



BROCADE BWC NETCONF PROXY/TRANSPORT - USER GUIDE

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1 PURPOSE

With all interested parties operating under a mutual Non-Disclosure Agreement (NDA), this document serves to provide background information, product capabilities and features, benchmarking scenarios, sample use cases, integration guidelines and example configuration details of the Brocade Vyatta® Network OS VNF Platform.

RFC6241 compliant.

2 INTRODUCTION

Bridge between StackStorm/Brocade Workflow Composer and NETCONF compliant devices

3 DEPLOYMENT AND OPERATIONAL SCENARIOS

3.1 Requirements

This application can be hosted by any workstation or server that provides a Java runtime; minimum version 1.8. If fully qualified domain names are specified as targets, DNS resolution must be functional on the same host.

3.2 External Connection Requests

By default, this application will only accept connections originating from any locally bound network interfaces (i.e. loopback), therefore from within the workstation or server only.

This can be overridden, to also accept connections from external sources by enabling through the command line options, specifically `--http-permit-remote`.

3.3 HTTP Encryption and Authentication

This application currently only supports HTTP Basic Authentication. As such username/passwords are transmitted in Base64 encoded text – this is not secure.

To ensure any request/response data sent or received to this application is secure, it is recommended to operate this application with SSL certificates via the HTTPS protocol. Support for this will be added later.

All data transmitted or received through the NETCONF protocol, operates through the SSH subsystem, and as such is fully encrypted and hence secure. This is more commonly known as NETCONF over SSH, RFC 6242.

3.4 NETCONF automatic operations

This application automatically includes additional NETCONF operations regarding datastore locking. When and as necessary, the `<lock>` and `<unlock>` operations will be included in the transaction with the target device.

3.4.1 NETCONF error-option

Where supported by the target device capabilities, the error option `rollback-on-error` will be issued during any operation that makes changes to a datastore. If this capability is not available on the target device, then `stop-on-error` is issued instead. In addition the ability offered by `test-then-set` capability is also supported, if the target device offers it.

3.5 NETCONF operation attribute

The operation attribute must be specified during any transactions through the request payload to control the target device to provide an identifier for the point in the configuration to perform the operation against. If the attribute is not specified any configuration changes are merged into the specified datastore. The following values are permitted but are dependant on the target device capabilities:

- `merge` - The configuration data identified by the element containing this attribute is merged with the configuration at the corresponding level in the configuration datastore identified by the `<target>` parameter. This is the default behavior.
- `replace` - The configuration data identified by the element containing this attribute replaces any related configuration in the configuration datastore identified by the `<target>` parameter. If no such configuration data exists in the configuration datastore, it is created. Unlike a `<copy-config>` operation, which replaces the entire target configuration, only the configuration actually present in the `<config>` parameter is affected.
- `create` - The configuration data identified by the element containing this attribute is added to the configuration if and only if the configuration data does not already exist in the configuration datastore. If the configuration data exists, an `<rpc-error>` element is returned with an `<error-tag>` value of "data-exists".
- `delete` - The configuration data identified by the element containing this attribute is deleted from the configuration if and only if the configuration data currently exists in the configuration datastore. If the configuration data does not exist, an `<rpc-error>` element is returned with an `<error-tag>` value of "data-missing".

- `remove` - The configuration data identified by the element containing this attribute is deleted from the configuration if the configuration data currently exists in the configuration datastore. If the configuration data does not exist, the "remove" operation is silently ignored by the server.
- `none` - Do nothing with the configuration data

The attribute can be specified globally from within the request payload (`"operation": "merge"`), or on specific config by setting the global value to none and including the operation within the supplied XML as per the example below:

```
<services xmlns="http://brocade.com/ns/csp" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0">
  <vcpe xmlns="http://com.example/vcpe" operation="delete">
    <identifier>CSP-10001-ORD</identifier>
  </vcpe>
</services>
```

3.6 Slaves

Some NETCONF target devices may be servers rather than traditional network devices and may provide multiple IP endpoints that can be called if the previous target is not responding or is not reachable. This is contrary to the IP endpoint being a single virtual IP address bound to multiple network interfaces across a group of servers utilizing protocols such as ARP to allow data to be switched to the correct location.

Other scenarios may also include matched pairs of switches/routers that are operating under configuration replication schemes, much like vyatta's configuration synchronization. In these scenarios, the slaves feature allows the designated target configuration master to be specified in the primary request payload, and the hot-standby to be specified in the optional slaves request payload (JSON array). In event the master can either not be reached, SSH transport or NETCONF subsystem are not responding; then each defined slave will be attempted until either a connection is successful or the list of slaves has been exhausted. Appropriate messages will be included within any supplied response to indicate which targets failed and which, if any, were successful.

Currently only the SSH transport (and hence NETCONF subsystem) read timeout can be specified; the initial IP connection timeout defaults to the Java environment value for TCP socket timeouts. The socket read timeout though can be specified in the request payload and will allow for interrupted communications to be trapped and successfully disconnected without blocking requests.

Credentials (usernames, passwords, keys) must be common across all targets and linked slaves; only IP addresses/FQDNs and SSH subsystem port numbers can vary between targets.

3.7 In-Stream XPath

When target devices do not provide the capability `"urn:ietf:params:netconf:capability:xpath:1.0"` during get-config operations, this application undertakes in-stream processing to apply the specified XPath expression to the retrieved data before returning the results to the calling party.

The response body will indicate if this has happened by setting the warning flag:

```
"warning:host x.x.x.x does not provide capability urn:ietf:params:netconf:capability:xpath:1.0, performing
XPath in-stream"
```

XPath expressions are not validated prior to performing the operation but are validated during the in-stream processing. Any invalid XPath expression will be reported with the exception flag set, in addition to the XPath expression exception message, similar to:

```
"exception:javax.xml.xpath.XPathExpressionException: javax.xml.transform.TransformerException: A location
path was expected, but the following token was encountered: )" "
```

4 REST PAYLOADS

The REST request and response payloads use a consistent format regardless of NETCONF operation and REST call.

| | | |
|----------------|---|--|
| Model | RESTful | The following API calls are restricted to within the compute engine hosting the NETCONF manager (listening on loopback 127.0.0.1/::1) unless the servlet deployment parameter <code>bwcNetconf.allow.remote.requests</code> has been set to true; if set to true then requests are listened for across all interfaces. To control this action at startup through the command line include the option <code>--http-permit-remote</code> |
| Protocol | HTTP | |
| Root Path | /netconf | |
| Port | 8070 | |
| Authentication | Basic Authentication | |
| Use | All passwords are case sensitive, all usernames and realms are case insensitive | |

4.1 Common Request Payload

| HTTP Parameters | | | Common HTTP request | | | |
|-----------------|--------|--------|---------------------|-----|------------------|---|
| Name | Style | JSON | Type | M/O | Value | Description |
| Authorization | Header | N/A | String | M | Basic ... | Base64 Encoded |
| Accept | Header | N/A | String | M | application/json | HTTP header |
| Content-Type | Header | | String | M | application/json | HTTP header |
| Content-Length | Header | | Integer | M | {size of body} | HTTP header |
| Request | Body | Array | | M | request | HTTP body, raw encoded |
| Host | Body | Object | String | M | 192.168.56.160 | Target IP address or FQDN |
| port | Body | Object | Number | M | 22 | Target SSH NETCONF subsystem port number |
| username | Body | Object | String | M | admin | Target device username |
| password | Body | Object | String | M | admin | Target device password |
| xml | Body | Object | String | M | | NETCONF XML configuration, which will require pre-processing to replace " with \" |
| datastore | Body | Object | String | M | running | NETCONF datastore being one of: <ul style="list-style-type: none"> running startup candidate |

| | | | | | | |
|-------------|------|--------|---------|---|--------|---|
| | | | | | | Not all targets support the full list of datastores. |
| operation | Body | Object | String | M | none | NETCONF operation attribute value: <ul style="list-style-type: none"> • merge • replace • create • delete • remove • none |
| url | Body | Object | String | O | | Source/destination URL for copy operations |
| config etc. | Body | Object | String | O | config | NETCONF XPath expression |
| bypass | Body | Object | Boolean | M | false | true or false, allows payload to be verified by this application but no subsequent call to the specified target will be attempted |
| callback | Body | Array | | O | | Optional for asynchronous operation with callback rather than synchronous operation |
| identifier | Body | Object | String | O | | Identifier to allow calling system to subsequently correctly identify asynchronous callback |
| url | Body | Object | String | M | | URL for HTTP/HTTPS destination callback |
| ssh | Body | Array | | M | | |
| privateKey | Body | Object | String | O | | SSH Private Key |
| passphrase | Body | Object | String | O | | SSH Passphrase |
| debug | Body | Object | Boolean | M | False | true or false, SSH Transport Debug |
| readTimeOut | Body | Object | Number | M | 600 | SSH Read Time Out Duration |
| strictHosts | Body | Object | Boolean | M | true | True or false, SSH Strict Host Fingerprint Check |
| slaves | Body | Array | | O | slaves | Target Slaves List |

| | | | | | | |
|------|------|--------|--------|---|----------------|--|
| host | Body | Object | String | M | 192.168.56.161 | Target slave IP address or FQDN |
| port | Body | Object | Number | M | 22 | Target slave SSH NETCONF subsystem port number |

4.1.1 Example

The request contained within the HTTP body must be supplied in raw format, not form-data, x-www-form-urlencoded or binary.

```
{
  "request": [
    {
      "host": "192.168.56.160",
      "port": 22,
      "username": "vyatta",
      "password": "vyatta",
      "xml": "",
      "datastore": "running",
      "operation": "none",
      "url": "",
      "config": "/interfaces/dataplane",
      "bypass": false,
      "callback": {
        "identifier": "test0001",
        "passphrase": "http://192.168.3.114:81/post"
      },
      "debug": false,
      "readTimeOut": 600,
      "strictHosts": true
    },
    {
      "ssh": {
        "privateKey": "",
        "passphrase": "",
        "debug": false,
        "readTimeOut": 600,
        "strictHosts": true
      },
      "slaves": [
        {
          "host": "192.168.56.161",
          "port": 22
        },
        {
          "host": "192.168.56.162",
          "port": 22
        }
      ]
    }
  ]
}
```

The request payload can be simplified by excluding unused JSON fields, such as optional callback and ssh definitions, or any JSON field with a default value:

```
{
  "request": [
    {
      "host": "192.168.56.160",
      "port": 22,
      "username": "vyatta",
      "password": "vyatta",
      "xml": "",
      "datastore": "running",
      "operation": "none",
      "url": "",
      "config": "/interfaces/dataplane"
    }
  ]
}
```

4.2 Common Response Payload

| HTTP Parameters | | | Common HTTP response | | | |
|-----------------|--------|--------|----------------------|-----|------------------|--|
| Name | Style | JSON | Type | M/O | Value | Description |
| Status Code | Header | N/A | Number | M | | HTTP status code, 200 for successful synchronous requests, 202 for successful asynchronous requests. Other error codes as deemed necessary |
| Content-Type | Header | | String | M | application/json | HTTP header |
| Content-Length | Header | | Integer | M | {size of body} | HTTP header |
| response | Body | Array | | M | | |
| rpcWarning | Body | Object | Boolean | M | false | true or false, Warning Indicator |
| rpcError | Body | Object | Boolean | M | false | true or false, Error Indicator |
| rpcException | Body | Object | Boolean | M | false | true or false, Exception Indicator |
| rpcOk | Body | Object | String | M | true | true or false, Ok (success) Indicator |
| rpcCallback | Body | Object | Boolean | M | false | true or false, Callback requested indicator |
| callback | Body | Array | | O | | Included only if callback was requested on request, provided for confirmation purposes only |
| identifier | Body | Object | String | O | | Identifier to allow calling system to subsequently correctly identify asynchronous callback |
| url | Body | Object | String | M | | URL for HTTP/HTTPS destination callback |

| | | | | | | |
|-------------|------|--------|--------|---|--|--|
| messageId | Body | Object | Number | M | | NETCONF message id |
| sessionId | Body | Object | Number | M | | NETCONF session id, 0 indicates unsuccessful NETCONF connection |
| xml | Body | Object | String | O | | Retrieved configuration, may require post-processing if contains an XML document by replacing \" with just " |
| rpcMessages | Body | Array | | M | | |
| message | Body | Array | String | M | | |

4.2.1 Synchronous Example

```

{
  "response": [
    [
      {
        "rpcWarning": true,
        "rpcError": false,
        "xml": "<dataplane xmlns=\"urn:vyatta.com:mgmt:vyatta-interfaces-dataplane:1\"><tagnode>dp0p33p1</tagnode><address>dhcp</address></dataplane>",
        "rpcException": false,
        "messageId": 3,
        "sessionId": 9,
        "rpcCallback": false,
        "rpcOk": true,
        "rpcMessages": [
          {
            "message": [
              "started:2017-01-03 22:22:02",
              "ok:target host 192.168.56.160:22 connected",
              "ok:target host 192.168.56.160:22 NETCONF established",
              "warning:host 192.168.56.160 does not provide capability urn:ietf:params:netconf:capability:xpath:1.0, performing XPath in-stream",
              "ok:target host 192.168.56.160:22 NETCONF terminated",
              "ok:target host 192.168.56.160:22 disconnected",
              "stopped:2017-01-03 22:22:02"
            ]
          }
        ]
      }
    ]
  ]
}

```

4.2.2 Asynchronous Example

The calling client will receive HTTP status code 202, “The request has been accepted for processing, but the processing has not been completed. The request might or might not be eventually acted upon, and may be disallowed when processing occurs.” and an empty JSON response:

```

{}

```

The callback will include additional HTTP headers to allow further observations to be made:

- "Cache-Control": "no-cache"
- "Content-Length": "1028"
- "Content-Type": "application/json; charset=UTF-8"
- "Pragma": "no-cache"
- "User-Agent": "bwcNetconf/0.2"

Cache-Control and Pragma are used to ensure the application behind the callback URL does not cache any previous results. Content-Length and Content-Type reflect size and type of HTTP body, in this case JSON.

User-Agent is included and specifies the calling version of this application (agent-name/agent-version i.e. bwcNetconf/0.2).

At some point later, depending on the execution time of the requested NETCONF operation, the specified callback URL will be used to send the response to.

```
{
  "response": [
    [
      {
        "rpcWarning": true,
        "rpcError": false,
        "xml": "<dataplane xmlns=\"urn:vyatta.com:mgmt:vyatta-interfaces-dataplane:1\"><tagnode>dp0p33p1</tagnode><address>dhcp</address></dataplane>",
        "rpcException": false,
        "messageId": 3,
        "sessionId": 9,
        "rpcCallback": true,
        "callback": {
          "identifier": "test0001",
          "url": "http://192.168.3.114:81/post"
        },
        "rpcOk": true,
        "rpcMessages": [
          {
            "message": [
              "started:2017-01-03 22:22:02",
              "ok:target host 192.168.56.160:22 connected",
              "ok:target host 192.168.56.160:22 NETCONF established",
              "warning:host 192.168.56.160 does not provide capability urn:ietf:params:netconf:capability:xpath:1.0, performing XPath in-stream",
              "ok:target host 192.168.56.160:22 NETCONF terminated",
              "ok:target host 192.168.56.160:22 disconnected",
              "stopped:2017-01-03 22:22:02"
            ]
          }
        ]
      }
    ]
  ]
}
```

If the NETCONF operation fails, the response will include any available detail.

If the specified callback URL is incorrect, not reachable or malformed, the callback error will be logged on the application and no retries will be attempted.

Appendix A REST API

A.1 Introduction

| | | |
|------------------------------------|-------------------------------|--|
| HTTP Verb | GET | NETCONF manager copyright/version banner |
| Path pattern | /about | |
| Servlet class | com.brocade.bwc.netconf.About | |
| Additional HTTP Request Parameters | | |

| | | |
|------------------------------------|------------------------------------|--|
| HTTP Verb | POST | NETCONF operation <code><copy-config></code> |
| Path pattern | /config/copy | |
| Servlet class | com.brocade.bwc.netconf.CopyConfig | |
| Additional HTTP Request Parameters | | |

| | | |
|------------------------------------|------------------------------------|-----------------------------------|
| HTTP Verb | POST | NETCONF operation <delete-config> |
| Path pattern | /config/delete | |
| Servlet class | com.brocade.bwc.netconf.CopyConfig | |
| Additional HTTP Request Parameters | | |

| | | |
|------------------------------------|------------------------------------|-----------------------------------|
| HTTP Verb | POST | NETCONF operation <delete-config> |
| Path pattern | /config/edit | |
| Servlet class | com.brocade.bwc.netconf.EditConfig | |
| Additional HTTP Request Parameters | | |

| | | |
|------------------------------------|-----------------------------|---|
| HTTP Verb | POST | NETCONF operation <get> |
| Path pattern | /get | |
| Servlet class | com.brocade.bwc.netconf.Get | |
| Additional HTTP Request Parameters | | |

| | | |
|------------------------------------|-----------------------------------|--|
| HTTP Verb | POST | NETCONF operation <get-config> |
| Path pattern | /config/get | |
| Servlet class | com.brocade.bwc.netconf.GetConfig | |
| Additional HTTP Request Parameters | | |

| | | |
|------------------------------------|-----------------------------------|--------------------------------|
| HTTP Verb | POST | NETCONF operation <get-schema> |
| Path pattern | /schema/get | |
| Servlet class | com.brocade.bwc.netconf.GetSchema | |
| Additional HTTP Request Parameters | | |

Appendix B COMMAND LINE OPTIONS

B.1 Introduction

```
C:\>java -jar dist\bwcNetconf.jar --help
```

B.2 Available Options

| Option | Alt Option | M/O | Default | Argument | Description |
|----------------------|------------|-----|-------------|-----------------------|--|
| --debug | -d | O | N/A | N/A | Additional verbose debug output is provided |
| --help | -? | O | N/A | N/A | List of available options and servlet endpoints - endpoint URIs can change if http-context specified |
| --http-password | -hap | O | YWRtaW4= | Password String value | HTTP Authorization Basic Password Basic64 encoded |
| --http-realm | -har | O | brocade.com | Realm String value | HTTP Authorization Realm |
| --http-username | -hau | O | admin | Username String value | HTTP Authorization Basic Username |
| --http-context | -hc | O | netconf | Context String value | Parent/application context root path for URL |
| --http-min-threads | -hn | O | 2 | Number of threads | Minimum available number of threads available for handling requests |
| --http-max-threads | -hm | O | 250 | Number of threads | Maximum available number of threads available for handling requests |
| --http-port | -hp | O | 8070 | Port Number | Port used to listen for incoming requests |
| --http-permit-remote | -hpr | O | N/A | N/A | Allow external/remote requests to be processed, rather than those originating from any local network interface |

| | | | | | |
|---|---------|---|--------------|--------------------------|---|
| --http-async-authorization-header-name | --haahn | 0 | X-Auth-Token | Custom HTTP Header name | Typically used for async callbacks where custom HTTP headers are used to provide authorization, i.e. BWC/StackStorm rule - this is only used if async callback was requested within the initial request |
| --http-async-authorization-header-value | --haahv | 0 | NULL | Custom HTTP Header value | |
| --http-async-thread-pool-size | -hatps | 0 | 10 | Number of threads | Maximum available number of threads available for handling asynchronous callback tasks |

If any unsupported options are presented, the application will fail to start and report the offending item:

```
C:\>java -jar dist\bwcNetconf.jar --http-big-payload

BWC Netconf Proxy/Transport, version: 0.2, Copyright (c) 2016 by Brocade

usage: bwcNetconf
  -?,--help                help
  -d,--debug               Additional debug output
  -hap,--http-password <arg> HTTP Auth Password [YWRtaW4=] (Base64)
  -har,--http-realm <arg>   HTTP Auth Realm [brocade.com]
  -hau,--http-username <arg> HTTP Auth Username [admin]
  -hb,--http-bind <arg>    HTTP Bind IP Address [0.0.0.0]
  -hc,--http-context <arg> HTTP Context [/netconf]
  -hm,--http-max-threads <arg> HTTP Maximum Threads [250]
  -hn,--http-min-threads <arg> HTTP Minimum Threads [2]
  -hp,--http-port <arg>    HTTP Listen Port [8070]
  -hpr,--http-permit-remote HTTP Permit Non-Local Connections
Unrecognized option: --http-big-payload
```

In the same manner, including the help option anywhere on the command line, will force the application to display context sensitive options and exit immediately.

```
C:\>java -jar dist\bwcNetconf.jar --help
BWC Netconf Proxy/Transport, version: 0.2, Copyright (c) 2016 by Brocade

usage: bwcNetconf
  -?,--help                help
  -d,--debug               Additional debug output
  -haahn,--http-async-authorization-header-name <arg> HTTP Async Header Authorization name [X-Auth-Token]
  -haahv,--http-async-authorization-header-value <arg> HTTP Async Header Authorization value
  -hap,--http-password <arg> HTTP Auth Password [YWRtaW4=] (Base64)
  -har,--http-realm <arg>   HTTP Auth Realm [brocade.com]
  -hatps,--http-async-thread-pool-size <arg> HTTP Async Thread Pool size [10]
  -hau,--http-username <arg> HTTP Auth Username [admin]
  -hb,--http-bind <arg>    HTTP Bind IP Address [0.0.0.0]
  -hc,--http-context <arg> HTTP Context [/netconf]
  -hm,--http-max-threads <arg> HTTP Maximum Threads [250]
  -hn,--http-min-threads <arg> HTTP Minimum Threads [2]
  -hp,--http-port <arg>    HTTP Listen Port [8070]
  -hpr,--http-permit-remote HTTP Permit Non-Local Connections

Available Servlets:
[1]      [GET]    /netconf/about
[2]      [POST]   /netconf/action
[3]      [POST]   /netconf/config/copy
[4]      [POST]   /netconf/config/delete
[5]      [POST]   /netconf/config/edit
[6]      [POST]   /netconf/config/get
[7]      [POST]   /netconf/get
[8]      [POST]   /netconf/schema/get
```

The application can be shutdown by issuing the quit signal, either via CTRL-C or appropriate KILL commands. Until that happens, the application reports all option values, incoming connections and requests:

```
C:\>java -jar dist\bwcNetconf.jar
Startup in progress
Max Threads: 250 Min Threads: 2
Added servlet: 0.0.0.0:8070/netconf/about [GET]
Added servlet: 0.0.0.0:8070/netconf/action [POST]
Added servlet: 0.0.0.0:8070/netconf/config/copy [POST]
Added servlet: 0.0.0.0:8070/netconf/config/delete [POST]
Added servlet: 0.0.0.0:8070/netconf/config/edit [POST]
Added servlet: 0.0.0.0:8070/netconf/config/get [POST]
Added servlet: 0.0.0.0:8070/netconf/get [POST]
Added servlet: 0.0.0.0:8070/netconf/schema/get [POST]
Jan 05, 2017 12:54:55 PM org.mortbay.http.HttpServer doStart
INFO: Version Jetty/5.1.9
Jan 05, 2017 12:54:55 PM org.mortbay.util.Container start
INFO: Started org.mortbay.jetty.servlet.ServletHandler@14514713
Jan 05, 2017 12:54:55 PM org.mortbay.util.Container start
INFO: Started ServletHttpContext[/,/]
Jan 05, 2017 12:54:55 PM org.mortbay.http.SocketListener start
INFO: Started SocketListener on 0.0.0.0:8070
Jan 05, 2017 12:54:55 PM org.mortbay.util.Container start
INFO: Started org.mortbay.jetty.Server@3b9a45b3
Startup completed
bwcNetconf: connection from 127.0.0.1 requesting /netconf/config/get
bwcNetconf: connection from local host permitted
bwcNetconf: authorized connection from 127.0.0.1
bwcNetconf: client 127.0.0.1 request completed
bwcNetconf: connection from 127.0.0.1 requesting /netconf/config/get
bwcNetconf: connection from local host permitted
bwcNetconf: authorized connection from 127.0.0.1
bwcNetconf: formatting XML response
bwcNetconf: XML response formatted
bwcNetconf: client 127.0.0.1 request completed
bwcNetconf: connection from 127.0.0.1 requesting /netconf/config/get
bwcNetconf: connection from local host permitted
bwcNetconf: authorized connection from 127.0.0.1
bwcNetconf: formatting XML response
bwcNetconf: XML response formatted
bwcNetconf: client 127.0.0.1 request completed
Shutting down
Shutdown completed
```

When debug has been enabled, the output is enhanced with verbose output:

```
C:\>java -jar dist\bwcNetconf.jar
bwcNetconf: added async HTTP authorization header: X-Auth-Token=63074d8b229d4e138d68041198c1d047
bwcNetconf: startup in progress
Feb 03, 2017 2:44:33 PM org.mortbay.http.HttpServer setStatsOn
INFO: Statistics on = false for org.mortbay.jetty.Server@6d311334
bwcNetconf: listener threads min=2, max=250
bwcNetconf: async thread pool size=dynamic
bwcNetconf: added servlet: 0.0.0.0:8070/netconf/about [GET]
bwcNetconf: added servlet: 0.0.0.0:8070/netconf/action [POST]
bwcNetconf: added servlet: 0.0.0.0:8070/netconf/config/copy [POST]
bwcNetconf: added servlet: 0.0.0.0:8070/netconf/config/delete [POST]
bwcNetconf: added servlet: 0.0.0.0:8070/netconf/config/edit [POST]
bwcNetconf: added servlet: 0.0.0.0:8070/netconf/config/get [POST]
bwcNetconf: added servlet: 0.0.0.0:8070/netconf/get [POST]
bwcNetconf: added servlet: 0.0.0.0:8070/netconf/schema/get [POST]
Feb 03, 2017 2:44:33 PM org.mortbay.http.HttpServer doStart
INFO: Version Jetty/5.1.9
Feb 03, 2017 2:44:33 PM org.mortbay.util.Container start
INFO: Started org.mortbay.jetty.servlet.ServletHandler@1de0aca6
Feb 03, 2017 2:44:33 PM org.mortbay.util.Container start
INFO: Started ServletHttpContext[/,/]
bwcNetconf: startup completed
Feb 03, 2017 2:44:33 PM org.mortbay.http.SocketListener start
INFO: Started SocketListener on 0.0.0.0:8070
Feb 03, 2017 2:44:33 PM org.mortbay.util.Container start
INFO: Started org.mortbay.jetty.Server@6d311334
bwcNetconf: connection from 127.0.0.1 requesting /netconf/schema/get
bwcNetconf: connection from local host permitted
bwcNetconf: request body follows:
{ "request": [ { "host": "192.168.3.10", "port": 22, "username":
"vyatta", "password": "vyatta", "xml": "", "datastore": "running", "operation":
"none", "url": "", "config": "/interfaces", "bypass": false, "callback":
{ "identifier": "test0003", "url": "https://192.168.3.148/api/v1/webhooks/netconf/callback" },
"ssh": { "privateKey": "", "passphrase": "", "debug": false, "readTimeOut":
600, "strictHosts": true } } ] }
```

```

bwcNetconf: request HTTP header: Host=127.0.0.1:8070
bwcNetconf: request HTTP header: Connection=keep-alive
bwcNetconf: request HTTP header: Content-Length=567
bwcNetconf: request HTTP header: Accept=application/json
bwcNetconf: request HTTP header: Cache-Control=no-cache
bwcNetconf: request HTTP header: Origin=chrome-extension://fhbjgbiflinjbdggehcddcbncdddomop
bwcNetconf: request HTTP header: Authorization=Basic YWRtaW46YWRtaW4=
bwcNetconf: request HTTP header: Content-Type=application/json
bwcNetconf: request HTTP header: User-Agent=Mozilla/5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36
(KHTML, like Gecko) Chrome/57.0.2987.21 Safari/537.36
bwcNetconf: request HTTP header: Postman-Token=6638550f-0dc3-b608-4385-c9929506a6ab
bwcNetconf: request HTTP header: DNT=1
bwcNetconf: request HTTP header: Accept-Encoding=gzip, deflate, br
bwcNetconf: request HTTP header: Accept-Language=en-GB,en;q=0.8
bwcNetconf: authorized connection from 127.0.0.1
bwcNetconf: callback requested from 127.0.0.1 for [test0003] to
https://192.168.3.148/api/v1/webhooks/netconf/callback
bwcNetconf: response body follows:
{}
bwcNetconf: client 127.0.0.1 request completed
bwcNetconf: async callback for [test0003] requested to https://192.168.3.148/api/v1/webhooks/netconf/callback
started
bwcNetconf: async callback for [test0003] request HTTP POST header: Cache-Control=no-cache
bwcNetconf: async callback for [test0003] request HTTP POST header: Accept=application/json
bwcNetconf: async callback for [test0003] request HTTP POST header: X-Auth-
Token=63074d8b229d4e138d68041198c1d047
bwcNetconf: async callback for [test0003] request HTTP POST header: User-Agent=bwcNetconf/0.2
bwcNetconf: async callback for [test0003] request HTTP POST header: Pragma=no-cache
bwcNetconf: async callback for [test0003] request HTTP POST header: Content-
Type=application/json;charset=UTF-8
bwcNetconf: async callback for [test0003] request HTTP POST body follows:
{"response": [{"rpcWarning": true, "rpcError": false, "xml": "", "rpcException": false, "messageId": 2, "callback": {"id
entifier": "test0003", "url": "https://192.168.3.148/api/v1/webhooks/netconf/callback"}, "sessionId": 0, "rpcOk": tr
ue, "rpcCallback": true, "rpcMessages": [{"message": ["started:2017-02-03 14:44:35", "ok:callback
requested"], "warning:target host 192.168.3.10:22 not available, trying next slave", "stopped:2017-02-03
14:44:56"]}]}]}
bwcNetconf: async callback for [test0003] response HTTP POST status code: 202
bwcNetconf: async callback for [test0003] response HTTP POST body follows:
{"response": [{"xml": "", "rpcError": false, "rpcException": false, "rpcWarning": true, "callback": {"url":
"https://192.168.3.148/api/v1/webhooks/netconf/callback", "identifier": "test0003"}, "sessionId": 0,
"messageId": 2, "rpcOk": true, "rpcMessages": [{"message": ["started:2017-02-03 14:44:35", "ok:callback
requested"], "warning:target host 192.168.3.10:22 not available, trying next slave", "stopped:2017-02-03
14:44:56"]}]}]}
bwcNetconf: async callback for [test0003] response HTTP POST: HTTP/1.1 202 Accepted
bwcNetconf: async callback for [test0003] response HTTP POST header: Access-Control-Expose-Headers=Content-
Type,X-Limit,X-Total-Count,X-Request-ID
bwcNetconf: async callback for [test0003] response HTTP POST header: Server=nginx/1.10.3
bwcNetconf: async callback for [test0003] response HTTP POST header: X-Request-ID=3f06918a-4e4b-40f6-aa39-
8b5689b0b7cd
bwcNetconf: async callback for [test0003] response HTTP POST header: Access-Control-Allow-
Origin=http://127.0.0.1:3000
bwcNetconf: async callback for [test0003] response HTTP POST header: Access-Control-Allow-
Methods=GET,POST,PUT,DELETE,OPTIONS
bwcNetconf: async callback for [test0003] response HTTP POST header: Connection=keep-alive
bwcNetconf: async callback for [test0003] response HTTP POST header: Content-Length=455
bwcNetconf: async callback for [test0003] response HTTP POST header: Access-Control-Allow-Headers=Content-
Type,Authorization,X-Auth-Token,St2-Api-Key,X-Request-ID
bwcNetconf: async callback for [test0003] response HTTP POST header: Date=Fri, 03 Feb 2017 14:45:06 GMT
bwcNetconf: async callback for [test0003] response HTTP POST header: Content-Type=application/json
bwcNetconf: async callback for [test0003] requested to https://192.168.3.148/api/v1/webhooks/netconf/callback
completed, status code: 202
Shutting down
Shutdown completed

```

Appendix C NETCONF OPERATION EXAMPLES

4.3 Target not reachable

rpcOk being false and session id if zero indicates unsuccessful operation as unable to reach the specified target.

```
{
  "request": [
    {
      "host": "1.2.3.4",
      "port": 22,
      "username": "vyatta",
      "password": "vyatta",
      "xml": "",
      "datastore": "running",
      "operation": "none",
      "url": "",
      "config": ""
    }
  ]
}
```

```
{
  "response": [
    [
      {
        "rpcWarning": true,
        "rpcError": false,
        "xml": "",
        "rpcException": false,
        "messageId": 3,
        "sessionId": 0,
        "rpcOk": false,
        "rpcMessages": [
          {
            "message": [
              "started:2017-01-05 16:14:35",
              "warning:target host 1.2.3.4:22 not available, trying next slave",
              "stopped:2017-01-05 16:14:56"
            ]
          }
        ]
      }
    ]
  ]
}
```

4.4 Target not reachable, specified failover targets (slave)

Attempt target 1.2.3.4, then 1.2.3.5, then 192.168.56.160

```
{
  "request": [
    {
      "host": "1.2.3.4",
      "port": 22,
      "username": "vyatta",
      "password": "vyatta",
      "xml": "",
      "datastore": "running",
      "operation": "none",
      "url": "",
      "config": "/interfaces/dataplane",
      "bypass": false,
      "ssh": {
        "privateKey": "",
        "passphrase": "",
        "debug": false,
        "readTimeout": 600,
        "strictHosts": true
      },
      "slaves": [
        {
          "host": "1.2.3.5",
          "port": 22
        }
      ]
    }
  ]
}
```

```

    {
      "host": "192.168.56.160",
      "port": 22
    }
  ]
}

```

```

{
  "response": [
    [
      {
        "rpcWarning": true,
        "rpcError": false,
        "xml": "<dataplane xmlns=\"urn:vyatta.com:mgmt:vyatta-interfaces-dataplane:1\"><tagnode>dp0p33p1</tagnode><address>dhcp</address></dataplane>",
        "rpcException": false,
        "messageId": 3,
        "sessionId": 2,
        "rpcOk": true,
        "rpcMessages": [
          {
            "message": [
              "started:2017-01-05 16:32:28",
              "warning:target host 1.2.3.4:22 not available, trying next slave",
              "warning:target host 1.2.3.5:22 not available, trying next slave",
              "ok:target host 192.168.56.160:22 connected",
              "ok:target host 192.168.56.160:22 NETCONF established",
              "warning:host 192.168.56.160 does not provide capability urn:ietf:params:netconf:capability:xpath:1.0, performing XPath in-stream",
              "ok:target host 192.168.56.160:22 NETCONF terminated",
              "ok:target host 192.168.56.160:22 disconnected",
              "stopped:2017-01-05 16:33:11"
            ]
          }
        ]
      }
    ]
  ]
}

```

4.5 get-config with XPath expressions

XPath expression= /system/acm/operational-ruleset/rule[7]

```

{
  "request": [
    {
      "host": "192.168.56.160",
      "port": 22,
      "username": "vyatta",
      "password": "vyatta",
      "xml": "",
      "datastore": "running",
      "operation": "none",
      "url": "",
      "config": "/system/acm/operational-ruleset/rule[7]",
      "bypass": false,
      "ssh": {
        "privateKey": "",
        "passphrase": "",
        "debug": false,
        "readTimeout": 600,
        "strictHosts": true
      }
    }
  ]
}

```

```

{
  "response": [
    [
      {
        "rpcWarning": true,
        "rpcError": false,

```

```

    "xml": "<rule><tagnode>9983</tagnode><action>allow</action><command>/show/tech-support/brief/save-
uncompressed</command><group>vyattaop</group></rule>",
    "rpcException": false,
    "messageId": 2,
    "sessionId": 1,
    "rpcOk": true,
    "rpcMessages": [
      {
        "message": [
          "started:2017-01-05 16:27:33",
          "ok:target host 192.168.56.160:22 connected",
          "ok:target host 192.168.56.160:22 NETCONF established",
          "warning:host 192.168.56.160 does not provide capability
urn:ietf:params:netconf:capability:xpath:1.0, performing XPath in-stream",
          "ok:target host 192.168.56.160:22 NETCONF terminated",
          "ok:target host 192.168.56.160:22 disconnected",
          "stopped:2017-01-05 16:27:34"
        ]
      }
    ]
  }
]
}

```

XPath expression= /system/config-management/commit-revisions/text()

```

{
  "request": [
    {
      "host": "192.168.56.160",
      "port": 22,
      "username": "vyatta",
      "password": "vyatta",
      "xml": "",
      "datastore": "running",
      "operation": "none",
      "url": "",
      "config": "/system/config-management/commit-revisions/text()",
      "bypass": false,
      "ssh": {
        "privateKey": "",
        "passphrase": "",
        "debug": false,
        "readTimeOut": 600,
        "strictHosts": true
      }
    }
  ]
}

```

```

{
  "response": [
    [
      {
        "rpcWarning": true,
        "rpcError": false,
        "xml": "20",
        "rpcException": false,
        "messageId": 7,
        "sessionId": 6,
        "rpcOk": true,
        "rpcMessages": [
          {
            "message": [
              "started:2017-01-05 16:37:28",
              "ok:target host 192.168.56.160:22 connected",
              "ok:target host 192.168.56.160:22 NETCONF established",
              "warning:host 192.168.56.160 does not provide capability
urn:ietf:params:netconf:capability:xpath:1.0, performing XPath in-stream",
              "ok:target host 192.168.56.160:22 NETCONF terminated",
              "ok:target host 192.168.56.160:22 disconnected",
              "stopped:2017-01-05 16:37:28"
            ]
          }
        ]
      }
    ]
  ]
}

```

```
]
}
```

4.6 get-schema

Will retrieve all reported capabilities of the target and all corresponding YANG modules that make up those capabilities if available from the target.

```
{
  "request": [
    {
      "host": "192.168.3.135",
      "port": 22,
      "username": "vyatta",
      "password": "vyatta",
      "xml": "",
      "datastore": "running",
      "operation": "none",
      "url": "",
      "config": ""
    }
  ]
}
```

```
{
  "response": [
    [
      {
        "rpcWarning": false,
        "rpcError": false,
        "xml": "<schema><module name=\"vyatta-protocols-mld-v1\" uri=\"urn:vyatta.com:mgmt:vyatta-protocols-mld:1\" revision=\"2016-07-27\" format=\"yang\" length=\"10921\"><module vyatta-protocols-mld-v1 {<tnamespace xmlns:vyatta=\"urn:vyatta.com:mgmt:vyatta-protocols-mld:1\"><tprefix vyatta-protocols-mld-v1;<timport vyatta-types-v1 {<tprefix types;<t}><timport vyatta-protocols-v1 {<tprefix protocols;<t}><timport configd-v1 {<tprefix configd;<t}><timport vyatta-interfaces-v1 {<tprefix if;<t}><timport vyatta-interfaces-bonding-v1 {<tprefix interfaces-bonding;<t}><timport vyatta-interfaces-bridge-v1 {<tprefix interfaces-bridge;<t}><timport vyatta-interfaces-dataplane-v1 {<tprefix interfaces-dataplane;<t}><timport vyatta-interfaces-l2tpeth-v1 {<tprefix interfaces-l2tpeth;<t}><timport vyatta-interfaces-loopback-v1 {<tprefix interfaces-loopback;<t}><timport vyatta-interfaces-openvpn-v1 {<tprefix interfaces-openvpn;<t}><timport vyatta-interfaces-tunnel-v1 {<tprefix interfaces-tunnel;<t}><timport vyatta-interfaces-vti-v1 {<tprefix interfaces-vti;<t}><timport vyatta-policy-v1 {<tprefix policy;<t}><timport vyatta-policy-route-v1 {<tprefix policy-route;<t}><torganization \"Brocade Communications Systems, Inc.\"<tcontact \"Brocade Communications Systems, Inc.\"<tpostal \"130 Holger Way\"<tlocation \"San Jose, CA 95134\"<te-mail \"support@Brocade.com\"<tweb \"www.brocade.com\"<tdescription \"Copyright (c) 2014-2016 by Brocade Communications Systems, Inc.\"<tall-rights-reserved \"The YANG module for vyatta-protocols-mld-v1\"<trevision \"2016-07-27\"<tdescription \"Add MLD configuration for bonding interfaces\"<trevision \"2016-03-09\"<tdescription \"Add leafrefs and must statements to replace local-only validation\"<tupdate \"mld-interface-parameters/mld presence description\"<trevision \"2015-07-28\"<tdescription \"New module, replaces vyatta-protocols-mld\"<tconfig:migration 1;<ttypedef static-group-source-v6 {<ttype union {<ttype string {<tconfig:pattern-help \"ssm-map\";<tconfig:help \"Use SSM mapping\";<tIP Address\";<t}><tgrouping mld-interface-parameters {<tcontainer mld {<tpresence \"MLD is configured on the interface\"<tconfig:priority \"770\"<tconfig:help \"Multicast Listener Discovery (MLD)\"<tcontainer immediate-leave {<tpresence \"true\"<tconfig:help \"Immediate leave feature\"<tleaf group-list {<ttype leafref {<tpath \"/policy:policy/policy-route:route/policy-route:access-list6/policy-route:tagnode\"<tconfig:help \"Define multicast groups in which the immediate leave feature is enabled\"<tleaf robustness-variable {<ttype uint32 {<trange 2..7;<tconfig:help \"Configure the robustness variable value on an interface\"<tleaf querier-timeout {<ttype uint32 {<trange 60..300;<tconfig:help \"Configure the timeout period that the router waits after the previous querier has stopped querying before it takes over as the querier\"<tleaf limit-exception {<ttype leafref {<tpath \"/policy:policy/policy-route:route/policy-route:access-list6/policy-route:tagnode\"<tconfig:help \"Specify access-list that defines multicast groups that are exempted from being subject to configured limit\"<tleaf limit {<ttype uint32 {<trange 1..2097152;<tdefault 5000;<tconfig:help \"Configure the limit on the maximum number of group membership states\"<tleaf query-max-response-time {<ttype uint32 {<trange 1..240;<tconfig:help \"Configure the maximum response time advertised in MLD queries\"<tleaf last-member-query-count {<ttype uint32 {<trange 2..7;<tconfig:help \"Set the last-member query-count value\"<tlist static-group {<tconfig:help \"Set standard IPv6 Multicast group address to be configured as a static group member\"<tkey \"tagnode\"<tleaf tagnode {<ttype types:ipv6-address;<t// multicast address {<tmust \"(starts-with(., 'ff'))\" {<terror-message \"Not a valid IPv6 multicast address.\"<tconfig:help \"Set standard IPv6 Multicast group address to be configured as a static group member\"<tleaf-list source {<ttype static-group-source-v6;<t// not (multicast, loopback) or ssm-map {<tmust \"(not(starts-with(., 'ff')) and '+'<ttype \"(not(= '::1')) or \" +<ttype \"(= 'ssm-map')\" {<terror-message \"Not either a valid IPv6 Unicast address or <ssm-map>.\"<tordered-by \"user\"<tconfig:help \"Configure standard IPv6 source address as a static source from where multicast packets originate\"<tleaf last-member-query-interval {<ttype uint32 {<trange
```


[illegible]

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```

protocol such as UDP, TCP, DCCP, or SCTP. Port numbers are assigned by IANA. A current list of
all assignments is available from <http://www.iana.org/> Note that the port number value zero is
reserved by IANA. In situations where the value zero does not make sense, it can be excluded by
subtyping the port-number type. In the value set and its semantics, this type is equivalent to the
InetPortNumber textual convention of the SMIPv2."; reference "\"RFC 768: User Datagram Protocol
RFC 793: Transmission Control Protocol RFC 4960: Stream Control Transmission Protocol RFC 4340:
Datagram Congestion Control Protocol (DCCP) RFC 4001: Textual Conventions for Internet Network
Addresses\"; } /** collection of types related to autonomous systems */ typedef as-number { type
uint32; description "\"The as-number type represents autonomous system numbers which identify an
Autonomous System (AS). An AS is a set of routers under a single technical administration, using
an interior gateway protocol and common metrics to route packets within the AS, and using an exterior
gateway protocol to route packets to other ASes. IANA maintains the AS number space and has
delegated large parts to the regional registries. Autonomous system numbers were originally limited
to 16 bits. BGP extensions have enlarged the autonomous system number space to 32 bits. This type
therefore uses an uint32 base type without a range restriction in order to support a larger
autonomous system number space. In the value set and its semantics, this type is equivalent to the
InetAutonomousSystemNumber textual convention of the SMIPv2."; reference "\"RFC 1930: Guidelines
for creation, selection, and registration of an Autonomous System (AS) RFC 4271: A Border
Gateway Protocol 4 (BGP-4) RFC 4001: Textual Conventions for Internet Network Addresses RFC 6793:
BGP Support for Four-Octet Autonomous System (AS) Number Space\"; } /** collection of types
related to IP addresses and hostnames */ typedef ip-address { type union { type inet:ipv4-address;
type inet:ipv6-address; } description "\"The ip-address type represents an IP address and is IP
version neutral. The format of the textual representation implies the IP version. This type supports
scoped addresses by allowing zone identifiers in the address format.\"; reference "\"RFC 4007:
IPv6 Scoped Address Architecture\"; } typedef ipv4-address { type string { pattern '((([0-
9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\\.){3})' + '([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-
9]|25[0-5])' + '%(\\p{N}\\p{L})+?'; } description "\"The ipv4-address type represents an
IPv4 address in dotted-quad notation. The IPv4 address may include a zone index, separated by a
% sign. The zone index is used to disambiguate identical address values. For link-local
addresses, the zone index will typically be the interface index number or the name of an
interface. If the zone index is not present, the default zone of the device will be used. The
canonical format for the zone index is the numerical format\"; } typedef ipv6-address { type
string { pattern '(:|0-9a-fA-F){0,4}):([0-9a-fA-F]{0,4}):{0,5}' + '(((0-9a-fA-
F){0,4}):?(:|0-9a-fA-F){0,4}))'| + '((25[0-5]|2[0-4][0-9]|01)?[0-9]?[0-9])\\.){3}' +
'(25[0-5]|2[0-4][0-9]|01)?[0-9]?[0-9]))' + '%(\\p{N}\\p{L})+?'; pattern
'([[:^:]]+:){6}([[:^:]]+:([[:^:]]+)(.*\\..*))'| + '([[:^:]]+:)*([[:^:]]+:)?': pattern
'(%.)+?'; } description "\"The ipv6-address type represents an IPv6 address in full,
shortened, and shortened-mixed notation. The IPv6 address may include a zone index, separated by a %
sign. The zone index is used to disambiguate identical address values. For link-local addresses,
the zone index will typically be the interface index number or the name of an interface. If the
zone index is not present, the default zone of the device will be used. The canonical format of
IPv6 addresses uses the textual representation defined in Section 4 of RFC 5952. The canonical
format for the zone index is the numerical format as described in Section 11.2 of RFC 4007.\";
reference "\"RFC 4291: IP Version 6 Addressing Architecture RFC 4007: IPv6 Scoped Address
Architecture RFC 5952: A Recommendation for IPv6 Address Text Representation\"; }
typedef ip-address-no-zone { type union { type inet:ipv4-address-no-zone; type inet:ipv6-
address-no-zone; } description "\"The ip-address-no-zone type represents an IP address and is
IP version neutral. The format of the textual representation implies the IP version. This type does
not support scoped addresses since it does not allow zone identifiers in the address format.\";
reference "\"RFC 4007: IPv6 Scoped Address Architecture\"; } typedef ipv4-address-no-zone { type
inet:ipv4-address { pattern '[0-9\\.]*'; } description "\"An IPv4 address without a zone
index. This type, derived from ipv4-address, may be used in situations where the zone is known
from the context and hence no zone index is needed.\"; } typedef ipv6-address-no-zone { type inet:ipv6-
address { pattern '[0-9a-fA-F:\\.]*'; } description "\"An IPv6 address without a zone index.
This type, derived from ipv6-address, may be used in situations where the zone is known from the
context and hence no zone index is needed.\"; reference "\"RFC 4291: IP Version 6 Addressing
Architecture RFC 4007: IPv6 Scoped Address Architecture RFC 5952: A Recommendation for IPv6 Address
Text Representation\"; } typedef ip-prefix { type union { type inet:ipv4-prefix;
type inet:ipv6-prefix; } description "\"The ip-prefix type represents an IP prefix and is IP
version neutral. The format of the textual representations implies the IP version.\"; } typedef ipv4-
prefix { type string { pattern '(([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\\.){3}'
+ '([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])' + '/((([0-9]|([1-2][0-9]|(3[0-2])))';
description "\"The ipv4-prefix type represents an IPv4 address prefix. The prefix length is given by
the number following the slash character and must be less than or equal to 32. A prefix length
value of n corresponds to an IP address mask that has n contiguous 1-bits from the most significant
bit (MSB) and all other bits set to 0. The canonical format of an IPv4 prefix has all bits of the
IPv4 address set to zero that are not part of the IPv4 prefix.\"; } typedef ipv6-prefix { type
string { pattern '(:|0-9a-fA-F){0,4}):([0-9a-fA-F]{0,4}):{0,5}' + '(((0-9a-fA-
F){0,4}):?(:|0-9a-fA-F){0,4}))'| + '((25[0-5]|2[0-4][0-9]|01)?[0-9]?[0-9])\\.){3}' +
'(25[0-5]|2[0-4][0-9]|01)?[0-9]?[0-9]))' + '/((([0-9]|([0-9](2))|(1[0-1][0-9])|(12[0-8])))';
pattern '([[:^:]]+:){6}([[:^:]]+:([[:^:]]+)(.*\\..*))'| + '([[:^:]]+:)*([[:^:]]+:)?': pattern
'(%.)+?'; } description "\"The ipv6-prefix type represents an IPv6 address prefix. The prefix
length is given by the number following the slash character and must be less than or equal to 128.
A prefix length value of n corresponds to an IP address mask that has n contiguous 1-bits from the most
significant bit (MSB) and all other bits set to 0. The IPv6 address should have all bits that do not
belong to the prefix set to zero. The canonical format of an IPv6 prefix has all bits of the
IPv6 address set to zero that are not part of the IPv6 prefix. Furthermore, the IPv6 address is
represented as defined in Section 4 of RFC 5952.\"; reference "\"RFC 5952: A Recommendation for
IPv6 Address Text Representation\"; } /** collection of domain name and URI types */
typedef domain-name { type string { length \"1..253\"; pattern '([a-zA-Z0-9_](a-zA-Z0-9
\\- )){0,61})?[a-zA-Z0-9]\\.' + '([a-zA-Z0-9 ](a-zA-Z0-9 \\- )){0,61})?[a-zA-Z0-9]\\.?)' +
'\\\\.?' ; } description "\"The domain-name type represents a DNS domain name. The name SHOULD be
fully qualified whenever possible. Internet domain names are only loosely specified. Section 3.5
of RFC 1034 recommends a syntax (modified in Section 2.1 of RFC 1123). The pattern above is intended to

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allow for current practice in domain name use, and some possible future expansion. It is designed to hold various types of domain names, including names used for A or AAAA records (host names) and other records, such as SRV records. Note that Internet host names have a stricter syntax (described in RFC 952) than the DNS recommendations in RFCs 1034 and 1123, and that systems that want to store host names in schema nodes using the domain-name type are recommended to adhere to this stricter standard to ensure interoperability. The encoding of DNS names in the DNS protocol is limited to 255 characters. Since the encoding consists of labels prefixed by a length bytes and there is a trailing NULL byte, only 253 characters can appear in the textual dotted notation. The description clause of schema nodes using the domain-name type MUST describe when and how these names are resolved to IP addresses. Note that the resolution of a domain-name value may require to query multiple DNS records (e.g., A for IPv4 and AAAA for IPv6). The order of the resolution process and which DNS record takes precedence can either be defined explicitly or may depend on the configuration of the resolver. Domain-name values use the US-ASCII encoding. Their canonical format uses lowercase US-ASCII characters. Internationalized domain names MUST be A-labels as per RFC 5890.\"; reference \"RFC 952: DoD Internet Host Table Specification RFC 1034: Domain Names - Concepts and Facilities RFC 1123: Requirements for Internet Hosts -- Application and Support RFC 2782: A DNS RR for specifying the location of services (DNS SRV) RFC 5890: Internationalized Domain Names in Applications (IDNA): Definitions and Document Framework\";

```

} typedef host { type union { type inet:ip-address; type inet:domain-name; } description
\"The host type represents either an IP address or a DNS domain name.\"; } typedef uri { type
string; description \"The uri type represents a Uniform Resource Identifier (URI) as defined by
STD 66. Objects using the uri type MUST be in US-ASCII encoding, and MUST be normalized as
described by RFC 3986 Sections 6.2.1, 6.2.2.1, and 6.2.2.2. All unnecessary percent-encoding is
removed, and all case-insensitive characters are set to lowercase except for hexadecimal digits,
which are normalized to uppercase as described in Section 6.2.2.1. The purpose of this
normalization is to help provide unique URIs. Note that this normalization is not sufficient to
provide uniqueness. Two URIs that are textually distinct after this normalization may still be
equivalent. Objects using the uri type may restrict the schemes that they permit. For example,
'data:' and 'urn:' schemes might not be appropriate. A zero-length URI is not a valid URI. This
can be used to express 'URI absent' where required. In the value set and its semantics, this type
is equivalent to the Uri SMIV2 textual convention defined in RFC 5017.\"; reference \"RFC 3986:
Uniform Resource Identifier (URI): Generic Syntax RFC 3305: Report from the Joint W3C/IETF URI Planning
Interest Group: Uniform Resource Identifiers (URIs), URLs, and Uniform Resource
Names (URNs): Clarifications and Recommendations RFC 5017: MIB Textual Conventions for
Uniform Resource Identifiers (URIs)\"; }</module>
<module name=\"vyatta-service-dns-v1\" uri=\"urn:vyatta.com:mgmt:vyatta-service-dns-v1\" revision=\"2016-08-24\" format=\"yang\"
length=\"5892\">
  module vyatta-service-dns-v1 {
    namespace \"urn:vyatta.com:mgmt:vyatta-service-dns-v1\";
    prefix vyatta-service-dns-v1;
    import vyatta-types-v1 {
      prefix types;
    }
    import vyatta-services-v1 {
      prefix service;
    }
    import vyatta-interfaces-v1 {
      prefix if;
    }
    import configd-v1 {
      prefix configd;
    }
    import vyatta-system-v1 {
      prefix system;
    }
    import vyatta-system-network-v1 {
      prefix sys-net;
    }
    organization \"Brocade Communications Systems, Inc.\";
    contact \"Brocade Communications Systems, Inc.\";
    postal \"130 Holger Way\";
    location \"San Jose, CA 95134\";
    email \"support@brocade.com\";
    website \"www.brocade.com\";
    description \"Copyright (c) 2016 by Brocade Communications Systems, Inc. All rights reserved.\";
    dns configuration {
      revision 2016-08-24 {
        description \"Support IPv6 address for name-server.\";
      }
      revision 2016-04-18 {
        description \"Grouping services and XPATH optimizations.\";
      }
      revision 2015-08-14 {
        description \"Initial revision of version 1.\";
      }
      grouping dns-service-forwarding {
        container forwarding {
          presence \"Enable DNS forwarding\";
          description \"DNS forwarding for relaying the queries\";
          configd:priority 918;
          configd:help \"DNS forwarding\";
          configd:end
        }
        leaf-list dhcp {
          type string;
          ordered-by \"user\";
          configd:help \"Use nameservers received from DHCP server for specified interface\";
          configd:allowed
        }
        leaf-list listen-on {
          type string;
          min-elements 1;
          ordered-by \"user\";
          configd:help \"Interface to listen for DNS queries [REQUIRED]\";
          configd:allowed
        }
        leaf-list domain {
          type string;
          configd:help \"DNS domain to forward to a local server\";
          key \"tagnode\";
          leaf tagnode {
            type string;
            configd:help \"DNS address to forward to a local server\";
            mandatory true;
            configd:help \"DNS server to forward queries\";
          }
          grouping dns-service-dynamic {
            container dynamic {
              presence \"Enable DNS Dynamic Sync\";
              description \"DNS dynamic for syncing address change\";
              priority 919;
              configd:help \"Dynamic DNS\";
              leaf-list interface {
                type string;
                configd:help \"Interface to send DDNS updates for\";
                configd:allowed
              }
            }
          }
        }
        leaf-list validate1 {
          type string;
          configd:validate
        }
        leaf-list validate2 {
          type string;
          configd:validate
        }
        leaf-list tagnode {
          type string;
          configd:help \"Interface to send DDNS updates for\";
          configd:allowed
        }
      }
    }
  }
}
</module>

```



```

values.\";\\t\\t\\t\\t\\tgrouping archive {\\t\\tcontainer archive {\\t\\t\\tconfigd:help \\\"Log file size and rotation
characteristics\\\";\\t\\t\\tleaf files {\\t\\t\\t\\ttype uint32;\\t\\t\\t\\tconfigd:help \\\"Number of saved
files\\\";\\t\\t\\t\\tdefault \\\"5\\\";\\t\\t\\t\\tdescription \\\"Specifies the number of retained log files. The\\t\\t\\t\\t\\t
oldest log files are deleted if this number is\\t\\t\\t\\t\\t exceeded.\\\";\\t\\t\\t\\t\\t\\t\\tleaf size {\\t\\t\\t\\ttype
uint32;\\t\\t\\t\\tconfigd:help \\\"Size of log files (kbytes)\\\";\\t\\t\\t\\tdefault \\\"250\\\";\\t\\t\\t\\tdescription
\\\"Specifies the maximum size of the log file. If\\t\\t\\t\\t\\t this size is exceeded the current log
file\\t\\t\\t\\t\\t will be archived and a new log file created.\\\";\\t\\t\\t\\t\\t\\t\\tdescription \\\"Configures the
maximum size and the maximum number of\\t\\t\\t\\t\\t retained log files. When the maximum size is
reached\\t\\t\\t\\t\\t the current log file is archived and a new log file is\\t\\t\\t\\t\\t created. If the
maximum number of log files is exceeded\\t\\t\\t\\t\\t by creating the new log file the oldest log file
will\\t\\t\\t\\t\\t be deleted.\\\";\\t\\t\\t\\t\\t\\tgrouping facility-archive {\\t\\tuses facility;\\t\\tuses
archive;\\t\\t\\tgrouping syslog-base {\\t\\tcontainer syslog {\\t\\t\\tpresence \\\"Enable
syslog\\\";\\t\\t\\tconfigd:priority \\\"400\\\";\\t\\t\\tconfigd:help \\\"System logging daemon\\\";\\t\\t\\tconfigd:end
\\\"/opt/vyatta/share/tmplscripts/system/syslog/configd end.sh\\\";\\t\\t\\tdescription \\\"Configures system logging
destinations.\\\";\\t\\t\\t\\t\\t\\tgrouping syslog-global {\\t\\tcontainer global {\\t\\t\\tpresence \\\"Enable
global\\\";\\t\\t\\tconfigd:help \\\"Logging to system standard location\\\";\\t\\t\\tconfigd:validate
\\\"/opt/vyatta/share/tmplscripts/system/syslog/global/configd_validate1.cli\\\";\\t\\t\\tuses facility-
archive;\\t\\t\\tdescription \\\"Configures system standard log file attributes including\\t\\t\\t\\t\\t facility,
level, maximum number of log files, and\\t\\t\\t\\t\\t the maximum size of the log file.\\\";\\t\\t\\t\\t\\t\\tgrouping
syslog-remote {\\t\\tlist host {\\t\\t\\tconfigd:help \\\"Logging to a remote host\\\";\\t\\t\\tconfigd:validate
\\\"/opt/vyatta/share/tmplscripts/system/syslog/host/configd_validate1.cli\\\";\\t\\t\\tkey \\\"tagnode\\\";\\t\\t\\tleaf
tagnode {\\t\\t\\t\\ttype remote-host;\\t\\t\\t\\t\\t\\tuses facility;\\t\\t\\tleaf facility-override
{\\t\\t\\t\\tdescription \\\"Override replaces facility field in all logs to host.\\\";\\t\\t\\t\\t\\ttype facility-no-
all;\\t\\t\\t\\tconfigd:help \\\"Override replaces log entry facility field\\\";\\t\\t\\t\\t\\t\\tdescription \\\"Configures
a remote host as the destination for log entries.\\t\\t\\t\\t\\t Log entries that match the specified facility
and level values\\t\\t\\t\\t\\t will be sent to the system console.\\\";\\t\\t\\t\\t\\t\\tgrouping syslog-local {\\t\\tlist
file {\\t\\t\\tconfigd:help \\\"Logging to a file\\\";\\t\\t\\tconfigd:validate
\\\"/opt/vyatta/share/tmplscripts/system/syslog/file/configd_validate1.cli\\\";\\t\\t\\tkey \\\"tagnode\\\";\\t\\t\\tleaf
tagnode {\\t\\t\\t\\ttype string {\\t\\t\\t\\t\\t\\tpattern '[a-zA-Z0-9_]+\\\" {\\t\\t\\t\\t\\t\\tconfigd:error-message
\\\"invalid file name $VAR(@)\\\";\\t\\t\\t\\t\\t\\t\\t\\t\\t\\t\\tconfigd:help \\\"Logging to a
file\\\";\\t\\t\\t\\t\\tdescription \\\"Name of the file to be used as a logging destination.\\\";\\t\\t\\t\\t\\t\\tuses
facility-archive;\\t\\t\\t\\t\\tdescription \\\"Configures a file as the destination for logging entries.\\t\\t\\t\\t\\t
The file is created in /var/log/user. Log entries that match\\t\\t\\t\\t\\t the specified facility and level
values will be sent to the\\t\\t\\t\\t\\t system console.\\\";\\t\\t\\t\\t\\t\\tlist user {\\t\\t\\tconfigd:help \\\"Logging to
specific user's terminal\\\";\\t\\t\\tconfigd:validate
\\\"/opt/vyatta/share/tmplscripts/system/syslog/user/configd_validate1.cli\\\";\\t\\t\\tkey \\\"tagnode\\\";\\t\\t\\tleaf
tagnode {\\t\\t\\t\\ttype string {\\t\\t\\t\\t\\t\\tpattern '[a-zA-Z ][a-zA-Z0-9 -]*\\\" {\\t\\t\\t\\t\\t\\tconfigd:error-message
\\\"invalid user name $VAR(@)\\\";\\t\\t\\t\\t\\t\\t\\t\\t\\t\\t\\tconfigd:help \\\"Logging to specific user's
terminal\\\";\\t\\t\\t\\t\\tdescription \\\"Logging will be sent to the user's terminal indicated\\t\\t\\t\\t\\t by this
username.\\\";\\t\\t\\t\\t\\t\\tuses facility;\\t\\t\\t\\t\\tdescription \\\"Configures a logged in users terminal as a
destination for\\t\\t\\t\\t\\t logging entries. Log entries that match the specified facility\\t\\t\\t\\t\\t and
level values will be sent to the system console.\\\";\\t\\t\\t\\t\\t\\tcontainer console {\\t\\t\\tpresence \\\"Enable
console\\\";\\t\\t\\t\\t\\tconfigd:help \\\"Logging to system console\\\";\\t\\t\\tconfigd:validate
\\\"/opt/vyatta/share/tmplscripts/system/syslog/console/configd_validate1.cli\\\";\\t\\t\\tuses
facility;\\t\\t\\t\\t\\tdescription \\\"Configures the system console as a destination for logging entries.\\t\\t\\t\\t\\t
Log entries that match the specified facility and level values\\t\\t\\t\\t\\t will be sent to the system
console.\\\";\\t\\t\\t\\t\\t\\taugment /system:system {\\t\\tuses syslog-base;\\t\\t\\taugment /system:system/syslog
{\\t\\tuses syslog-global;\\t\\tuses syslog-remote;\\t\\tuses syslog-local;\\t\\t}</module<module name=\\\"vyatta-
system-acm-v1\\\"uri=\\\"urn:vyatta.com:mgmt:vyatta-system-acm:1\\\" revision=\\\"2016-03-25\\\" format=\\\"yang\\\"
length=\\\"875\\\"module vyatta-system-acm-v1 {\\tnamespace \\\"urn:vyatta.com:mgmt:vyatta-system-acm:1\\\";\\tprefix
vyatta-system-acm-v1;\\timport vyatta-system-v1 {\\t\\tprefix system;\\t\\timport configd-v1 {\\t\\tprefix
configd;\\t\\torganization \\\"Brocade Communications Systems, Inc.\\\";\\tcontact\\t\\t\\t\\\"Brocade Communications
Systems, Inc.\\t\\t Postal: 130 Holger Way\\t\\t\\t San Jose, CA 95134\\t\\t E-mail: support@Brocade.com\\t\\t
Web: www.brocade.com\\\";\\tdescription\\t\\t\\t\\\"Copyright (c) 2014-2016 by Brocade Communications Systems, Inc.\\t\\t
All rights reserved.\\t\\t This module implements vyatta-system-acm-v1.\\\";\\trevision 2016-03-25
{\\t\\tdescription \\\"Only run config rule-set update\\\";\\t\\t\\trevision 2015-08-05 {\\t\\tdescription \\\"Initial
revision of version 1.\\\";\\t\\t\\taugment /system:system {\\t\\tcontainer acm {\\t\\t\\tconfigd:help \\\"Access Control
Management\\\";\\t\\t\\tconfigd:end \\\"vyatta-update-configruleset.pl\\\";\\t\\t\\t}</module<module name=\\\"vyatta-
protocols-igmp-routing-instance-v1\\\"uri=\\\"urn:vyatta.com:mgmt:vyatta-protocols-igmp-routing-instance:1\\\"
revision=\\\"2016-04-22\\\" format=\\\"yang\\\" length=\\\"1041\\\"module vyatta-protocols-igmp-routing-instance-v1
{\\tnamespace \\\"urn:vyatta.com:mgmt:vyatta-protocols-igmp-routing-instance:1\\\";\\t\\tprefix vyatta-protocols-
igmp-routing-instance-v1;\\timport configd-v1 {\\t\\tprefix configd;\\t\\timport vyatta-routing-v1 {\\t\\tprefix
routing;\\t\\timport vyatta-protocols-igmp-v1 {\\t\\tprefix igmp;\\t\\torganization \\\"Brocade Communications
Systems, Inc.\\\";\\tcontact\\t\\t\\t\\\"Brocade Communications Systems, Inc.\\t\\t Postal: 130 Holger Way\\t\\t
San Jose, CA 95134\\t\\t E-mail: support@Brocade.com\\t\\t Web: www.brocade.com\\\";\\tdescription\\t\\t\\t\\\"Copyright
(c) 2016 by Brocade Communications Systems, Inc.\\t\\t All rights reserved.\\t\\t The YANG module for vyatta-
protocols-igmp-routing-instance-v1\\\";\\trevision 2016-04-22 {\\t\\tdescription \\\"Add Routing Instance support
for multicast \\t\\t\\tAugment /routing/routing-instance/protocols\\\";\\t\\t\\taugment
/routing:routing/routing:routing-instance/routing:protocols {\\t\\tuses igmp:igmp-parameters {\\t\\t\\trefine igmp
{\\t\\t\\t\\tconfigd:end \\\"vyatta-igmp 4 --routing-instance $VAR(..../@)\\\";\\t\\t\\t\\t\\t}</module<module
name=\\\"vyatta-protocols-msdp-v1\\\"uri=\\\"urn:vyatta.com:mgmt:vyatta-protocols-msdp:1\\\" revision=\\\"2016-07-27\\\"
format=\\\"yang\\\" length=\\\"9464\\\"module vyatta-protocols-msdp-v1 {\\tnamespace \\\"urn:vyatta.com:mgmt:vyatta-
protocols-msdp:1\\\";\\tprefix vyatta-protocols-msdp-v1;\\timport vyatta-types-v1 {\\t\\tprefix types;\\t\\timport
vyatta-protocols-v1 {\\t\\tprefix protocols;\\t\\timport configd-v1 {\\t\\tprefix configd;\\t\\timport vyatta-
policy-v1 {\\t\\tprefix policy;\\t\\timport vyatta-policy-route-v1 {\\t\\tprefix policy-route;\\t\\torganization
\\\"Brocade Communications Systems, Inc.\\\";\\tcontact\\t\\t\\t\\\"Brocade Communications Systems, Inc.\\t\\t Postal: 130
Holger Way\\t\\t\\t San Jose, CA 95134\\t\\t E-mail: support@Brocade.com\\t\\t Web:
www.brocade.com\\\";\\tdescription\\t\\t\\t\\\"Copyright (c) 2015-2016 by Brocade Communications Systems, Inc.\\t\\t All
rights reserved.\\t\\t The YANG module for vyatta-protocols-msdp-v1\\\";\\trevision 2016-07-27 {\\t\\tdescription
\\\"Add SA-holdtime to allow control of waiting time before discarding stale SA messages\\t\\tAdd SA-limit to
allow control of maximum number of SA messages cached by a particular peer\\t\\tAdd SA-cache to allow control
of SA message cache size\\\";\\t\\t\\trevision 2016-03-16 {\\t\\tdescription \\\"Add leafrefs and must statements to
replace local-only validation\\\";\\t\\t\\trevision 2015-07-28 {\\t\\tdescription \\\"Initial revision, replacing
vyatta-protocols-msdp\\\";\\t\\tconfigd:migration 1;\\t\\t\\ttypedef prefix-list-name {\\t\\ttype leafref {\\t\\t\\tpath

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[illegible]

discard data if the actual time is too long or there is no defined minimum time. In the value set and its semantics, this type is equivalent to the ZeroBasedCounter32 textual convention of the SMIV2.\";

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reference \\RFC 4502: Remote Network Monitoring Management Information Base Version 2\\";
} typedef counter64 { type uint64; description \\\"The counter64 type represents a non-negative integer that monotonically increases until it reaches a maximum value of 2^64-1 (18446744073709551615 decimal), when it wraps around and starts increasing again from zero. Counters have no defined 'initial' value, and thus, a single value of a counter has (in general) no information content. Discontinuities in the monotonically increasing value normally occur at re-initialization of the management system, and at other times as specified in the description of a schema node using this type. If such other times can occur, for example, the creation of a schema node of type counter64 at times other than re-initialization, then a corresponding schema node should be defined, with an appropriate type, to indicate the last discontinuity. The counter64 type should not be used for configuration schema nodes. A default statement SHOULD NOT be used in combination with the type counter64. In the value set and its semantics, this type is equivalent to the Counter64 type of the SMIV2.\"; reference \\\"RFC 2578: Structure of Management Information Version 2 (SMIV2)\\\"; } typedef zero-based-counter64 { type yang:counter64; default \\\"0\\\"; description \\\"The zero-based-counter64 type represents a counter64 that has the defined 'initial' value zero. A schema node of this type will be set to zero (0) on creation and will thereafter increase monotonically until it reaches a maximum value of 2^64-1 (18446744073709551615 decimal), when it wraps around and starts increasing again from zero. Provided that an application discovers a new schema node of this type within the minimum time to wrap, it can use the 'initial' value as a delta. It is important for a management station to be aware of this minimum time and the actual time between polls, and to discard data if the actual time is too long or there is no defined minimum time. In the value set and its semantics, this type is equivalent to the ZeroBasedCounter64 textual convention of the SMIV2.\"; reference \\\"RFC 2856: Textual Conventions for Additional High Capacity Data Types\\\"; } typedef gauge32 { type uint32; description \\\"The gauge32 type represents a non-negative integer, which may increase or decrease, but shall never exceed a maximum value, nor fall below a minimum value. The maximum value cannot be greater than 2^32-1 (4294967295 decimal), and the minimum value cannot be smaller than 0. The value of a gauge32 has its maximum value whenever the information being modeled is greater than or equal to its maximum value, and has its minimum value whenever the information being modeled is smaller than or equal to its minimum value. If the information being modeled subsequently decreases below (increases above) the maximum (minimum) value, the gauge32 also decreases (increases). In the value set and its semantics, this type is equivalent to the Gauge32 type of the SMIV2.\"; reference \\\"RFC 2578: Structure of Management Information Version 2 (SMIV2)\\\"; } typedef gauge64 { type uint64; description \\\"The gauge64 type represents a non-negative integer, which may increase or decrease, but shall never exceed a maximum value, nor fall below a minimum value. The maximum value cannot be greater than 2^64-1 (18446744073709551615), and the minimum value cannot be smaller than 0. The value of a gauge64 has its maximum value whenever the information being modeled is greater than or equal to its maximum value, and has its minimum value whenever the information being modeled is smaller than or equal to its minimum value. If the information being modeled subsequently decreases below (increases above) the maximum (minimum) value, the gauge64 also decreases (increases). In the value set and its semantics, this type is equivalent to the CounterBasedGauge64 SMIV2 textual convention defined in RFC 2856\"; reference \\\"RFC 2856: Textual Conventions for Additional High Capacity Data Types\\\"; } /** collection of identifier-related types */ typedef object-identifier { type string { pattern '([0-1](\\.[1-3]?[0-9]))|(2\\.([0]([1-9]\\\\d*))|' + '(\\.[0]([1-9]\\\\d*)))*'; } description \\\"The object-identifier type represents administratively assigned names in a registration-hierarchical-name tree. Values of this type are denoted as a sequence of numerical non-negative sub-identifier values. Each sub-identifier value MUST NOT exceed 2^32-1 (4294967295). Sub-identifiers are separated by single dots and without any intermediate whitespace. The ASN.1 standard restricts the value space of the first sub-identifier to 0, 1, or 2. Furthermore, the value space of the second sub-identifier is restricted to the range 0 to 39 if the first sub-identifier is 0 or 1. Finally, the ASN.1 standard requires that an object identifier has always at least two sub-identifiers. The pattern captures these restrictions. Although the number of sub-identifiers is not limited, module designers should realize that there may be implementations that stick with the SMIV2 limit of 128 sub-identifiers. This type is a superset of the SMIV2 OBJECT IDENTIFIER type since it is not restricted to 128 sub-identifiers. Hence, this type SHOULD NOT be used to represent the SMIV2 OBJECT IDENTIFIER type; the object-identifier-128 type SHOULD be used instead.\"; reference \\\"ISO9834-1: Information technology -- Open Systems Interconnection -- Procedures for the operation of OSI Registration Authorities: General procedures and top arcs of the ASN.1 Object Identifier tree\\\"; } typedef object-identifier-128 { type object-identifier { pattern '\\d*(\\.[0-9]([1,2]))'; } description \\\"This type represents object-identifiers restricted to 128 sub-identifiers. In the value set and its semantics, this type is equivalent to the OBJECT IDENTIFIER type of the SMIV2.\"; reference \\\"RFC 2578: Structure of Management Information Version 2 (SMIV2)\\\"; } typedef yang-identifier { type string { length \\\"1..max\\\"; pattern '[a-zA-Z][a-zA-Z0-9\\-\\.]*'; pattern '\\.[^xX].*\\.\\.[^mM].*\\.\\.[^lL].*'; } description \\\"A YANG identifier string as defined by the 'identifier' rule in Section 12 of RFC 6020. An identifier must start with an alphabetic character or an underscore followed by an arbitrary sequence of alphabetic or numeric characters, underscores, hyphens, or dots. A YANG identifier MUST NOT start with any possible combination of the lowercase or uppercase character sequence 'xml'.\"; reference \\\"RFC 6020: YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)\\\"; } /** collection of types related to date and time */ typedef date-and-time { type string { pattern '\\d{4}-\\d{2}-\\d{2}T\\d{2}:\\d{2}:\\d{2}(\\.\\d+)?' + '(Z|\\[[\\+\\-]\\d{2}:\\d{2}\\])'; } description \\\"The date-and-time type is a profile of the ISO 8601 standard for representation of dates and times using the Gregorian calendar. The profile is defined by the date-time production in Section 5.6 of RFC 3339. The date-and-time type is compatible with the dateTime XML schema type with the following notable exceptions: (a) The date-and-time type does not allow negative years. (b) The date-and-time time-offset -00:00 indicates an unknown time zone (see RFC 3339) while -00:00 and +00:00 and Z all represent the same time zone in dateTime. (c) The canonical format (see below) of data-and-time values differs from the canonical format used by the dateTime XML schema type, which requires all times to be in UTC using the time-offset 'Z'. This type is not equivalent to the DateAndTime textual convention of the SMIV2 since RFC 3339 uses a different separator between full-date and full-time and provides higher resolution of time-secfrac. The canonical format for date-and-time values with a known time zone uses a numeric time

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\udpSourcePort\";\\t\\t\\tenum \\udpDestinationPort\";\\t\\t\\tenum \\tcpSourcePort\";\\t\\t\\tenum
\\tcpDestinationPort\";\\t\\t\\tenum \\tcpSequenceNumber\";\\t\\t\\tenum \\tcpAcknowledgementNumber\";\\t\\t\\tenum
\\tcpWindowSize\";\\t\\t\\tenum \\tcpUrgentPointer\";\\t\\t\\tenum \\tcpHeaderLength\";\\t\\t\\tenum
\\ipHeaderLength\";\\t\\t\\tenum \\totalLengthIPv4\";\\t\\t\\tenum \\payloadLengthIPv6\";\\t\\t\\tenum
\\ipTTL\";\\t\\t\\tenum \\nextHeaderIPv6\";\\t\\t\\tenum \\mplsPayloadLength\";\\t\\t\\tenum
\\ipDiffServCodePoint\";\\t\\t\\tenum \\ipPrecedence\";\\t\\t\\tenum \\fragmentFlags\";\\t\\t\\tenum
\\octetDeltaSumOfSquares\";\\t\\t\\tenum \\octetTotalSumOfSquares\";\\t\\t\\tenum \\mplsTopLabelTTL\";\\t\\t\\tenum
\\mplsLabelStackLength\";\\t\\t\\tenum \\mplsLabelStackDepth\";\\t\\t\\tenum \\mplsTopLabelExp\";\\t\\t\\tenum
\\ipPayloadLength\";\\t\\t\\tenum \\udpMessageLength\";\\t\\t\\tenum \\isMulticast\";\\t\\t\\tenum
\\ipv4IHL\";\\t\\t\\tenum \\ipv4Options\";\\t\\t\\tenum \\tcpOptions\";\\t\\t\\tenum \\paddingOctets\";\\t\\t\\tenum
\\collectorIPv4Address\";\\t\\t\\tenum \\collectorIPv6Address\";\\t\\t\\tenum \\exportInterface\";\\t\\t\\tenum
\\exportProtocolVersion\";\\t\\t\\tenum \\exportTransportProtocol\";\\t\\t\\tenum
\\collectorTransportPort\";\\t\\t\\tenum \\exporterTransportPort\";\\t\\t\\tenum \\tcpSynTotalCount\";\\t\\t\\tenum
\\tcpFinTotalCount\";\\t\\t\\tenum \\tcpRstTotalCount\";\\t\\t\\tenum \\tcpPshTotalCount\";\\t\\t\\tenum
\\tcpAckTotalCount\";\\t\\t\\tenum \\tcpUrgTotalCount\";\\t\\t\\tenum \\ipTotalLength\";\\t\\t\\tenum
\\postNATSourceIPv4Address\";\\t\\t\\tenum \\postNATDestinationIPv4Address\";\\t\\t\\tenum
\\postNAPTSourceTransportPort\";\\t\\t\\tenum \\postNAPTDestinationTransportPort\";\\t\\t\\tenum
\\natOriginatingAddressRealm\";\\t\\t\\tenum \\natEvent\";\\t\\t\\tenum \\initiatorOctets\";\\t\\t\\tenum
\\responderOctets\";\\t\\t\\tenum \\firewallEvent\";\\t\\t\\tenum \\ingressVRFID\";\\t\\t\\tenum
\\egressVRFID\";\\t\\t\\tenum \\VRFname\";\\t\\t\\tenum \\postMplsTopLabelExp\";\\t\\t\\tenum
\\tcpWindowScale\";\\t\\t\\tenum \\biflowDirection\";\\t\\t\\tenum \\ethernetHeaderLength\";\\t\\t\\tenum
\\ethernetPayloadLength\";\\t\\t\\tenum \\ethernetTotalLength\";\\t\\t\\tenum \\dot1qVlanId\";\\t\\t\\tenum
\\dot1qPriority\";\\t\\t\\tenum \\dot1qCustomerVlanId\";\\t\\t\\tenum \\dot1qCustomerPriority\";\\t\\t\\tenum
\\metroEvcId\";\\t\\t\\tenum \\metroEvcType\";\\t\\t\\tenum \\pseudoWireId\";\\t\\t\\tenum
\\pseudoWireType\";\\t\\t\\tenum \\pseudoWireControlWord\";\\t\\t\\tenum \\ingressPhysicalInterface\";\\t\\t\\tenum
\\egressPhysicalInterface\";\\t\\t\\tenum \\postDot1qVlanId\";\\t\\t\\tenum \\postDot1qCustomerVlanId\";\\t\\t\\tenum
\\ethernetType\";\\t\\t\\tenum \\postIpPrecedence\";\\t\\t\\tenum \\collectionTimeMilliseconds\";\\t\\t\\tenum
\\exportSctpStreamId\";\\t\\t\\tenum \\maxExportSeconds\";\\t\\t\\tenum \\maxFlowEndSeconds\";\\t\\t\\tenum
\\messageMD5Checksum\";\\t\\t\\tenum \\messageScope\";\\t\\t\\tenum \\minExportSeconds\";\\t\\t\\tenum
\\minFlowStartSeconds\";\\t\\t\\tenum \\opaqueOctets\";\\t\\t\\tenum \\sessionScope\";\\t\\t\\tenum
\\maxFlowEndMicroseconds\";\\t\\t\\tenum \\maxFlowEndMilliseconds\";\\t\\t\\tenum
\\maxFlowEndNanoseconds\";\\t\\t\\tenum \\minFlowStartMicroseconds\";\\t\\t\\tenum
\\minFlowStartMilliseconds\";\\t\\t\\tenum \\minFlowStartNanoseconds\";\\t\\t\\tenum
\\collectorCertificate\";\\t\\t\\tenum \\exporterCertificate\";\\t\\t\\tenum \\dataRecordsReliability\";\\t\\t\\tenum
\\observationPointType\";\\t\\t\\tenum \\newConnectionDeltaCount\";\\t\\t\\tenum
\\connectionSumDurationSeconds\";\\t\\t\\tenum \\connectionTransactionId\";\\t\\t\\tenum
\\postNATSourceIPv6Address\";\\t\\t\\tenum \\postNATDestinationIPv6Address\";\\t\\t\\tenum \\natPoolId\";\\t\\t\\tenum
\\natPoolName\";\\t\\t\\tenum \\anonymizationFlags\";\\t\\t\\tenum \\anonymizationTechnique\";\\t\\t\\tenum
\\informationElementIndex\";\\t\\t\\tenum \\p2pTechnology\";\\t\\t\\tenum \\tunnelTechnology\";\\t\\t\\tenum
\\encryptedTechnology\";\\t\\t\\tenum \\basicList\";\\t\\t\\tenum \\subTemplateList\";\\t\\t\\tenum
\\subTemplateMultiList\";\\t\\t\\tenum \\bgpValidityState\";\\t\\t\\tenum \\IPSecSPI\";\\t\\t\\tenum
\\greKey\";\\t\\t\\tenum \\natType\";\\t\\t\\tenum \\initiatorPackets\";\\t\\t\\tenum \\responderPackets\";\\t\\t\\tenum
\\observationDomainName\";\\t\\t\\tenum \\selectionSequenceId\";\\t\\t\\tenum \\selectorId\";\\t\\t\\tenum
\\informationElementId\";\\t\\t\\tenum \\selectorAlgorithm\";\\t\\t\\tenum \\samplingPacketInterval\";\\t\\t\\tenum
\\samplingPacketSpace\";\\t\\t\\tenum \\samplingTimeInterval\";\\t\\t\\tenum \\samplingTimeSpace\";\\t\\t\\tenum
\\samplingSize\";\\t\\t\\tenum \\samplingPopulation\";\\t\\t\\tenum \\samplingProbability\";\\t\\t\\tenum
\\dataLinkFrameSize\";\\t\\t\\tenum \\ipHeaderPacketSection\";\\t\\t\\tenum \\ipPayloadPacketSection\";\\t\\t\\tenum
\\dataLinkFrameSection\";\\t\\t\\tenum \\mplsLabelStackSection\";\\t\\t\\tenum
\\mplsPayloadPacketSection\";\\t\\t\\tenum \\selectorIdTotalPktsObserved\";\\t\\t\\tenum
\\selectorIdTotalPktsSelected\";\\t\\t\\tenum \\absoluteError\";\\t\\t\\tenum \\relativeError\";\\t\\t\\tenum
\\observationTimeSeconds\";\\t\\t\\tenum \\observationTimeMilliseconds\";\\t\\t\\tenum
\\observationTimeMicroseconds\";\\t\\t\\tenum \\observationTimeNanoseconds\";\\t\\t\\tenum
\\digestHashValue\";\\t\\t\\tenum \\hashIPPayloadOffset\";\\t\\t\\tenum \\hashIPPayloadSize\";\\t\\t\\tenum
\\hashOutputRangeMin\";\\t\\t\\tenum \\hashOutputRangeMax\";\\t\\t\\tenum \\hashSelectedRangeMin\";\\t\\t\\tenum
\\hashSelectedRangeMax\";\\t\\t\\tenum \\hashDigestOutput\";\\t\\t\\tenum \\hashInitialiserValue\";\\t\\t\\tenum
\\selectorName\";\\t\\t\\tenum \\upperCILimit\";\\t\\t\\tenum \\lowerCILimit\";\\t\\t\\tenum
\\confidenceLevel\";\\t\\t\\tenum \\informationElementDataType\";\\t\\t\\tenum
\\informationElementDescription\";\\t\\t\\tenum \\informationElementName\";\\t\\t\\tenum
\\informationElementRangeBegin\";\\t\\t\\tenum \\informationElementRangeEnd\";\\t\\t\\tenum
\\informationElementSemantics\";\\t\\t\\tenum \\informationElementSemanticsUnits\";\\t\\t\\tenum
\\privateEnterpriseNumber\";\\t\\t\\tenum \\virtualStationInterfaceId\";\\t\\t\\tenum
\\virtualStationInterfaceName\";\\t\\t\\tenum \\virtualStationUUID\";\\t\\t\\tenum
\\virtualStationName\";\\t\\t\\tenum \\layer2SegmentId\";\\t\\t\\tenum \\layer2OctetDeltaCount\";\\t\\t\\tenum
\\layer2OctetTotalCount\";\\t\\t\\tenum \\ingressUnicastPacketTotalCount\";\\t\\t\\tenum
\\ingressMulticastPacketTotalCount\";\\t\\t\\tenum \\ingressBroadcastPacketTotalCount\";\\t\\t\\tenum
\\egressUnicastPacketTotalCount\";\\t\\t\\tenum \\egressBroadcastPacketTotalCount\";\\t\\t\\tenum
\\monitoringIntervalStartMilliseconds\";\\t\\t\\tenum \\monitoringIntervalEndMilliseconds\";\\t\\t\\tenum
\\portRangeStart\";\\t\\t\\tenum \\portRangeEnd\";\\t\\t\\tenum \\portRangeStepSize\";\\t\\t\\tenum
\\portRangeNumPorts\";\\t\\t\\tenum \\staMacAddress\";\\t\\t\\tenum \\staIPv4Address\";\\t\\t\\tenum
\\wtpMacAddress\";\\t\\t\\tenum \\ingressInterfaceType\";\\t\\t\\tenum \\egressInterfaceType\";\\t\\t\\tenum
\\rtpSequenceNumber\";\\t\\t\\tenum \\userName\";\\t\\t\\tenum \\applicationCategoryName\";\\t\\t\\tenum
\\applicationSubCategoryName\";\\t\\t\\tenum \\applicationGroupName\";\\t\\t\\tenum
\\originalFlowsPresent\";\\t\\t\\tenum \\originalFlowsInitiated\";\\t\\t\\tenum
\\originalFlowsCompleted\";\\t\\t\\tenum \\distinctCountOfSourceIPAddress\";\\t\\t\\tenum
\\distinctCountOfDestinationIPAddress\";\\t\\t\\tenum \\distinctCountOfSourceIPv4Address\";\\t\\t\\tenum
\\distinctCountOfDestinationIPv4Address\";\\t\\t\\tenum \\distinctCountOfSourceIPv6Address\";\\t\\t\\tenum
\\distinctCountOfDestinationIPv6Address\";\\t\\t\\tenum \\valueDistributionMethod\";\\t\\t\\tenum
\\rfc3550JitterMilliseconds\";\\t\\t\\tenum \\rfc3550JitterMicroseconds\";\\t\\t\\tenum
\\rfc3550JitterNanoseconds\";\\t\\t\\tenum \\dot1qDEI\";\\t\\t\\tenum \\dot1qCustomerDEI\";\\t\\t\\tenum
\\flowSelectorAlgorithm\";\\t\\t\\tenum \\flowSelectedOctetDeltaCount\";\\t\\t\\tenum
\\flowSelectedPacketDeltaCount\";\\t\\t\\tenum \\flowSelectedFlowDeltaCount\";\\t\\t\\tenum
\\selectorIDTotalFlowsObserved\";\\t\\t\\tenum \\selectorIDTotalFlowsSelected\";\\t\\t\\tenum
\\samplingFlowInterval\";\\t\\t\\tenum \\samplingFlowSpacing\";\\t\\t\\tenum
\\flowSamplingTimeInterval\";\\t\\t\\tenum \\flowSamplingTimeSpacing\";\\t\\t\\tenum \\hashFlowDomain\";\\t\\t\\tenum

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not be enabled.\";    reference \"RFC 6241, Section 8.9\"; } // NETCONF Simple Types typedef session-id-
type { type uint32 { range \"1..max\"; } description \"NETCONF Session Id\"; } typedef
session-id-or-zero-type { type uint32; description \"NETCONF Session Id or Zero to indicate
none\"; } typedef error-tag-type { type enumeration { enum in-use { description
\"The request requires a resource that already is in use.\"; } enum invalid-value {
description \"The request specifies an unacceptable value for one or more parameters.\";
} enum too-big { description \"The request or response (that would be generated) is
too large for the implementation to handle.\"; } enum missing-attribute { description
\"An expected attribute is missing.\"; } enum bad-attribute { description \"An
attribute value is not correct; e.g., wrong type, out of range, pattern mismatch.\"; }
enum unknown-attribute { description \"An unexpected attribute is present.\"; }
enum missing-element { description \"An expected element is missing.\"; } enum
bad-element { description \"An element value is not correct; e.g., wrong type,
out of range, pattern mismatch.\"; } enum unknown-element { description \"An
unexpected element is present.\"; } enum unknown-namespace { description \"An
unexpected namespace is present.\"; } enum access-denied { description \"Access
to the requested protocol operation or data model is denied because authorization failed.\";
} enum lock-denied { description \"Access to the requested lock is denied because the
lock is currently held by another entity.\"; } enum resource-denied { description
\"Request could not be completed because of insufficient resources.\"; } enum
rollback-failed { description \"Request to roll back some configuration change (via
rollback-on-error or <discard-changes> operations) was not completed for some reason.\"; }
enum data-exists { description \"Request could not be completed because the relevant
data model content already exists. For example, a 'create' operation was attempted on data that
already exists.\"; } enum data-missing { description \"Request could not be
completed because the relevant data model content does not exist. For example, a
'delete' operation was attempted on data that does not exist.\"; } enum operation-not-
supported { description \"Request could not be completed because the requested
operation is not supported by this implementation.\"; } enum operation-failed {
description \"Request could not be completed because the requested operation failed for
some reason not covered by any other error condition.\"; } enum partial-operation {
description \"This error-tag is obsolete, and SHOULD NOT be sent by servers conforming
to this document.\"; } enum malformed-message { description \"A message could
not be handled because it failed to be parsed correctly. For example, the message is not
well-formed XML or it uses an invalid character set.\"; } description \"NETCONF Error Tag\";
reference \"RFC 6241, Appendix A\"; } typedef error-severity-type { type enumeration { enum error {
description \"Error severity\"; } enum warning { description \"Warning severity\"; }
} description \"NETCONF Error Severity\"; reference \"RFC 6241, Section 4.3\"; } typedef edit-
operation-type { type enumeration { enum merge { description \"The configuration data
identified by the element containing this attribute is merged with the configuration at
the corresponding level in the configuration datastore identified by the target
parameter.\"; } enum replace { description \"The configuration data identified by
the element containing this attribute replaces any related configuration in the
configuration datastore identified by the target parameter. If no such configuration
data exists in the configuration datastore, it is created. Unlike a <copy-config>
operation, which replaces the entire target configuration, only the configuration
actually present in the config parameter is affected.\"; } enum create { description
\"The configuration data identified by the element containing this attribute is added to the
configuration if and only if the configuration data does not already exist in the configuration
datastore. If the configuration data exists, an <rpc-error> element is returned with an
<error-tag> value of 'data-exists'.\"; } enum delete { description \"The
configuration data identified by the element containing this attribute is deleted from the
configuration if and only if the configuration data currently exists in the configuration
datastore. If the configuration data does not exist, an <rpc-error> element is returned with
an <error-tag> value of 'data-missing'.\"; } enum remove { description \"The
configuration data identified by the element containing this attribute is deleted from the
configuration if the configuration data currently exists in the configuration datastore.
If the configuration data does not exist, the 'remove' operation is silently ignored by
the server.\"; } default \"merge\"; description \"NETCONF 'operation' attribute values\";
reference \"RFC 6241, Section 7.2\"; } // NETCONF Standard Protocol Operations rpc get-config {
description \"Retrieve all or part of a specified configuration.\"; reference \"RFC 6241, Section
7.1\"; input { container source { description \"Particular configuration to
retrieve.\"; choice config-source { mandatory true; description \"The
configuration to retrieve.\"; leaf candidate { if-feature candidate; type
empty; description \"The candidate configuration is the config source.\"; }
leaf running { type empty; description \"The running configuration is the
config source.\"; } leaf startup { if-feature startup; type empty;
description \"The startup configuration is the config source. This is optional-to-
implement on the server because not all servers will support filtering for this
datastore.\"; } } anyxml filter { description \"Subtree or XPath
filter to use.\"; nc:get-filter-element-attributes; } } output { anyxml data {
description \"Copy of the source datastore subset that matched the filter criteria (if
any). An empty data container indicates that the request did not produce any results.\"; }
} } rpc edit-config { description \"The <edit-config> operation loads all or part of a specified
configuration to the specified target configuration.\"; reference \"RFC 6241, Section 7.2\"; input {
container target { description \"Particular configuration to edit.\"; choice config-
target { mandatory true; description \"The configuration target.\";
leaf candidate { if-feature candidate; type empty; description
\"The candidate configuration is the config target.\"; }
leaf running { if-
feature writable-running; type empty; description \"The running
configuration is the config source.\"; } } } leaf default-operation { type
enumeration { enum merge { description \"The default operation is merge.\";
} enum replace { description \"The default operation is replace.\";
} enum none { description \"There is no default operation.\"; }

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commit.          The token should be a random string.\";          reference \"RFC 6241, Section 8.3.4.1\";
} leaf persist-id {          if-feature confirmed-commit;          type string;          description
\"This parameter is given in order to commit a persistent          confirmed commit. The value must be
equal to the value          given in the 'persist' parameter to the <commit> operation.          If it does
not match, the operation fails with an          'invalid-value' error.\";          reference \"RFC 6241,
Section 8.3.4.1\";          } } rpc discard-changes {          if-feature candidate;          description
\"Revert the candidate configuration to the current          running configuration.\";          reference \"RFC 6241,
Section 8.3.4.2\";          } rpc cancel-commit {          if-feature confirmed-commit;          description
\"This operation is used to cancel an ongoing confirmed commit.          If the confirmed commit is persistent, the
parameter          'persist-id' must be given, and it must match the value of the          'persist' parameter.\";
reference \"RFC 6241, Section 8.4.4.1\";          input {          leaf persist-id {          type string;
description          \"This parameter is given in order to cancel a persistent          confirmed commit.
The value must be equal to the value          given in the 'persist' parameter to the <commit> operation.
If it does not match, the operation fails with an          'invalid-value' error.\";          } } } rpc
validate {          if-feature validate;          description          \"Validates the contents of the specified
configuration.\";          reference \"RFC 6241, Section 8.6.4.1\";          input {          container source {
description          \"Particular configuration to validate.\";          choice config-source {
mandatory true;          description          \"The configuration source to validate.\";          leaf
candidate {          if-feature candidate;          type empty;          description          \"The
candidate configuration is the config source.\";          }          leaf running {          type empty;
description          \"The running configuration is the config source.\";          }          leaf
startup {          if-feature startup;          type empty;          description          \"The
startup configuration is the config source.\";          }          leaf url {          if-feature url;
type inet:uri;          description          \"The URL-based configuration is the config source.\";
}          anyxml config {          description          \"Inline Config content: <config> element.
Represents          an entire configuration datastore, not          a subset of the running
datastore.\";          } } } } }</module>
<module name=\"vyatta-npf-
v1\" uri=\"urn:vyatta.com:mgmt:vyatta-npf:1\" revision=\"2016-03-28\" format=\"yang\" length=\"10793\" module
vyatta-npf-v1 {
  namespace \"urn:vyatta.com:mgmt:vyatta-npf:1\";
  prefix vyatta-npf-v1;
  import config-v1 {
    prefix config;
  }
  import vyatta-types-v1 {
    prefix types;
  }
  import vyatta-fw-types-v1 {
    prefix fw-types;
  }
  import vyatta-dscp-v1 {
    prefix dscp;
  }
  organization \"Brocade Communications Systems, Inc.\";
  contact \"Brocade Communications Systems, Inc.\";
  postal 130 Holger Way;
  location San Jose, CA 95134;
  email support@Brocade.com;
  web www.brocade.com;
  description \"Copyright (c) 2015-2016 by Brocade Communications Systems, Inc. All rights reserved. YANG module and scripts for groups
used by firewall-related Vyatta          YANG files\";
  revision 2016-03-28 {
    description \"Remove use of
bash in action scripts\";
  }
  revision 2015-10-15 {
    description \"Initial revision.\";
  }
  typedef
bandwidth-suffix {
    type string {
      /* Number followed by suffix */
      pattern '([0-9]+)([KkMmGg])?';
    }
  }
  typedef burst-size {
    type uint32 {
      /* Arbitrary maximum: 312500000 is 100ms at 25 Mbits/sec */
      range 1..312500000;
    }
  }
  description \"Burst size in bytes\";
  config:help \"Burst size in
bytes\";
  grouping burst {
    leaf burst {
      type burst-size;
    }
  }
  description \"Burst size in
bytes\";
  config:help \"Burst size in bytes\";
  typedef ratelimit-suffix {
    type string {
      /* Number followed by suffix */
      pattern '[0-9]+([KkMmGg])?';
    }
  }
  config:pattern-help
\"<number><suffix>          Suffixes are either
'Rate-limit in packets/second\";
  config:syntax \"rate-check.pl $VAR{0}\";
  grouping marking {
    container mark {
      description \"Packet marking action\";
      config:help \"Packet marking
action\";
      leaf dscp {
        type dscp:dscp-name-or-value;
        description \"DSCP value to be
marked\";
        config:help \"DSCP value to be marked\";
      }
      leaf pcp {
        type uint8 {
          range 0..7;
        }
        description \"802.1 priority code point to
apply\";
        config:help \"802.1 priority code point to apply\";
      }
      grouping policing {
        container police {
          must \"bandwidth or ratelimit\" {
            error-message \"One of 'bandwidth' or
'ratelimit' (not both) must be set\";
          }
          description \"Packet rate limiting\";
          leaf bandwidth {
            must \"not(../ratelimit)\" {
              error-message
\"Both 'bandwidth' and 'ratelimit' cannot be set\";
            }
            type bandwidth-suffix;
            description \"Bandwidth limit\";
            config:help \"Bandwidth limit\";
          }
          leaf ratelimit {
            type // This
cannot be set if bandwidth is set - the check is done on the bandwidth node.
            type ratelimit-
suffix;
            description \"Rate-limit in packets/second.\";
            config:help \"Rate-limit in
packets/second.\";
            uses burst;
            container then {
              description \"Result for packets over
police limit\";
              config:help \"Result for packets over police limit\";
              leaf action {
                type enumeration {
                  tenum \"drop\" {
                    description \"Drop if
overlimit\";
                  }
                  config:help \"Drop if overlimit\";
                }
                description \"Police action\";
                config:help \"Police action\";
                uses
marking;
              }
              grouping ethertype {
                leaf ethertype {
                  type string {
                    config:syntax
\"/opt/vyatta/share/tmplscripts/security/firewall/ethertype/ethertype/configd_syntax.cli\";
                    description \"Ethertype to match (name or hex or decimal)\";
                    config:help \"Ethertype to match (name or hex
or decimal)\";
                    allowed
\"/opt/vyatta/share/tmplscripts/security/firewall/ethertype/ethertype/configd allowed.sh\";
                  }
                  grouping
fragment {
                    leaf fragment {
                      type empty;
                      description \"Match on fragmented
packets\";
                    }
                    config:help \"Match on fragmented packets\";
                  }
                  grouping rule-icmp-numeric {
                    list {
                      type {
                        description \"Choose a type (and optional code) by number\";
                      }
                      config:help \"Choose a type
(and optional code) by number\";
                      key type-number;
                      leaf type-number {
                        type fw-types:icmp-
type-number;
                        description \"ICMP type value\";
                        config:help \"ICMP type
value\";
                      }
                      leaf tmax-elements {
                        type 1;
                        leaf code {
                          type fw-types:icmp-code-
number;
                          description \"ICMP code value\";
                          config:help \"ICMP code
value\";
                        }
                      }
                      grouping rule-icmpv4 {
                        container icmp {
                          must \"not(../protocol) or
(../protocol = 'icmp') or (../protocol = 1)\" {
                            error-message \"'icmp' options can only be used if
protocol is ICMP or not set\";
                          }
                          leaf tcp {
                            must \"not(../tcp) and not(../ipv6-route) and not(../icmpv6)\" {
                              error-message \"Options 'tcp', 'icmp', 'icmpv6' and 'ipv6-route' are mutually
exclusive\";
                            }
                            description \"ICMP for IPv4\";
                            config:help \"ICMP for IPv4\";
                            leaf name {
                              type fw-types:icmpv4-symbolic;
                              description \"Choose a type (and optional code) by
name\";
                              config:help \"Choose a type (and optional code) by name\";
                            }
                            uses rule-icmp-

```

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```
empty;\t\t\t\t\t\t\t // neighbors \t\t\t\t container log {\t\t\t\t\t configd:help \"LDP logging  
parameters\";\\t\t\t\t leaf dsm {\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable LDP DSM  
logs\";\\t\t\t\t\t leaf fsm {\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable LDP FSM  
logs\";\\t\t\t\t\t leaf nsm {\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable LDP NSM  
logs\";\\t\t\t\t\t container packet {\t\t\t\t\t configd:help \"LDP packet logs\";\\t\t\t\t\t leaf address  
all {\\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable LDP all packet logs\";\\t\t\t\t\t leaf  
hello {\\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable LDP hello packet  
logs\";\\t\t\t\t\t leaf init {\\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable LDP  
initialization packet logs\";\\t\t\t\t\t leaf keepalive {\\t\t\t\t\t type  
empty;\\t\t\t\t\t configd:help \"Enable LDP keeplive packet logs\";\\t\t\t\t\t leaf label  
{\\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable LDP label packet logs\";\\t\t\t\t\t leaf  
notification {\\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable LDP notification packet  
logs\";\\t\t\t\t\t } // packet {\\t\t\t\t\t rib {\\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable  
LDP RIB logs\";\\t\t\t\t\t usm {\\t\t\t\t\t type empty; \\t\t\t\t\t configd:help \"Enable LDP USM  
logs\";\\t\t\t\t\t } // log {\\t\t\t\t\t } // container ldp {}}</module><module name=\\\"vyatta-dhcp-client-  
v1\\\" uri=\\\"urn:vyatta.com:mgt:vyatta-dhcp-client:1\\\" revision=\\\"2015-08-14\\\" format=\\\"yang\\\"  
length=\\\"2117\\\" module vyatta-dhcp-client-v1 { namespace \\\"urn:vyatta.com:mgt:vyatta-dhcp-  
client:1\\\"; tprefix vyatta-dhcp-client-v1; timport confid-vl { t prefix confid; t} timport vyatta-  
interfaces-v1 { t prefix if; t} timport vyatta-interfaces-bridge-v1 { t prefix interfaces-  
bridge; t} timport vyatta-interfaces-dataplane-v1 { t prefix interfaces-dataplane; t} timport vyatta-  
interfaces-bonding-v1 { ttprefix interfaces-bonding; t} tororganization \\\"Brocade Communications Systems,  
Inc.\\\" tcontact \\\"Brocade Communications Systems, Inc.\\\" Postal: 130 Holger Way San Jose,  
CA 95134 E-mail: support@brocade.com Web: www.brocade.com\\\"; tdescription \\\"Copyright (c) 2015-  
2016 by Brocade Communications Systems, Inc. All rights reserved. The YANG module for vyatta-dhcp-  
client-v1\\\"; trevision 2015-08-14 { tdescription \\\"Initial revision of version 1.\\\"; ttgrouping  
interface-options { tddescription \\\"DHCP client interface options\\\"; tleaf no-rfc3442 { t type  
empty; \\t\t\t\t\t configd:help \"Disable request for RFC3442 classless static routes\"; t} ttgrouping dhcp-  
options { \\t\t\t\t\t container dhcp-options { \\t\t\t\t\t configd:help \"DHCP options\"; \\t\t\t\t\t configd:end \\\"dhcp-  
client-options $VAR(..@)\\\"; \\t\t\t\t\t configd:validate \\\"opt/vyatta/share/tmplscripts/interfaces/dhcp-client-  
options/config validate.cli\\\"; \\t\t\t\t\t uses interface-options; t} ttgrouping dhcp-options-vif  
{ \\t\t\t\t\t container dhcp-options { \\t\t\t\t\t configd:help \"DHCP options\"; \\t\t\t\t\t configd:end \\\"dhcp-client-  
options $VAR(..@).$VAR(..@)\\\"; \\t\t\t\t\t configd:validate \\\"opt/vyatta/share/tmplscripts/interfaces/dhcp-  
client-options/config validate.cli\\\"; \\t\t\t\t\t uses interface-options; t} taugment  
/if:interfaces/interfaces-bridge:bridge { t uses dhcp-options; t} taugment /if:interfaces/interfaces-  
dataplane:dataplane { t uses dhcp-options; t} taugment /if:interfaces/interfaces-  
dataplane:dataplane/dataplane:vif { t uses dhcp-options-vif; t} taugment  
/if:interfaces/interfaces-bonding:bonding { t uses dhcp-options; t} taugment /if:interfaces/interfaces-  
bonding:bonding/interfaces-bonding:vif { t uses dhcp-options-vif; t}</module><module name=\\\"vyatta-  
protocols-ospf-v1\\\" uri=\\\"urn:vyatta.com:mgt:vyatta-protocols-ospf:1\\\" revision=\\\"2016-07-21\\\"  
format=\\\"yang\\\" length=\\\"55898\\\" module vyatta-protocols-ospf-v1 { namespace \\\"urn:vyatta.com:mgt:vyatta-  
protocols-ospf:1\\\"; tprefix vyatta-protocols-ospf-v1; timport vyatta-protocols-v1 { t tprefix  
protocols; t} timport vyatta-services-v1 { t tprefix service; t} timport vyatta-service-snmp-v1 { t tprefix  
service-snmp; t} timport vyatta-types-v1 { t tprefix types; t} timport confid-v1 { t tprefix  
confid; t} timport vyatta-interfaces-v1 { t tprefix if; t} timport vyatta-interfaces-bridge-v1 { t tprefix  
interfaces-bridge; t} timport vyatta-interfaces-dataplane-v1 { t tprefix interfaces-dataplane; t} timport  
vyatta-interfaces-dataplane-unnumbered-v1 { t tprefix interfaces-dataplane-unnumbered; t} timport vyatta-  
interfaces-l2tpeth-v1 { t tprefix interfaces-l2tpeth; t} timport vyatta-interfaces-loopback-v1 { t tprefix  
interfaces-loopback; t} timport vyatta-interfaces-openvpn-v1 { t tprefix interfaces-openvpn; t} timport  
vyatta-interfaces-tunnel-v1 { t tprefix interfaces-tunnel; t} timport vyatta-interfaces-vti-v1 { t tprefix  
interfaces-vti; t} timport vyatta-interfaces-bonding-v1 { t tprefix interfaces-bonding; t} timport vyatta-  
policy-v1 { t tprefix policy; t} timport vyatta-policy-route-v1 { t tprefix policy-route; t} timport vyatta-  
protocols-interface-validation-v1 { t tprefix if-validation; t} tororganization \\\"Brocade Communications  
Systems, Inc.\\\" tcontact \\\"Brocade Communications Systems, Inc.\\\" Postal: 130 Holger Way San Jose, CA  
95134 E-mail: support@brocade.com Web: www.brocade.com\\\"; tdescription \\\"Copyright (c) 2014-2016  
by Brocade Communications Systems, Inc. All rights reserved. The YANG module package for vyatta-  
protocols-ospf-v1\\\"; trevision 2016-07-21 { tdescription \\\"Remove passive-interface-exclude  
validation \\\"for erspan interfaces, \\\"Fixed backward compatibility issues, \\\"Added validation for  
area, \\\"Renaming of passive-interface and passive-interface-exclude grouping, \\\"Improved validation for  
passive interface CLI, \\\"Adding config:secret for md5-key\\\"; t} trevision 2016-02-06 { tdescription  
\\\"Conversion of script based validations to direct Yang validations\\\"; t} trevision 2016-01-26  
{ tdescription \\\"Yang refactoring - yang grouping is done and new typedefs added\\\"; t} trevision 2015-09-30  
{ tdescription \\\"Initial revision of version 1\\\"; t} tttypedef metric { t type uint32 { t trange  
0..16777214; t} tttypedef metric-type { t type enumeration { t tenum \\\"1\\\"; t tenum  
\\\"2\\\"; t} tttypedef protocol { t type enumeration { t tenum \\\"bgp\\\"; t tenum  
\\\"connected\\\"; t tenum \\\"kernel\\\"; t tenum \\\"rip\\\"; t tenum \\\"static\\\"; t} tttypedef distance  
{ t type uint32 { t trange 1..255; t} tttypedef timer-val { t type uint32 { t trange  
1..65535; t} tttypedef cost { t type uint32 { t trange 0..16777214; t} tttypedef abr-type  
{ t type enumeration { t tenum \\\"cisco\\\" } \\t\t\t\t\t configd:help \\\"Cisco ABR type  
(default)\\\"; \\t\t\t\t\t description \\\"Cisco ABR type (default)\\\"; \\t\t\t\t\t tenum \\\"ibm\\\" { \\t\t\t\t\t configd:help  
\\\"IBM ABR type\\\", \\t\t\t\t\t description \\\"IBM ABR type\\\", \\t\t\t\t\t tenum \\\"shortcut\\\" { \\t\t\t\t\t configd:help  
\\\"Shortcut ABR type\\\", \\t\t\t\t\t description \\\"Shortcut ABR type\\\", \\t\t\t\t\t tenum \\\"standard\\\"  
{ \\t\t\t\t\t configd:help \\\"Standard ABR type\\\", \\t\t\t\t\t description \\\"Standard ABR  
type\\\", \\t\t\t\t\t } tttypedef network-type { t type enumeration { t tenum \\\"broadcast\\\"  
{ \\t\t\t\t\t configd:help \\\"Broadcast network type\\\", \\t\t\t\t\t description \\\"Broadcast network  
type\\\", \\t\t\t\t\t tenum \\\"non-broadcast\\\" { \\t\t\t\t\t configd:help \\\"Non-broadcast network  
type\\\", \\t\t\t\t\t description \\\"Non-broadcast network type\\\", \\t\t\t\t\t tenum \\\"point-to-multipoint\\\"  
{ \\t\t\t\t\t configd:help \\\"Point-to-multipoint network type\\\", \\t\t\t\t\t description \\\"Point-to-multipoint network  
type\\\", \\t\t\t\t\t tenum \\\"point-to-point\\\" { \\t\t\t\t\t configd:help \\\"Point-to-point network  
type\\\", \\t\t\t\t\t description \\\"Point-to-point network type\\\", \\t\t\t\t\t } tttypedef nssa-translate-role  
{ t type enumeration { t tenum \\\"always\\\" } \\t\t\t\t\t configd:help \\\"NSSA-ABRto always  
translate\\\"; \\t\t\t\t\t description \\\"NSSA-ABR to always translate\\\"; \\t\t\t\t\t tenum \\\"candidate\\\"  
{ \\t\t\t\t\t configd:help \\\"NSSA-ABR for election (default)\\\", \\t\t\t\t\t description \\\"NSSA-ABR for
```


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\\\"urn:vyatta.com:mgmt:vyatta-service-dhcp-server-routing-instance:1\\\";\\tprefix vyatta-service-dhcp-server-routing-instance-v1;\\timport configd-v1 {\\t\\tprefix configd;\\t}\\timport vyatta-service-dhcp-server-v1 {\\t\\tprefix server;\\t}\\timport vyatta-routing-v1 {\\t\\tprefix routing;\\t}\\timport vyatta-interfaces-v1 {\\t\\tprefix if;\\t}\\timport vyatta-interfaces-bridge-v1 {\\t\\tprefix if-bridge;\\t}\\timport vyatta-interfaces-dataplane-v1 {\\t\\tprefix if-dataplane;\\t}\\timport vyatta-interfaces-bonding-v1 {\\t\\tprefix if-bonding;\\t}\\timport vyatta-routing-instance-interfaces-v1 {\\t\\tprefix rtintf;\\t}\\torganization \\\"Brocade Communications Systems, Inc.\\\";\\tcontact\\t\\t\\\"Brocade Communications Systems, Inc.\\t\\t Postal: 130 Holger Way\\t\\t San Jose, CA 95134\\t\\t E-mail: support@Brocade.com\\t\\t Web: www.brocade.com\\t\\t\\tdescription\\t\\t\\t\"Copyright (c) 2016 by Brocade Communications Systems, Inc.\\t\\t All rights reserved.\\t\\t The YANG module for vyatta-service-dhcp-server-routing-instance-v1\";\\trevision 2016-06-12 {\\t\\tdescription \\\"Initial revision of version 1.\";\\t\\t\\taugment /routing:routing/routing:instance/routing:service {\\t\\tuses server:dhcp-server-service {\\t\\t\\trefine dhcp-server {\\t\\t\\t\\tconfigd:end \\\"/opt/vyatta/share/tmplscripts/service/dhcp-server/configd vrf endl.cli\\\";\\t\\t\\t}\\t\\t\\trefine dhcp-server/listeno/interface {\\t\\t\\t\\tconfigd:allowed \\\"vyatta-show-interfaces.pl --vrf=\$VAR(..../..../@) --action=dhcp_allowed\";\\t\\t\\t\\tmust \\\"(current() = /if:interfaces/if-dataplane:dataplane/if-dataplane:tagnode)\\\"\\t\\t\\t\\t+ \\\"or (substring-after(current(), '.') = /if:interfaces/if-dataplane:dataplane\\\"\\t\\t\\t\\t+ \\\"[if-dataplane:tagnode = substring-before(current(), '.')]\\\"/if-dataplane:vif/if-dataplane:tagnode)\\\"\\t\\t\\t\\t+ \\\"or (current() = /if:interfaces/if-bridge:bridge/if-bridge:tagnode)\\\"\\t\\t\\t\\t+ \\\"or (current() = /if:interfaces/if-bonding:bonding/if-bonding:tagnode)\\\"\\t\\t\\t\\t+ \\\"or (substring-after(current(), '.') = /if:interfaces/if-bonding:bonding\\\"\\t\\t\\t\\t+ \\\"[if-bonding:tagnode = substring-before(current(), '.')]\\\"/if-bonding:vif/if-bonding:tagnode)\\\" {\\t\\t\\t\\t\\terror-message \\\"Interface name must refer to an existing dataplane, bonding or bridge interface name\\\";\\t\\t\\t\\t}\\t\\t\\t\\tmust \\\"current() = /routing:routing/routing:instance\\\"+\\t\\t\\t\\t\\t\\\"[routing:instance-name = current()../..../routing:instance-name]\\\"+\\t\\t\\t\\t\\t\\\"rtintf:interface/rtintf:name\\\" {\\t\\t\\t\\t\\terror-message \\\"Interface must be configured in this routing instance\\\";\\t\\t\\t\\t}\\t\\t\\t\\t}\\t\\t}</module<module name=\\\"vyatta-interfaces-policy-v1\\\"uri=\\\"urn:vyatta.com:mgmt:vyatta-interfaces-policy:1\\\" revision=\\\"2015-10-05\\\" format=\\\"yang\\\" length=\\\"1495\\\"module vyatta-interfaces-policy-v1 {\\tnamespace \\\"urn:vyatta.com:mgmt:vyatta-interfaces-policy:1\\\";\\tprefix vyatta-interfaces-policy-v1;\\timport vyatta-policy-v1 {\\t\\tprefix policy;\\t}\\timport vyatta-interfaces-v1 {\\t\\tprefix if;\\t}\\timport vyatta-interfaces-dataplane-v1 {\\t\\tprefix interfaces-dataplane;\\t}\\timport vyatta-interfaces-l2tpeth-v1 {\\t\\tprefix interfaces-l2tpeth;\\t}\\timport vyatta-interfaces-bonding-v1 {\\t\\tprefix interfaces-bonding;\\t}\\torganization \\\"Brocade Communications Systems, Inc.\\\";\\tcontact\\t\\t\\\"Brocade Communications Systems, Inc.\\t\\t Postal: 130 Holger Way\\t\\t San Jose, CA 95134\\t\\t E-mail: support@Brocade.com\\t\\t Web: www.brocade.com\\t\\t\\tdescription\\t\\t\\t\"Copyright (c) 2014-2016 by Brocade Communications Systems, Inc.\\t\\t All rights reserved.\\t\\t The YANG module for vyatta-interfaces-policy-v1\";\\trevision 2015-10-05 {\\t\\tdescription \\\"Initial revision of version 1.\";\\t\\t\\taugment /if:interfaces/interfaces-dataplane:dataplane {\\t\\tuses policy:policy-binding;\\t\\t\\taugment /if:interfaces/interfaces-dataplane:dataplane/interfaces-dataplane:vif {\\t\\tuses policy:policy-binding;\\t\\t\\taugment /if:interfaces/interfaces-l2tpeth:l2tpeth/interfaces-l2tpeth:vif {\\t\\tuses policy:policy-binding;\\t\\t\\taugment /if:interfaces/interfaces-bonding:bonding {\\t\\tuses policy:policy-binding;\\t\\t\\taugment /if:interfaces/interfaces-bonding:bonding/interfaces-bonding:vif {\\t\\tuses policy:policy-binding;\\t\\t}</module<module name=\\\"vyatta-ssl-vpn-bundler-v1\\\"uri=\\\"urn:vyatta.com:mgmt:vyatta-ssl-vpn-bundler:1\\\" revision=\\\"2015-08-14\\\" format=\\\"yang\\\" length=\\\"1198\\\"module vyatta-ssl-vpn-bundler-v1 {\\tnamespace \\\"urn:vyatta.com:mgmt:vyatta-ssl-vpn-bundler:1\\\";\\tprefix vyatta-ssl-vpn-bundler-v1;\\timport vyatta-interfaces-v1 {\\t\\tprefix if;\\t}\\timport vyatta-interfaces-openvpn-v1 {\\t\\tprefix interfaces-openvpn;\\t}\\timport configd-v1 {\\t\\tprefix configd;\\t}\\torganization \\\"Brocade Communications Systems, Inc.\\\";\\tcontact\\t\\t\\\"Brocade Communications Systems, Inc.\\t\\t Postal: 130 Holger Way\\t\\t San Jose, CA 95134\\t\\t E-mail: support@Brocade.com\\t\\t Web: www.brocade.com\\t\\t\\tdescription\\t\\t\\t\"Copyright (c) 2015-2016 by Brocade Communications Systems, Inc.\\t\\t All rights reserved.\\t\\t The YANG module for vyatta-protocols-pim6-routing-instance-v1\";\\trevision 2015-08-14 {\\t\\tdescription \\\"Initial revision of version 1.\";\\t\\t\\taugment /if:interfaces/interfaces-openvpn:openvpn {\\t\\tcontainer client-bundle {\\t\\t\\tpresence \\\"true\\\";\\t\\t\\tconfigd:help \\\"Generate SSL-VPN Client Bundles\\\";\\t\\t\\tleaf osx {\\t\\t\\t\\t\\ttype empty;\\t\\t\\t\\t\\tconfigd:help \\\"Generate OpenVPN formatted config file for OS X OpenVPN clients\\\";\\t\\t\\t\\t}\\t\\t\\tleaf linux {\\t\\t\\t\\t\\ttype empty;\\t\\t\\t\\t\\tconfigd:help \\\"Generate SSL-VPN Client Bundle for Linux\\\";\\t\\t\\t\\t}\\t\\t\\tleaf windows {\\t\\t\\t\\t\\ttype empty;\\t\\t\\t\\t\\tconfigd:help \\\"Generate SSL-VPN Client Bundle for Windows\\\";\\t\\t\\t\\t}\\t\\t\\tleaf generic {\\t\\t\\t\\t\\ttype empty;\\t\\t\\t\\t\\tconfigd:help \\\"Generate standard OpenVPN formatted config file with CA certificate inline\\\";\\t\\t\\t\\t}\\t\\t}\\t\\t}</module<module name=\\\"vyatta-protocols-pim6-routing-instance-v1\\\"uri=\\\"urn:vyatta.com:mgmt:vyatta-protocols-pim6-routing-instance:1\\\" revision=\\\"2016-04-26\\\" format=\\\"yang\\\" length=\\\"1988\\\"module vyatta-protocols-pim6-routing-instance-v1 {\\tnamespace \\\"urn:vyatta.com:mgmt:vyatta-protocols-pim6-routing-instance:1\\\";\\tprefix vyatta-protocols-pim6-routing-instance-v1;\\timport configd-v1 {\\t\\tprefix configd;\\t}\\timport vyatta-routing-v1 {\\t\\tprefix routing;\\t}\\timport vyatta-protocols-pim6-v1 {\\t\\tprefix pim6;\\t}\\timport vyatta-routing-instance-interfaces-v1 {\\t\\tprefix rif;\\t}\\torganization \\\"Brocade Communications Systems, Inc.\\\";\\tcontact\\t\\t\\\"Brocade Communications Systems, Inc.\\t\\t Postal: 130 Holger Way\\t\\t San Jose, CA 95134\\t\\t E-mail: support@Brocade.com\\t\\t Web: www.brocade.com\\t\\t\\tdescription\\t\\t\\t\"Copyright (c) 2016 by Brocade Communications Systems, Inc.\\t\\t All rights reserved.\\t\\t The YANG module for vyatta-protocols-pim6-routing-instance-v1\";\\trevision 2016-04-26 {\\t\\tdescription \\\"Augment /routing:routing/routing:instance/routing:protocols {\\t\\tuses pim6:pim6-parameters {\\t\\t\\trefine pim6 {\\t\\t\\t\\tconfigd:end \\\"vyatta-pim 6 --routing-instance \$VAR(..../@)\\\";\\t\\t\\t\\t}\\t\\t\\trefine pim6/register-source/interface {\\t\\t\\t\\tmust \\\"current() = /routing:routing/routing:instance\\\" +\\t\\t\\t\\t\\t\\\"[routing:instance-name = current()../..../routing:instance-name]\\\" +\\t\\t\\t\\t\\t\\\"rtintf:interface/rtintf:name\\\" {\\t\\t\\t\\t\\terror-message \\\"Interface must be configured in this routing instance\\\";\\t\\t\\t\\t}\\t\\t\\trefine pim6/bsr-candidate/interface {\\t\\t\\t\\tmust \\\"current() = /routing:routing/routing:instance\\\"+\\t\\t\\t\\t\\t\\\"[routing:instance-name = current()../..../routing:instance-name]\\\"+\\t\\t\\t\\t\\t\\\"rif:interface/rif:name\\\" {\\t\\t\\t\\t\\terror-message \\\"Interface must be configured in this

"ok:capability:vyatta-protocols-ecmp-routing-instance-v1, URI:urn:vyatta.com:mgmt:vyatta-protocols-ecmp-routing-instance:1 revision:2016-06-01",
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 "ok:capability:vyatta-service-sflow-routing-instance-v1, URI:urn:vyatta.com:mgmt:vyatta-service-sflow-routing-instance:1 revision:2016-01-13",
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 "ok:capability:vyatta-interfaces-vti-v1, URI:urn:vyatta.com:mgmt:vyatta-interfaces-vti:1 revision:2016-05-09",
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 "ok:capability:vyatta-resources-service-users-v1, URI:urn:vyatta.com:mgmt:vyatta-resources-service-users:1 revision:2015-08-14",
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 "ok:capability:vyatta-system-v1, URI:urn:vyatta.com:mgmt:vyatta-system:1 revision:2016-01-28",
 "ok:capability:vyatta-ipv6-rtradv-groups-v1, URI:urn:vyatta.com:mgmt:vyatta-ipv6-rtradv-groups:1 revision:2016-09-01",
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 "ok:capability:ietf-netconf, URI:urn:ietf:params:xml:ns:netconf:base:1.0 revision:2011-06-01",
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- Authorization: Basic
- Accept: application/json
- Content-Type: application/json
- Content-Length: 1234

HTTP Request Body:

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      "operation": "none",
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      "config": "",
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        "strictHosts": true
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          "port": 2022
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          "host": "pf-ncs-slave-02.cisco.com",
          "port": 2022
        }
      ]
    }
  ]
}
```

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