The following properties for 'TrafficScript Authenticator' (/api/tm/6.0/config/active/rule_authenticators) have had flags change:

- Property 'ldap/filter' has had the following flags added: [[HTML](#)]

The following properties for 'Alerting Action' (/api/tm/6.0/config/active/actions) have had flags change:

- Property 'log/file' has had the following flags added: [[HTML](#)]
- Table property 'program/arguments' field 'description' has had the following flags added: [[HTML](#)]
- Table property 'program/arguments' field 'value' has had the following flags added: [[HTML](#)]

The following properties for 'Traffic Manager' (/api/tm/6.0/config/active/traffic_managers) have had flags change:

- Property 'appliance/name_servers' has had the following flags added: [HTML]
- Property 'appliance/search_domains' has had the following flags added: [HTML]
- Property 'appliance/timezone' has had the following flags added: [HTML]
- Property 'appliance/vlans' has had the following flags added: [HTML]
- Property 'cluster_comms/allow_update' has had the following flags added: [HTML]
- Property 'cluster_comms/bind_ip' has had the following flags added: [HTML]
- Property 'cluster_comms/port' has had the following flags added: [HTML]
- Property 'fault_tolerance/bgp_router_id' has had the following flags added: [HTML]
- Property 'fault_tolerance/ospfv2_ip' has had the following flags added: [HTML]
- Property 'rest_api/port' has had the following flags added: [HTML]
- Property 'snmp/allow' has had the following flags added: [HTML]
- Property 'snmp/auth_password' has had the following flags added: [HTML]
- Property 'snmp/bind_ip' has had the following flags added: [HTML]
- Property 'snmp/port' has had the following flags added: [HTML]
- Property 'snmp/priv_password' has had the following flags added: [HTML]
- Table property 'appliance/hosts' field 'ip_address' has had the following flags added: [HTML]
- Table property 'appliance/if' field 'autoneg' has had the following flags added: [HTML]
- Table property 'appliance/if' field 'duplex' has had the following flags added: [HTML]
- Table property 'appliance/if' field 'mode' has had the following flags added: [HTML]
- Table property 'appliance/if' field 'speed' has had the following flags added: [HTML]
- Table property 'appliance/ip' field 'addr' has had the following flags added: [HTML]
- Table property 'appliance/ip' field 'isexternal' has had the following flags added: [HTML]
- Table property 'appliance/ip' field 'mask' has had the following flags added: [HTML]
- Table property 'appliance/routes' field 'gw' has had the following flags added: [HTML]
- Table property 'appliance/routes' field 'if' has had the following flags added: [HTML]
- Table property 'appliance/routes' field 'mask' has had the following flags added: [HTML]

The following properties for 'Global Settings' (/api/tm/6.0/config/active/global_settings) have had flags change:

- Property 'admin/ssl3_ciphers' has had the following flags added: [HTML]
- Property 'admin/ssl3_min_rehandshake_interval' has had the following flags added: [HTML]
- Property 'admin/ssl_elliptic_curves' has had the following flags added: [HTML]
- Property 'admin/ssl_max_handshake_message_size' has had the following flags added: [HTML]

- Property 'admin/ssl_signature_algorithms' has had the following flags added: [HTML]
- Property 'appliance/return_path_routing_enabled' has had the following flags added: [HTML]
- Property 'auditlog/via_eventd' has had the following flags added: [HTML]
- Property 'auditlog/via_syslog' has had the following flags added: [HTML]
- Property 'basic/license_servers' has had the following flags added: [HTML]
- Property 'basic/monitor_memory_size' has had the following flags added: [HTML]
- Property 'basic/shared_pool_size' has had the following flags added: [HTML]
- Property 'basic/so_rbuff_size' has had the following flags added: [HTML]
- Property 'basic/so_wbuff_size' has had the following flags added: [HTML]
- Property 'basic/socket_optimizations' has had the following flags added: [HTML]
- Property 'cluster_comms/allow_update_default' has had the following flags added: [HTML]
- Property 'cluster_comms/allowed_update_hosts' has had the following flags added: [HTML]
- Property 'cluster_comms/state_sync_interval' has had the following flags added: [HTML]
- Property 'connection/idle_connections_max' has had the following flags added: [HTML]
- Property 'connection/listen_queue_size' has had the following flags added: [HTML]
- Property 'connection/max_accepting' has had the following flags added: [HTML]
- Property 'dns/hosts' has had the following flags added: [HTML]
- Property 'dns/hostsfirst' has had the following flags added: [HTML]
- Property 'dns/resolv' has had the following flags added: [HTML]
- Property 'ec2/metadata_server' has had the following flags added: [HTML]
- Property 'ec2/query_server' has had the following flags added: [HTML]
- Property 'fault_tolerance/frontend_check_ips' has had the following flags added: [HTML]
- Property 'ftp/data_bind_low' has had the following flags added: [HTML]
- Property 'historical_activity/keep_days' has had the following flags added: [HTML]
- Property 'java/enabled' has had the following flags added: [HTML]
- Property 'java/lib' has had the following flags added: [HTML]
- Property 'log/error_level' has had the following flags added: [HTML]
- Property 'log_export/max_event_message_size' has had the following flags added: [HTML]
- Property 'log_export/max_request_size' has had the following flags added: [HTML]
- Property 'log_export/max_response_size' has had the following flags added: [HTML]
- Property 'log_export/request_timeout' has had the following flags added: [HTML]
- Property 'protection/conncount_size' has had the following flags added: [HTML]
- Property 'recent_connections/max_per_process' has had the following flags added: [HTML]

- Property 'recent_connections/snapshot_size' has had the following flags added: [HTML]
- Property 'remote_licensing/registration_server' has had the following flags added: [HTML]
- Property 'rest_api/http_compress_min' has had the following flags added: [HTML]
- Property 'rest_api/http_keep_alive_timeout' has had the following flags added: [HTML]
- Property 'rest_api/http_max_resource_body_length' has had the following flags added: [HTML]
- Property 'rest_api/http_max_write_buffer' has had the following flags added: [HTML]
- Property 'rest_api/http_session_timeout' has had the following flags added: [HTML]
- Property 'security/login_banner_accept' has had the following flags added: [HTML]
- Property 'security/login_delay' has had the following flags added: [HTML]
- Property 'security/max_login_attempts' has had the following flags added: [HTML]
- Property 'security/max_login_external' has had the following flags added: [HTML]
- Property 'security/max_login_suspension_time' has had the following flags added: [HTML]
- Property 'security/password_changes_per_day' has had the following flags added: [HTML]
- Property 'security/password_min_length' has had the following flags added: [HTML]
- Property 'security/password_min_numeric_chars' has had the following flags added: [HTML]
- Property 'security/password_min_special_chars' has had the following flags added: [HTML]
- Property 'security/password_min_uppercase_chars' has had the following flags added: [HTML]
- Property 'security/password_reuse_after' has had the following flags added: [HTML]
- Property 'security/track_unknown_users' has had the following flags added: [HTML]
- Property 'ssl/cache_size' has had the following flags added: [HTML]
- Property 'ssl/cipher_suites' has had the following flags added: [HTML]
- Property 'ssl/client_cache_expiry' has had the following flags added: [HTML]
- Property 'ssl/client_cache_size' has had the following flags added: [HTML]
- Property 'ssl/crl_mem_size' has had the following flags added: [HTML]
- Property 'ssl/elliptic_curves' has had the following flags added: [HTML]
- Property 'ssl/max_handshake_message_size' has had the following flags added: [HTML]
- Property 'ssl/min_rehandshake_interval' has had the following flags added: [HTML]
- Property 'ssl/ocsp_stapling_mem_size' has had the following flags added: [HTML]
- Property 'ssl/signature_algorithms' has had the following flags added: [HTML]
- Property 'trafficscript/data_local_size' has had the following flags added: [HTML]
- Property 'trafficscript/data_size' has had the following flags added: [HTML]
- Property 'trafficscript/execution_time_warning' has had the following flags added: [HTML]
- Property 'trafficscript/memory_warning' has had the following flags added: [HTML]

- Property 'trafficscript/variable_pool_use' has had the following flags added: [HTML]
- Property 'web_cache/disk' has had the following flags added: [HTML]
- Property 'web_cache/disk_dir' has had the following flags added: [HTML]
- Property 'web_cache/max_file_size' has had the following flags added: [HTML]
- Property 'web_cache/size' has had the following flags added: [HTML]
- Table property 'ip/appliance_returnpath' field 'ipv4' has had the following flags added: [HTML]
- Table property 'ip/appliance_returnpath' field 'ipv6' has had the following flags added: [HTML]

The following properties for 'User Authenticator' (/api/tm/6.0/config/active/user_authenticators) have had flags change:

- Property 'ldap/base_dn' has had the following flags added: [HTML]
- Property 'ldap/bind_dn' has had the following flags added: [HTML]
- Property 'ldap/dn_method' has had the following flags added: [HTML]
- Property 'ldap/fallback_group' has had the following flags added: [HTML]
- Property 'ldap/filter' has had the following flags added: [HTML]
- Property 'ldap/group_attribute' has had the following flags added: [HTML]
- Property 'ldap/group_field' has had the following flags added: [HTML]
- Property 'ldap/group_filter' has had the following flags added: [HTML]
- Property 'ldap/port' has had the following flags added: [HTML]
- Property 'ldap/search_dn' has had the following flags added: [HTML]
- Property 'ldap/search_password' has had the following flags added: [HTML]
- Property 'ldap/server' has had the following flags added: [HTML]
- Property 'ldap/timeout' has had the following flags added: [HTML]

The following properties for 'Kerberos Principal' (/api/tm/6.0/config/active/kerberos/principals) have had flags change:

- Property 'basic/kdcs' has had the following flags added: [HTML]

The following properties for 'Rate Shaping Class' (/api/tm/6.0/config/active/rate) have had flags change:

- Property 'basic/max_rate_per_minute' has had the following flags added: [HTML]
- Property 'basic/max_rate_per_second' has had the following flags added: [HTML]

The following properties for 'Event Type' (/api/tm/6.0/config/active/event_types) have had flags change:

- Property 'basic/actions' has had the following flags added: [HTML]
- Property 'basic/built_in' has had the following flags added: [HTML]

The following properties for 'Protection Class' (/api/tm/6.0/config/active/protection) have had flags change:

- Property 'basic/log_time' has had the following flags added: [HTML]
- Property 'concurrent_connections/max_10_connections' has had the following flags added: [HTML]
- Property 'concurrent_connections/max_1_connections' has had the following flags added: [HTML]
- Property 'concurrent_connections/min_connections' has had the following flags added: [HTML]
- Property 'concurrent_connections/per_process_connection_count' has had the following flags added: [HTML]
- Property 'connection_rate/max_connection_rate' has had the following flags added: [HTML]
- Property 'connection_rate/rate_timer' has had the following flags added: [HTML]
- Property 'http/max_body_length' has had the following flags added: [HTML]
- Property 'http/max_header_length' has had the following flags added: [HTML]
- Property 'http/max_request_length' has had the following flags added: [HTML]
- Property 'http/max_url_length' has had the following flags added: [HTML]

The following properties for 'Session Persistence Class' (/api/tm/6.0/config/active/persistence) have had flags change:

- Property 'basic/delete' has had the following flags added: [HTML]

The following properties for 'Traffic IP Group' (/api/tm/6.0/config/active/traffic_ip_groups) have had flags change:

- Property 'basic/enabled' has had the following flags added: [HTML]
- Property 'basic/keep_together' has had the following flags added: [HTML]
- Property 'basic/mode' has had the following flags added: [HTML]
- Table property 'basic/ip_mapping' field 'traffic_manager' has had the following flags added: [HTML]

The following properties for 'User Group' (/api/tm/6.0/config/active/user_groups) have had flags change:

- Property 'basic/password_expire_time' has had the following flags added: [HTML]
- Property 'basic/timeout' has had the following flags added: [HTML]

Changes in Version 5.2

The following resources were added:

- Resource 'Service Discovery Plugins' (/api/tm/5.2/config/active/servicediscovery)

The following properties in 'Global Settings' (/api/tm/5.2/config/active/global_settings) have been added:

- Property 'ssl/validate_server_certificates_catalog' was added.
- Property 'telemetry/enabled' was added.
- Property 'telemetry/internal_use' was added.
- Property 'telemetry/test_schedule' was added.
- Property 'telemetry/url' was added.

The following properties in 'Traffic Manager' (/api/tm/5.2/config/active/traffic_managers) have been added:

- Property 'appliance/disable_kpti' was added.

The following properties in 'Pool' (/api/tm/5.2/config/active/pools) have been added:

- Property 'service_discovery/enabled' was added.
- Property 'service_discovery/interval' was added.
- Property 'service_discovery/plugin' was added.
- Property 'service_discovery/plugin_args' was added.
- Property 'service_discovery/timeout' was added.
- Property 'ssl/session_tickets_enabled' was added.

The following properties for 'Global Settings' (/api/tm/5.2/config/active/global_settings) have had flags change:

- Property 'remote_licensing/owner_secret' has had the following flags added: [TSR_IGNORE]

Changes in Version 5.1

The following resources were added:

- Resource 'Trusted SAML Identity Provider' (/api/tm/5.1/config/active/saml/trustedidps)

The following properties in 'Virtual Server' (/api/tm/5.1/config/active/virtual_servers) have been added:

- Property 'auth/saml_idp' was added.
- Property 'auth/saml_nameid_format' was added.
- Property 'auth/saml_sp_acs_url' was added.
- Property 'auth/saml_sp_entity_id' was added.
- Property 'auth/saml_time_tolerance' was added.
- Property 'auth/session_cookie_attributes' was added.
- Property 'auth/session_cookie_name' was added.
- Property 'auth/session_log_external_state' was added.
- Property 'auth/session_timeout' was added.
- Property 'auth/type' was added.
- Property 'auth/verbose' was added.

The following properties in 'Global Settings' (/api/tm/5.1/config/active/global_settings) have been added:

- Property 'auth/saml_key_lifetime' was added.
- Property 'auth/saml_key_rotation_interval' was added.

The following properties in 'Virtual servers' (/api/tm/5.1/status/local_tm/statistics/virtual_servers/*) have been added:

- Property 'statistics/auth_saml_redirects' was added.
- Property 'statistics/auth_saml_redirects_hi' was added.
- Property 'statistics/auth_saml_redirects_lo' was added.
- Property 'statistics/auth_saml_responses' was added.
- Property 'statistics/auth_saml_responses_accepted' was added.
- Property 'statistics/auth_saml_responses_accepted_hi' was added.
- Property 'statistics/auth_saml_responses_accepted_lo' was added.
- Property 'statistics/auth_saml_responses_hi' was added.
- Property 'statistics/auth_saml_responses_lo' was added.
- Property 'statistics/auth_saml_responses_rejected' was added.
- Property 'statistics/auth_saml_responses_rejected_hi' was added.
- Property 'statistics/auth_saml_responses_rejected_lo' was added.
- Property 'statistics/auth_sessions_created' was added.

- Property 'statistics/auth_sessions_created_hi' was added.
- Property 'statistics/auth_sessions_created_lo' was added.
- Property 'statistics/auth_sessions_rejected' was added.
- Property 'statistics/auth_sessions_rejected_hi' was added.
- Property 'statistics/auth_sessions_rejected_lo' was added.
- Property 'statistics/auth_sessions_used' was added.
- Property 'statistics/auth_sessions_used_hi' was added.
- Property 'statistics/auth_sessions_used_lo' was added.

Changes in Version 5.0

The following resources were added:

- Resource 'SSL Ticket Key' (/api/tm/5.0/config/active/ssl/ticket_keys)

The following properties in 'Pool' (/api/tm/5.0/config/active/pools) have been added:

- Property 'ssl/session_cache_enabled' was added.

The following properties in 'Traffic Manager' (/api/tm/5.0/config/active/traffic_managers) have been added:

- Property 'appliance/disable_cloud_init' was added.
- Property 'appliance/managereservedports' was added.
- Property 'appliance/manageservices' was added.

The following properties in 'Global Settings' (/api/tm/5.0/config/active/global_settings) have been added:

- Property 'ec2/metadata_server' was added.
- Property 'ec2/query_server' was added.
- Property 'ssl/cache_enabled' was added.
- Property 'ssl/client_cache_enabled' was added.
- Property 'ssl/client_cache_expiry' was added.
- Property 'ssl/client_cache_size' was added.
- Property 'ssl/client_cache_tickets_enabled' was added.
- Property 'ssl/tickets_enabled' was added.
- Property 'ssl/tickets_reissue_policy' was added.

- Property 'ssl/tickets_ticket_expiry' was added.
- Property 'ssl/tickets_ticket_key_expiry' was added.
- Property 'ssl/tickets_ticket_key_rotation' was added.
- Property 'ssl/tickets_time_tolerance' was added.

The following properties in 'Virtual Server' (/api/tm/5.0/config/active/virtual_servers) have been added:

- Property 'log/ssl_resumption_failures' was added.
- Property 'ssl/session_cache_enabled' was added.
- Property 'ssl/session_tickets_enabled' was added.

The following properties in 'Globals' (/api/tm/5.0/status/local_tm/statistics/globals) have been added:

- Property 'statistics/ssl_handshake_tlsv1' was added.
- Property 'statistics/ssl_handshake_tlsv11' was added.
- Property 'statistics/ssl_handshake_tlsv12' was added.

The following properties in 'Virtual servers' (/api/tm/5.0/status/local_tm/statistics/virtual_servers/*) have been added:

- Property 'statistics/ssl_cache_lookup' was added.
- Property 'statistics/ssl_cache_lookup_hi' was added.
- Property 'statistics/ssl_cache_lookup_lo' was added.
- Property 'statistics/ssl_cache_miss' was added.
- Property 'statistics/ssl_cache_miss_hi' was added.
- Property 'statistics/ssl_cache_miss_lo' was added.
- Property 'statistics/ssl_cache_rejected' was added.
- Property 'statistics/ssl_cache_rejected_hi' was added.
- Property 'statistics/ssl_cache_rejected_lo' was added.
- Property 'statistics/ssl_cache_resumed' was added.
- Property 'statistics/ssl_cache_resumed_hi' was added.
- Property 'statistics/ssl_cache_resumed_lo' was added.
- Property 'statistics/ssl_cache_saved' was added.
- Property 'statistics/ssl_cache_saved_hi' was added.
- Property 'statistics/ssl_cache_saved_lo' was added.

- Property 'statistics/ssl_new_session' was added.
- Property 'statistics/ssl_new_session_hi' was added.
- Property 'statistics/ssl_new_session_lo' was added.
- Property 'statistics/ssl_ticket_expired' was added.
- Property 'statistics/ssl_ticket_expired_hi' was added.
- Property 'statistics/ssl_ticket_expired_lo' was added.
- Property 'statistics/ssl_ticket_issued' was added.
- Property 'statistics/ssl_ticket_issued_hi' was added.
- Property 'statistics/ssl_ticket_issued_lo' was added.
- Property 'statistics/ssl_ticket_key_not_found' was added.
- Property 'statistics/ssl_ticket_key_not_found_hi' was added.
- Property 'statistics/ssl_ticket_key_not_found_lo' was added.
- Property 'statistics/ssl_ticket_received' was added.
- Property 'statistics/ssl_ticket_received_hi' was added.
- Property 'statistics/ssl_ticket_received_lo' was added.
- Property 'statistics/ssl_ticket_rejected' was added.
- Property 'statistics/ssl_ticket_rejected_hi' was added.
- Property 'statistics/ssl_ticket_rejected_lo' was added.
- Property 'statistics/ssl_ticket_resumed' was added.
- Property 'statistics/ssl_ticket_resumed_hi' was added.
- Property 'statistics/ssl_ticket_resumed_lo' was added.

The following properties in 'Pool' (/api/tm/5.0/config/active/pools) have been removed:

- Property 'ssl/ssl_support_ssl2' was removed.

The following properties in 'Traffic Manager' (/api/tm/5.0/config/active/traffic_managers) have been removed:

- Property 'appliance/force_hardware' was removed.
- Property 'appliance/shim_client_id' was removed.
- Property 'appliance/shim_client_key' was removed.
- Property 'appliance/shim_enabled' was removed.
- Property 'appliance/shim_ips' was removed.
- Property 'appliance/shim_load_balance' was removed.

- Property 'appliance/shim_log_level' was removed.
- Property 'appliance/shim_mode' was removed.
- Property 'appliance/shim_portal_url' was removed.
- Property 'appliance/shim_proxy_host' was removed.
- Property 'appliance/shim_proxy_port' was removed.

The following properties in 'Virtual Server' (/api/tm/5.0/config/active/virtual_servers) have been removed:

- Property 'ssl/prefer_sslv3' was removed.
- Property 'ssl/ssl_support_ssl2' was removed.

The following properties in 'Global Settings' (/api/tm/5.0/config/active/global_settings) have been removed:

- Property 'admin/support_ssl2' was removed.
- Property 'appliance/manage_ncipher' was removed.
- Property 'appliance/nethsm_esn' was removed.
- Property 'appliance/nethsm_hash' was removed.
- Property 'appliance/nethsm_ip' was removed.
- Property 'appliance/nethsm_ncipher_rfs' was removed.
- Property 'ssl/support_ssl2' was removed.
- Property 'trafficscript/array_elements' was removed.

The following properties in 'Globals' (/api/tm/5.0/status/local_tm/statistics/globals) have been removed:

- Property 'statistics/ssl_handshake_t_l_sv1' was removed.
- Property 'statistics/ssl_handshake_t_l_sv11' was removed.
- Property 'statistics/ssl_handshake_t_l_sv12' was removed.

The following properties in 'Alerting Action' (/api/tm/5.0/config/active/actions) have been renamed:

- Property 'log/from' was renamed to 'email/from'.

The following properties in 'Protection Class' (/api/tm/5.0/config/active/protection) have been renamed:

- Property 'basic/per_process_connection_count' was renamed to 'concurrent_connections/per_process_connection_count'.

- Property 'connection_limiting/max_10_connections' was renamed to 'concurrent_connections/max_10_connections'.
- Property 'connection_limiting/max_1_connections' was renamed to 'concurrent_connections/max_1_connections'.
- Property 'connection_limiting/max_connection_rate' was renamed to 'connection_rate/max_connection_rate'.
- Property 'connection_limiting/min_connections' was renamed to 'concurrent_connections/min_connections'.
- Property 'connection_limiting/rate_timer' was renamed to 'connection_rate/rate_timer'.

The following properties in 'Virtual Server' (/api/tm/5.0/config/active/virtual_servers) have been renamed:

- Property 'basic/add_cluster_ip' was renamed to 'http/add_cluster_ip'.
- Property 'basic/add_x_forwarded_for' was renamed to 'http/add_x_forwarded_for'.
- Property 'basic/add_x_forwarded_proto' was renamed to 'http/add_x_forwarded_proto'.
- Property 'basic/auto_upgrade_protocols' was renamed to 'http/auto_upgrade_protocols'.
- Property 'basic/autodetect_upgrade_headers' was renamed to 'http/autodetect_upgrade_headers'.
- Property 'basic/close_with_rst' was renamed to 'tcp/close_with_rst'.
- Property 'basic/completionrules' was renamed to 'basic/completion_rules'.
- Property 'basic/ftp_force_server_secure' was renamed to 'ftp/force_server_secure'.
- Property 'basic/mss' was renamed to 'tcp/mss'.
- Property 'basic/so_nagle' was renamed to 'tcp/nagle'.
- Property 'basic/ssl_client_cert_headers' was renamed to 'ssl/client_cert_headers'.
- Property 'basic/ssl_honor_fallback_scsv' was renamed to 'ssl/honor_fallback_scsv'.
- Property 'basic/strip_x_forwarded_proto' was renamed to 'http/strip_x_forwarded_proto'.
- Property 'basic/udp_end_transaction' was renamed to 'udp/udp_end_transaction'.
- Property 'ssl/ssl_ciphers' was renamed to 'ssl/cipher_suites'.
- Property 'ssl/ssl_support_ssl3' was renamed to 'ssl/support_ssl3'.
- Property 'ssl/ssl_support_tls1' was renamed to 'ssl/support_tls1'.
- Property 'ssl/ssl_support_tls1_1' was renamed to 'ssl/support_tls1_1'.
- Property 'ssl/ssl_support_tls1_2' was renamed to 'ssl/support_tls1_2'.

The following properties in 'Global Settings' (/api/tm/5.0/config/active/global_settings) have been renamed:

- Property 'admin/support_tls1_1' was renamed to 'admin/support_tls1_1'.

- Property 'admin/support_tls12' was renamed to 'admin/support_tls1_2'.
- Property 'ospfv2/router_dead_interval' was renamed to 'ospfv2/dead_interval'.
- Property 'ssl/ssl3_allow_rehandshake' was renamed to 'ssl/allow_rehandshake'.
- Property 'ssl/ssl3_ciphers' was renamed to 'ssl/cipher_suites'.
- Property 'ssl/ssl3_diffie_hellman_client_min_key_length' was renamed to 'ssl/diffie_hellman_client_min_modulus_size'.
- Property 'ssl/ssl3_diffie_hellman_key_length' was renamed to 'ssl/diffie_hellman_modulus_size'.
- Property 'ssl/ssl3_min_rehandshake_interval' was renamed to 'ssl/min_rehandshake_interval'.

The following properties in 'Pool' (/api/tm/5.0/config/active/pools) have been renamed:

- Property 'ssl/ssl_ciphers' was renamed to 'ssl/cipher_suites'.
- Property 'ssl/ssl_support_ssl3' was renamed to 'ssl/support_ssl3'.
- Property 'ssl/ssl_support_tls1' was renamed to 'ssl/support_tls1'.
- Property 'ssl/ssl_support_tls1_1' was renamed to 'ssl/support_tls1_1'.
- Property 'ssl/ssl_support_tls1_2' was renamed to 'ssl/support_tls1_2'.

The following properties for 'Global Settings' (/api/tm/5.0/config/active/global_settings) have had flags change:

- Property 'ssl/min_rehandshake_interval' has had the following flags removed: [LOCATION_IGNORE]

Changes in Version 4.0

The following resources were added:

- Resource 'Log Export' (/api/tm/4.0/config/active/log_export)

The following properties in 'Global Settings' (/api/tm/4.0/config/active/global_settings) have been added:

- Property 'log_export/auth_hec_token' was added.
- Property 'log_export/auth_http' was added.
- Property 'log_export/auth_password' was added.
- Property 'log_export/auth_username' was added.
- Property 'log_export/enabled' was added.
- Property 'log_export/endpoint' was added.
- Property 'log_export/max_event_message_size' was added.
- Property 'log_export/max_request_bandwidth' was added.

- Property 'log_export/max_request_size' was added.
- Property 'log_export/max_response_size' was added.
- Property 'log_export/maximum_error_raising_period' was added.
- Property 'log_export/minimum_error_raising_period' was added.
- Property 'log_export/request_timeout' was added.
- Property 'log_export/tls_verify' was added.
- Property 'transaction_export/auto_brief' was added.
- Property 'transaction_export/enabled' was added.
- Property 'transaction_export/endpoint' was added.
- Property 'transaction_export/failure_interval' was added.
- Property 'transaction_export/memory' was added.
- Property 'transaction_export/reconnect_interval' was added.
- Property 'transaction_export/tls' was added.
- Property 'transaction_export/tls_timeout' was added.
- Property 'transaction_export/tls_verify' was added.

The following properties in 'Bandwidth' (/api/tm/4.0/status/local_tm/statistics/bandwidth/*) have been added:

- Property 'statistics/bytes_drop' was added.
- Property 'statistics/bytes_drop_hi' was added.
- Property 'statistics/bytes_drop_lo' was added.
- Property 'statistics/pkts_drop' was added.
- Property 'statistics/pkts_drop_hi' was added.
- Property 'statistics/pkts_drop_lo' was added.

The following properties in 'Virtual servers' (/api/tm/4.0/status/local_tm/statistics/virtual_servers/*) have been added:

- Property 'statistics/bw_limit_bytes_drop' was added.
- Property 'statistics/bw_limit_bytes_drop_hi' was added.
- Property 'statistics/bw_limit_bytes_drop_lo' was added.
- Property 'statistics/bw_limit_pkts_drop' was added.
- Property 'statistics/bw_limit_pkts_drop_hi' was added.
- Property 'statistics/bw_limit_pkts_drop_lo' was added.

- Property 'statistics/pkts_in' was added.
- Property 'statistics/pkts_in_hi' was added.
- Property 'statistics/pkts_in_lo' was added.
- Property 'statistics/pkts_out' was added.
- Property 'statistics/pkts_out_hi' was added.
- Property 'statistics/pkts_out_lo' was added.

The following properties in 'Pools' (/api/tm/4.0/status/local_tm/statistics/pools/*) have been added:

- Property 'statistics/bw_limit_bytes_drop' was added.
- Property 'statistics/bw_limit_bytes_drop_hi' was added.
- Property 'statistics/bw_limit_bytes_drop_lo' was added.
- Property 'statistics/bw_limit_pkts_drop' was added.
- Property 'statistics/bw_limit_pkts_drop_hi' was added.
- Property 'statistics/bw_limit_pkts_drop_lo' was added.

The following properties in 'Per pool node' (/api/tm/4.0/status/local_tm/statistics/nodes/per_pool_node/*) have been added:

- Property 'statistics/l4_stateless_buckets' was added.
- Property 'statistics/pkts_from_node' was added.
- Property 'statistics/pkts_from_node_hi' was added.
- Property 'statistics/pkts_from_node_lo' was added.
- Property 'statistics/pkts_to_node' was added.
- Property 'statistics/pkts_to_node_hi' was added.
- Property 'statistics/pkts_to_node_lo' was added.

The following properties in 'Globals' (/api/tm/4.0/status/local_tm/statistics/globals) have been added:

- Property 'statistics/analytics_transactions_dropped' was added.
- Property 'statistics/analytics_transactions_exported' was added.
- Property 'statistics/analytics_transactions_memory_usage' was added.

The following properties in 'Virtual Server' (/api/tm/4.0/config/active/virtual_servers) have been added:

- Property 'basic/strip_x_forwarded_proto' was added.
- Property 'transaction_export/brief' was added.
- Property 'transaction_export/enabled' was added.
- Property 'transaction_export/hi_res' was added.
- Property 'transaction_export/http_header_blacklist' was added.

Changes in Version 3.11

The following properties in 'Global Settings' (/api/tm/3.11/config/active/global_settings) have been added:

- Property 'fault_tolerance/autofailback_delay' was added.
- Property 'rest_api/block_for_future_max' was added.
- Property 'rest_api/http_compress_min' was added.
- Property 'rest_api/http_keep_alive_timeout' was added.
- Property 'rest_api/http_max_resource_body_length' was added.
- Property 'rest_api/http_max_write_buffer' was added.
- Property 'rest_api/http_session_timeout' was added.

The following properties in 'Virtual Server' (/api/tm/3.11/config/active/virtual_servers) have been added:

- Property 'basic/proxy_protocol' was added.
- Property 'ssl/issued_certs_never_expire_depth' was added.

The following properties in 'State' (/api/tm/3.11/status/local_tm/state) have been added:

- Property 'state/pools' was added.
- Table property 'state/virtual_servers' field 'ts_redirect_pools' was added.

The following properties in 'Traffic Manager' (/api/tm/3.11/config/active/traffic_managers) have been added:

- Property 'fault_tolerance/lss_dedicated_ips' was added.
- Table property 'appliance/if' field 'mode' was added.

The type of the following properties in 'State' (/api/tm/3.11/status/local_tm/state) has changed:

- Table property 'state/virtual_servers' field 'throughput' changed type from 'Unsigned integer' to 'Unsigned integer 64'.

The following properties for 'Global Settings' (/api/tm/3.11/config/active/global_settings) have had flags change:

- Property 'data_plane_acceleration/tcp_delay_ack' has had the following flags added:
[RESTART_SOFTWARE]
- Property 'data_plane_acceleration/tcp_win_scale' has had the following flags added:
[RESTART_SOFTWARE]

Changes in Version 3.10

The following properties in 'Monitor' (/api/tm/3.10/config/active/monitors) have been added:

- Property 'basic/factory' was added.
- Property 'basic/health_only' was added.

The following properties in 'Traffic Manager' (/api/tm/3.10/config/active/traffic_managers) have been added:

- Property 'basic/developer_mode_accepted' was added.

The following properties in 'Virtual Server' (/api/tm/3.10/config/active/virtual_servers) have been added:

- Property 'basic/max_concurrent_connections' was added.
- Property 'basic/rules_on_connect' was added.
- Property 'basic/udp_end_transaction' was added.
- Property 'gzip/chunk' was added.
- Property 'http2/headers_size_limit' was added.
- Property 'l4accel/service_ip_snat' was added.
- Property 'l4stateless/initial_ring_size' was added.
- Property 'l4stateless/num_replicas' was added.

The following properties in 'Protection Class' (/api/tm/3.10/config/active/protection) have been added:

- Property 'basic/linger_time' was added.

The following properties in 'Global Settings' (/api/tm/3.10/config/active/global_settings) have been added:

- Property 'data_plane_acceleration/tcp_delay_ack' was added.
- Property 'data_plane_acceleration/tcp_win_scale' was added.
- Property 'ec2/awstool_timeout' was added.
- Property 'ec2/metadata_timeout' was added.
- Property 'l4accel/max_concurrent_connections' was added.
- Property 'remote_licensing/owner' was added.
- Property 'remote_licensing/owner_secret' was added.
- Property 'remote_licensing/policy_id' was added.

Changes in Version 3.9

The following resources were added:

- Resource 'Backups' (/api/tm/3.9/status/local_tm/backups/full/*)

The following properties in 'Virtual Server' (/api/tm/3.9/config/active/virtual_servers) have been added:

- Property 'basic/bypass_data_plane_acceleration' was added.
- Property 'l4accel/rst_on_service_failure' was added.
- Property 'l4accel/state_sync' was added.
- Property 'l4accel/tcp_msl' was added.
- Property 'l4accel/timeout' was added.
- Property 'l4accel/udp_count_requests' was added.
- Property 'ssl/max_key_size' was added.
- Property 'ssl/min_key_size' was added.

The following properties in 'Traffic Manager' (/api/tm/3.9/config/active/traffic_managers) have been added:

- Property 'appliance/managedpa' was added.
- Property 'basic/num_l4_children' was added.
- Property 'basic/num_l7_children' was added.
- Property 'iop/is_standalone' was added.
- Property 'iop/l4_event_driven_mode' was added.
- Property 'iop/l7_event_driven_mode' was added.
- Property 'iop/linux_interface' was added.
- Property 'iop/num_mbufs_per_mpool' was added.
- Property 'iop/send_to_linux' was added.

The following properties in 'Traffic IP Group' (/api/tm/3.9/config/active/traffic_ip_groups) have been added:

- Property 'basic/snat_ipaddresses' was added.

The following properties in 'Pool' (/api/tm/3.9/config/active/pools) have been added:

- Property 'l4accel/snat' was added.

The following properties in 'Global Settings' (/api/tm/3.9/config/active/global_settings) have been added:

- Property 'basic/data_plane_acceleration_cores' was added.
- Property 'basic/data_plane_acceleration_mode' was added.
- Property 'fault_tolerance/l4accel_child_timeout' was added.
- Property 'fault_tolerance/l4accel_sync_port' was added.
- Property 'source_nat/clist_locks' was added.
- Property 'source_nat/ip_limit' was added.
- Property 'source_nat/ip_local_port_range_high' was added.
- Property 'source_nat/portmaphashtable_locks' was added.
- Property 'source_nat/shared_pool_size' was added.

The following properties in 'Virtual servers' (/api/tm/3.9/status/local_tm/statistics/virtual_servers/*) have been added:

- Property 'statistics/total_tcp_reset' was added.
- Property 'statistics/total_udp_unreachables' was added.

The following properties in 'Session Persistence Class' (/api/tm/3.9/config/active/persistence) have been added:

- Property 'basic/subnet_mask_len_v4' was added.
- Property 'basic/subnet_mask_len_v6' was added.

The following properties for 'Pool' (/api/tm/3.9/config/active/pools) have had flags change:

- Property 'ssl/ssl_support_ssl2' has had the following flags added: [SOAP_IGNORE]

The following properties for 'Global Settings' (/api/tm/3.9/config/active/global_settings) have had flags change:

- Property 'admin/support_ssl2' has had the following flags added: [SOAP_IGNORE]
- Property 'ssl/support_ssl2' has had the following flags added: [SOAP_IGNORE]

The following properties for 'Virtual Server' (/api/tm/3.9/config/active/virtual_servers) have had flags change:

- Property 'ssl/ssl_support_ssl2' has had the following flags added: [SOAP_IGNORE]

Changes in Version 3.8

The following properties in 'Virtual Server' (/api/tm/3.8/config/active/virtual_servers) have been added:

- Property 'log/always_flush' was added.
- Property 'ssl/server_cert_alt_certificates' was added.
- Table property 'ssl/server_cert_host_mapping' field 'alt_certificates' was added.

The following properties in 'Pool' (/api/tm/3.8/config/active/pools) have been added:

- Property 'basic/lard_size' was added.
- Property 'udp/response_timeout' was added.

The following properties in 'Event Type' (/api/tm/3.8/config/active/event_types) have been added:

- Property 'basic/log2mainlog' was added.

The following properties in 'Traffic Manager' (/api/tm/3.8/config/active/traffic_managers) have been added:

- Property 'basic/use_mx' was added.
- Property 'remote_licensing/email_address' was added.
- Property 'remote_licensing/message' was added.

The following properties in 'Globals' (/api/tm/3.8/status/local_tm/statistics/globals) have been added:

- Property 'statistics/ssl_cipher_ecdsa_signs' was added.
- Property 'statistics/ssl_cipher_ecdsa_verifies' was added.

The following properties in 'Global Settings' (/api/tm/3.8/config/active/global_settings) have been added:

- Property 'dns/checktime' was added.
- Property 'dns/hosts' was added.
- Property 'dns/hostsfirst' was added.
- Property 'dns/maxasynctries' was added.
- Property 'dns/resolv' was added.
- Property 'fault_tolerance/child_timeout' was added.
- Property 'http/max_chunk_header_length' was added.
- Property 'remote_licensing/registration_server' was added.
- Property 'remote_licensing/script_timeout' was added.
- Property 'remote_licensing/server_certificate' was added.
- Property 'ssl_hardware/nworkers' was added.
- Property 'ssl_hardware/queueelen' was added.
- Property 'web_cache/blocksize' was added.
- Property 'web_cache/max_byte_range_segments' was added.
- Property 'web_cache/min_size_accept_range' was added.

Changes in Version 3.7

The following resources were added:

- Resource 'State' (/api/tm/3.7/status/local_tm/state)

The following properties in 'Virtual Server' (/api/tm/3.7/config/active/virtual_servers) have been added:

- Property 'basic/mss' was added.

The following properties in 'Traffic IP Group' (/api/tm/3.7/config/active/traffic_ip_groups) have been added:

- Property 'basic/ip_assignment_mode' was added.

The following properties in 'Traffic Manager' (/api/tm/3.7/config/active/traffic_managers) have been added:

- Property 'appliance/ipmi_lan_access' was added.
- Property 'appliance/ipmi_lan_addr' was added.
- Property 'appliance/ipmi_lan_gateway' was added.
- Property 'appliance/ipmi_lan_ipsrc' was added.
- Property 'appliance/ipmi_lan_mask' was added.

- Property 'basic/appliance_card' was added.

Changes in Version 3.6

The following properties in 'Traffic Manager' (/api/tm/3.6/config/active/traffic_managers) have been added:

- Property 'appliance/ipv6_forwarding' was added.
- Property 'appliance/ssh_password_allowed' was added.

The following properties in 'Virtual Server' (/api/tm/3.6/config/active/virtual_servers) have been added:

- Property 'dns/edns_client_subnet' was added.
- Property 'http2/connect_timeout' was added.
- Property 'http2/data_frame_size' was added.
- Property 'http2/enabled' was added.
- Property 'http2/header_table_size' was added.
- Property 'http2/idle_timeout_no_streams' was added.
- Property 'http2/idle_timeout_open_streams' was added.
- Property 'http2/max_concurrent_streams' was added.
- Property 'http2/max_frame_size' was added.
- Property 'http2/max_header_padding' was added.
- Property 'http2/neverindex_blacklist' was added.
- Property 'http2/neverindex_default' was added.
- Property 'http2/neverindex_whitelist' was added.
- Property 'http2/stream_window_size' was added.

The following properties in 'Global Settings' (/api/tm/3.6/config/active/global_settings) have been added:

- Property 'auditlog/via_eventd' was added.
- Property 'basic/cluster_identifier' was added.
- Property 'basic/http2_no_cipher_blacklist_check' was added.
- Property 'web_cache/max_handles' was added.

Changes in Version 3.5

The following resources were added:

- Resource 'BGP Neighbor' (/api/tm/3.5/config/active/bgpneighbors)

The following properties in 'Virtual Server' (/api/tm/3.5/config/active/virtual_servers) have been added:

- Property 'basic/auto_upgrade_protocols' was added.

- Property 'basic/autodetect_upgrade_headers' was added.
- Property 'basic/transparent' was added.

The following properties in 'Traffic Manager' (/api/tm/3.5/config/active/traffic_managers) have been added:

- Property 'fault_tolerance/bgp_router_id' was added.
- Property 'iptables/config_enabled' was added.
- Property 'iptrans/chain' was added.
- Property 'iptrans/fwmark' was added.
- Property 'iptrans/iptables_enabled' was added.
- Property 'iptrans/routing_table' was added.

The following properties in 'Information' (/api/tm/3.5/status/local_tm/information) have been added:

- Property 'information/uuid' was added.

The following properties in 'Pool' (/api/tm/3.5/config/active/pools) have been added:

- Property 'basic/node_delete_behavior' was added.
- Property 'basic/node_drain_to_delete_timeout' was added.

The following properties in 'Monitor' (/api/tm/3.5/config/active/monitors) have been added:

- Property 'basic/can_edit_ssl' was added.
- Property 'basic/can_use_ssl' was added.
- Property 'basic/editable_keys' was added.

The following properties in 'Traffic IP Group' (/api/tm/3.5/config/active/traffic_ip_groups) have been added:

- Property 'basic/rhi_bgp_metric_base' was added.
- Property 'basic/rhi_bgp_passive_metric_offset' was added.
- Property 'basic/rhi_protocols' was added.

The following properties in 'Global Settings' (/api/tm/3.5/config/active/global_settings) have been added:

- Property 'basic/license_servers' was added.
- Property 'bgp/as_number' was added.
- Property 'bgp/enabled' was added.
- Property 'ssl/ssl3_diffie_hellman_client_min_key_length' was added.

The following properties in 'Security Settings' (/api/tm/3.5/config/active/security) have been added:

- Property 'ssh_intrusion/bantime' was added.
- Property 'ssh_intrusion/blacklist' was added.
- Property 'ssh_intrusion/enabled' was added.

- Property 'ssh_intrusion/findtime' was added.
- Property 'ssh_intrusion/maxretry' was added.
- Property 'ssh_intrusion/whitelist' was added.

The following properties for 'Virtual Server' (/api/tm/3.5/config/active/virtual_servers) have had flags change:

- Property 'basic/glb_services' has had the following flags removed: [SOAP_IGNORE]

Changes in Version 3.4

The following properties in 'Web cache' (/api/tm/3.4/status/local_tm/statistics/cache/web_cache) have been added:

- Property 'statistics/url_store_allocated' was added.
- Property 'statistics/url_store_free' was added.
- Property 'statistics/url_store_size' was added.
- Property 'statistics/url_store_total_allocations' was added.
- Property 'statistics/url_store_total_failures' was added.
- Property 'statistics/url_store_total_frees' was added.

The following properties in 'Pool' (/api/tm/3.4/config/active/pools) have been added:

- Property 'auto_scaling/addnode_delaytime' was added.
- Property 'ssl/common_name_match' was added.
- Property 'ssl/elliptic_curves' was added.

The following properties in 'GLB Service' (/api/tm/3.4/config/active/glb_services) have been added:

- Property 'basic/peer_health_timeout' was added.

The following properties in 'Virtual Server' (/api/tm/3.4/config/active/virtual_servers) have been added:

- Property 'dns/rrset_order' was added.
- Property 'gzip/etag_rewrite' was added.
- Property 'ssl/elliptic_curves' was added.

The following properties in 'Globals' (/api/tm/3.4/status/local_tm/statistics/globals) have been added:

- Property 'statistics/ssl_cipher_ecdh_agreements' was added.
- Property 'statistics/ssl_cipher_ecdh_generates' was added.

The following properties in 'Global Settings' (/api/tm/3.4/config/active/global_settings) have been added:

- Property 'admin/ssl_elliptic_curves' was added.
- Property 'auditlog/via_syslog' was added.
- Property 'ssl/elliptic_curves' was added.

- Property 'ssl_hardware/azure_api_version' was added.
- Property 'ssl_hardware/azure_client_id' was added.
- Property 'ssl_hardware/azure_client_secret' was added.
- Property 'ssl_hardware/azure_connect_timeout' was added.
- Property 'ssl_hardware/azure_idle_timeout' was added.
- Property 'ssl_hardware/azure_vault_url' was added.
- Property 'ssl_hardware/azure_verify_rest_api_cert' was added.
- Property 'web_cache/url_store_keep_free' was added.
- Property 'web_cache/url_store_max_mallocs' was added.
- Property 'web_cache/url_store_num_bins' was added.

The following properties in 'Traffic Manager' (/api/tm/3.4/config/active/traffic_managers) have been added:

- Property 'appliance/manageazureroutes' was added.

Changes in Version 3.3

The following resources were added:

- Resource 'DNS Zone File' (/api/tm/3.3/config/active/dns_server/zone_files)
- Resource 'DNS Zone' (/api/tm/3.3/config/active/dns_server/zones)

The following properties in 'Global Settings' (/api/tm/3.3/config/active/global_settings) have been added:

- Property 'admin/honor_fallback_scsv' was added.
- Property 'ssl/honor_fallback_scsv' was added.

The following properties in 'Globals' (/api/tm/3.3/status/local_tm/statistics/globals) have been added:

- Property 'statistics/ssl_cipher_aes_gcm_decrypts' was added.
- Property 'statistics/ssl_cipher_aes_gcm_encrypts' was added.

The following properties in 'Traffic Manager' (/api/tm/3.3/config/active/traffic_managers) have been added:

- Property 'autodiscover/product_id' was added.
- Property 'basic/kmod_policy' was added.
- Property 'basic/start_sysd' was added.

The following properties in 'Virtual Server' (/api/tm/3.3/config/active/virtual_servers) have been added:

- Property 'basic/ssl_honor_fallback_scsv' was added.
- Property 'dns/verbose' was added.
- Property 'dns/zones' was added.

The following properties in 'GLB Service' (/api/tm/3.3/config/active/glb_services) have been added:

- Property 'basic/autorecovery' was added.
- Property 'basic/disable_on_failure' was added.
- Property 'basic/last_resort_response' was added.

The following properties for 'Virtual Server' (/api/tm/3.3/config/active/virtual_servers) have had flags change:

- Property 'dns/edns_udpsize' has had the following flags removed: [SOAP_IGNORE]
- Property 'dns/max_udpsize' has had the following flags removed: [SOAP_IGNORE]
- Property 'ssl/prefer_sslv3' has had the following flags added: [SOAP_IGNORE]

Changes in Version 3.2

The following properties in "Pool" (/api/tm/3.2/config/active/pools) have been added:

- "Property "ssl/signature_algorithms" was added.
- "Property "ssl/ssl_support_tls1_2" was added.

The following properties in "Virtual servers" (/api/tm/3.2/status/local_tm/statistics/virtual_servers/*) have been added:

- "Property "statistics/max_duration_timed_out" was added.
- "Property "statistics/processing_timed_out" was added.

The following properties in "Globals" (/api/tm/3.2/status/local_tm/statistics/globals) have been added:

- "Property "statistics/ssl_cipher_dh_agreements" was added.
- "Property "statistics/ssl_cipher_dh_generates" was added.
- "Property "statistics/ssl_cipher_dsa_signs" was added.
- "Property "statistics/ssl_cipher_dsa_verifies" was added.
- "Property "statistics/ssl_handshake_t_l_sv12" was added.

The following properties in "Traffic Manager" (/api/tm/3.2/config/active/traffic_managers) have been added:

- "Property "basic/adminMasterXMLIP" was added.
- "Property "basic/adminSlaveXMLIP" was added.
- "Property "basic/authenticationServerIP" was added.
- "Property "basic/updaterIP" was added.
- "Property "ec2/trafficips_public_enis" was added.

The following properties in "Global Settings" (/api/tm/3.2/config/active/global_settings) have been added:

- "Property "admin/ssl_signature_algorithms" was added.
- "Property "admin/support_tls12" was added.
- "Property "optimizer/max_concurrent_jobs" was added.

- "Property "ec2/action_timeout" was added.
- "Property "ssl/signature_algorithms" was added.
- "Property "ssl/support_tls1_2" was added.

The following properties in "Virtual Server" (/api/tm/3.2/config/active/virtual_servers) have been added:

- "Property "dns/edns_udpsize" was added.
- "Property "dns/max_udpsize" was added.
- "Property "ssl/signature_algorithms" was added.
- "Property "ssl/ssl_support_tls1_2" was added.

The following properties in "Rules" (/api/tm/3.2/status/local_tm/statistics/rules/*) have been added:

- "Property "statistics/execution_time_warnings" was added.

Changes in Version 3.1

The following resources were added:

- Resource "User counters 32" (/api/tm/3.1/status/local_tm/statistics/extras/user_counters_32)
- Resource "User counters 64" (/api/tm/3.1/status/local_tm/statistics/extras/user_counters_64)

The following properties in "Global Settings" (/api/tm/3.1/config/active/global_settings) have been added:

- Property "ec2/verify_query_server_cert" was added.
- Property "fault_tolerance/igmp_interval" was added.
- Property "ssl/cache_per_virtualserver" was added.
- Property "ssl/ocsp_max_response_size" was added.
- Property "trafficscript/execution_time_warning" was added.

The following properties in "Virtual Server" (/api/tm/3.1/config/active/virtual_servers) have been added:

- Property "basic/close_with_rst" was added.
- Property "log/session_persistence_verbose" was added.

The following properties in "Pool" (/api/tm/3.1/config/active/pools) have been added:

- Property "basic/node_close_with_rst" was added.

The following properties in "Traffic Manager" (/api/tm/3.1/config/active/traffic_managers) have been added:

- Property "basic/cloud_platform" was added.
- Property "basic/disk_serious" was added.
- Property "basic/disk_warn" was added.

Changes in Version 3.0

Note: The Traffic Manager REST representation of pool nodes has changed for this release. All nodes and related properties are now contained within a single table (`nodes_table`). For more information, see the Pool configuration resource in the "Resource Model Reference" chapter of the *REST API Guide* for Stingray Traffic Manager release 9.6.

The following resources were added:

- Resource 'NAT Configuration' (/api/tm/3.0/config/active/appliance/nat)

The following properties in 'Global Settings' (/api/tm/3.0/config/active/global_settings) have been added:

- Property 'autoscaler/slm_interval' was added.
- Property 'autoscaler/verbose' was added.
- Property 'fault_tolerance/tipv6_raise_deprecated' was added.
- Property 'ssl/disable_stitched_cbc_hmac' was added.
- Property 'ssl/ocsp_stapling_maximum_refresh_interval' was added.
- Property 'ssl/ocsp_stapling_time_tolerance' was added.
- Property 'ssl/ocsp_stapling_verify_response' was added.

The following properties in 'Pool' (/api/tm/3.0/config/active/pools) have been added:

- Property 'auto_scaling/extraargs' was added.
- Property 'auto_scaling/securitygroupids' was added.
- Property 'auto_scaling/subnetids' was added.
- Property 'basic/nodes_table' was added.
- Property 'ssl/ssl_ciphers' was added.
- Property 'ssl/ssl_support_ssl2' was added.
- Property 'ssl/ssl_support_ssl3' was added.
- Property 'ssl/ssl_support_tls1' was added.
- Property 'ssl/ssl_support_tls1_1' was added.

The following properties in 'Traffic Manager' (/api/tm/3.0/config/active/traffic_managers) have been added:

- Property 'appliance/ipv4_forwarding' was added.

The following properties in 'Virtual Server' (/api/tm/3.0/config/active/virtual_servers) have been added:

- Property 'basic/completionrules' was added.
- Property 'connection/max_transaction_duration' was added.
- Property 'log/save_all' was added.
- Property 'recent_connections/enabled' was added.

- Property 'recent_connections/save_all' was added.
- Property 'ssl/ssl_ciphers' was added.
- Property 'ssl/ssl_support_ssl2' was added.
- Property 'ssl/ssl_support_ssl3' was added.
- Property 'ssl/ssl_support_tls1' was added.
- Property 'ssl/ssl_support_tls1_1' was added.

The following properties in 'Pool' (/api/tm/3.0/config/active/pools) have been removed:

- Property 'basic/disabled' was removed.
- Property 'basic/draining' was removed.
- Property 'basic/nodes' was removed.
- Property 'load_balancing/node_weighting' was removed.
- Property 'load_balancing/priority_values' was removed.