CPS Unified API Reference, Release 20.2.0 (1)

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CONTENTS

Preface

About This Guide

This document is a part of the Cisco Policy Suite documentation set.

For information about available documentation, see the *CPS Documentation Map* for this release at Cisco.com.

Note The PATS/ATS, ANDSF, and MOG products have reached end of life and are not supported in this release. Any references to these products (specific or implied), their components or functions in this document are coincidental and are not supported. Full details on the end of life for these products are available at: https://www.cisco.com/c/en/us/products/wireless/policy-suite-mobile/eos-eol-notice-listing.html.

Audience

This guide is best used by these readers:

- Network administrators
- Network engineers
- Network operators
- System administrators

This document assumes a general understanding of network architecture, configuration, and operations.

Additional Support

For further documentation and support:

- Contact your Cisco Systems, Inc. technical representative.
- Call the Cisco Systems, Inc. technical support number.
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- Refer to support matrix at https://www.cisco.com/c/en/us/support/index.html and to other documents related to Cisco Policy Suite.

Conventions (all documentation)

This document uses the following conventions.

Conventions	Indication
bold font	Commands and keywords and user-entered text appear in **bold** font.
italic font	Document titles, new or emphasized terms, and arguments for which you supply values are in *italic* font.
[ ]	Elements in square brackets are optional.
{x | y | z }	Required alternative keywords are grouped in braces and separated by vertical bars.
[x | y | z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
courier font	Terminal sessions and information the system displays appear in courier font.
< >	Nonprinting characters such as passwords are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Note Means reader take note. Notes contain helpful suggestions or references to material not covered in the manual.

Caution Means reader be careful. In this situation, you might perform an action that could result in equipment damage or loss of data.

Warning IMPORTANT SAFETY INSTRUCTIONS.

Means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

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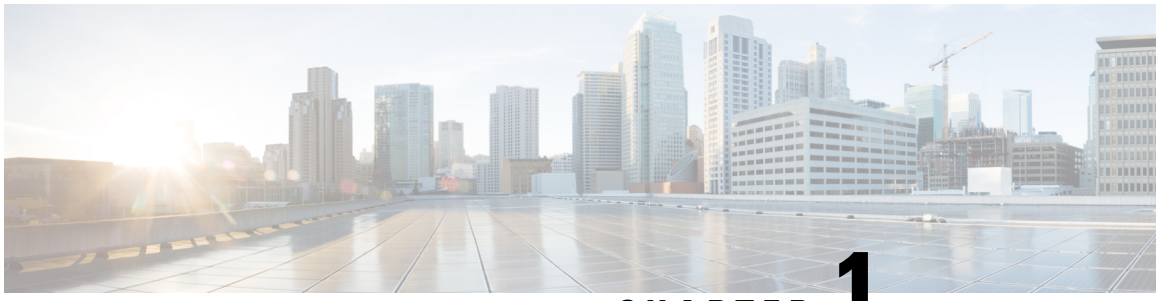
Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

Important Notes

Important Any feature or GUI functionality that is not documented may not be supported in this release or may be customer specific, and must not be used without consulting your Cisco Account representative.



CHAPTER 1

Overview

General Information

Unified API version 20.2.0 works with CPS 18.0+.

Release Notes

CSCvf86865 - Added new parameter called `retrieveAll` in QuerySessionRequest (default: true) to retrieve all or one session entry. Added logic to first check whether the session entry exists for the given key in memcache. If found, then query the particular DB shard.

Default URLs

HA

Table 1: URLs - HA

https://lbvip01:8443/ua/soap	endpoint
https://lbvip01:8443/ua/wsdl/UnifiedApi.wsdl	retrieves the WSDL
https://lbvip01:8443/ua/wsdl/UnifiedApi.xsd	retrieves the XSD (schema)

Audit History

The Audit History is a way to track usage of the various GUIs and APIs it provides to the customer.

If enabled, each request is submitted to the Audit History database for historical and security purposes. The user who made the request, the entire contents of the request and if it is subscriber related (meaning that there is a networkId value), all networkIds are stored as well in a searchable field.

Capped Collection

The Audit History uses a 1 GB capped collection in Mongo Db by default. The capped collection automatically removes documents when the size restriction threshold is hit. The oldest document is removed as each new document is added. For customers who want more than 1 GB of audit data, please contact the assigned Cisco Advanced Services Engineer to get more information.

Configuration in Policy Builder is done in GB increments. It is possible to enter decimals, for example, 9.5 will set the capped collection to 9.5 GB.

Note **PurgeAuditHistoryRequests**

When using a capped collection, Mongo Db places a restriction on the database and does not allow the deletion of data from the collection. Therefore, the entire collection must be dropped and re-created. This means that the PurgeAuditHistory queries have no impact on capped collections.

Note **AuditRequests**

As a consequence of the XSS defense changes to the API standard operation, any XML data sent in an AuditRequest must be properly escaped even if inside CDATA tags. For example, <ExampleRequest>...</ExampleRequest> See AuditType for more information.

Operation

The Audit History can be turned off, but it is on by default.

- **ua.client.submit.audit=true** - property used by Policy Builder and set in `/etc/broadhop/pb/pb.conf`
- **Submit Requests to Audit Log** - Unified API plugin configuration in Policy Builder

Initial Setup

There are 3 parts to the Audit History

- Server - database and Unified API
- Policy Builder
- Audit Client - bundle that the Policy Builder uses to send Audit requests

To setup the system:

Step 1 Start the Policy Builder with the following property: **-Dua.client.submit.audit=false** (set in `/etc/broadhop/pb/pb.conf`)

Step 2 Add and configure the appropriate plugin configurations for Audit History and Unified API

Step 3 Publish the Policy Builder configuration

Step 4 Start the CPS servers.

Step 5 Restart the Policy Builder with the following property:

-Dua.client.submit.audit=true

-Dua.client.server.url=http://ADDRESS OF SERVER:PORT

Read Requests

The Audit History does not log read requests by default.

- GetRefDataBalance
- GetRefDataServices
- GetSubscriber
- GetSubscriberCount
- QueryAuditHistory
- QueryBalance
- QuerySession
- QueryVoucher
- SearchSubscribers

The Unified API also has a Policy Builder configuration option to log read requests which is set to false by default.

APIs

All APIs are automatically logged into the Audit Logging History database, except for QueryAuditHistory and KeepAlive. All Unified API requests have an added Audit element that should be populated to provide proper audit history.

Querying

The query is very flexible - it uses regex automatically for the id and dataid, and only one of the following are required: id, dataid, or request. The dataid element typically will be the networkId (Credential) value of a subscriber.

Note **Disable Regex**

The use of regular expressions for queries can be turned off in the Policy Builder configuration.

The id element is the person or application who made the API request. For example, if a CSR logs into Control Center and queries a subscriber balance, the id will be that CSR's username.

The dataid element is typically the subscriber's username. For example, if a CSR logs into Control Center and queries a subscriber, the id will be that CSR's username, and the dataid will be the subscriber's credential

(networkId value). For queries, the dataid value is checked for spaces and then tokenized and each word is used as a search parameter. For example, "networkId1 networkId2" is interpreted as two values to check.

The fromDate represents the date in the past from which to start the purge or query. If the date is null, the api starts at the oldest entry in the history.

The toDate represents the date in the past to which the purge or query of data includes. If the date is null, the api includes the most recent entry in the purge or query.

Purging

The Audit History database is capped at 1 GB by default. Mongo provides a mechanism to do this and then the oldest data is purged as new data is added to the repository. There is also a PurgeAuditHistory request which can purge data from the repository. It uses the same search parameters as the QueryAuditHistory and therefore is very flexible in how much or how little data is matched for the purge.

Note **Regex Queries!**

Be very careful when purging records from the Audit History database. If a value is given for dataid, the server uses regex to match on the dataid value and therefore will match many more records than expected. Use the QueryAuditHistory API to test the query.

Control Center

The Control Center version 2.0 automatically logs all requests.

Policy Builder

The Policy Builder automatically logs all save operations (Publish and Save to Client).

HTTP KeepAlive

HA

https://lbvip01:8443/ua/soap/keepalive	Response: <html><body> Keep Alive </body></html>

Dates

Dates are in Zulu/UTC timestamp format. For proper server operation, you must use a consistent timestamp format for all dates in the API requests.

Parsing format: yyyy-MM-ddTHH:mm:ss[.SSS][Z|(+|-)hh:mm]

Note **Hijri Dates**

The Unified API does not support Hijri date translation at this time.

Valid Timestamp Formats

These are the valid timestamps based on the parsing format listed above:

2010-09-30T00:00:00Z	the Z indicates Zulu/UTC time - the database translates to UTC offset of locale/timezone
2010-09-30T00:00:00+00:00	manual inclusion of UTC offset of locale/timezone - the database will store as is
2010-09-30T00:00:00.000Z	uses milliseconds for extra specificity of time
2010-09-30T00:00:00.000+00:00	uses milliseconds for extra specificity of time
2010-09-30T00:00:00	no timezone offset or Z indication - the database translates to UTC offset of locale/timezone unless qns.conf param is set
2010-09-30T00:00:00.000	no timezone offset or Z indication and uses milliseconds for extra specificity of time - the database translates to UTC offset of locale/timezone unless qns.conf param is set

Note **No Timezone Offset or Z - qns.conf parameter**

The Unified API now supports dates that do not include a timezone offset or Z indication for UTC time. When a date is sent that does not include a timezone offset or Z, the API assumes Z/UTC unless the following qns.conf param is set:

-Dua.date.converter.timezone.offset. The timezone offset takes the form of (+|-)hh:mm. For example, -06:00 is Mountain Daylight Time (MDT) while -07:00 is Mountain Standard Time (MST) and +00:00 is UTC:

-Dua.date.converter.timezone.offset=-06:00

Database Timestamp Translation

The database always uses yyyy-MM-ddTHH:mm:ss.SSS(+|-)hh:mm for formatting dates. The database also always translates the datetime to the local server timezone. Therefore, the results may be unexpected if you pass the value with the Z format. For example: 2010-10-15T00:00:00Z produces Thu Oct 14 2010 18:00:00 GMT-06:00 (MDT) in the database instead of Fri Oct 15 2010 00:00:00 GMT-06:00 (MDT) assuming your server is set to North American Mountain Time. The reason is that the server reads the timezone of the incoming value as UTC (+00:00 indicated by the Z) and then translates that to the local server timezone which in this example is North American Mountain Time or -06:00. Mountain Time is 6 hours before (-) UTC.

Daylight Savings Time

Daylight Savings Time adds another wrinkle to the processing of dates and times. In the course of a year, the server timezone will automatically shift from standard time to daylight savings time. In our examples, that would be North American Mountain Daylight Savings Time (MST instead of MDT). During that period, the following will happen:

2010-11-15T00:00:00-06:00 produces Sun Nov 14 2010 23:00:00 GMT-07:00 (MST) in the database

Because Nov 15th 2010 is after the switch back to Standard time in the Mountain Zone but the database is translating to daylight savings time which is an hour earlier. To get Mon Nov 15 2010 00:00:00 GMT-07:00 (MST) during the Daylight Savings portion of the year, you need to pass in 2010-11-15T00:00:00-07:00.

Wikipedia ISO 8601

If you want to understand the ISO 8601 standard for date time handling, the following Wikipedia article could be useful.

http://en.wikipedia.org/wiki/ISO_8601

Services and Service Schedules

Service Schedules use a traditional concept of cron taken from the Quartz package. Quartz documents cron here. While we are not using the CronTrigger class, the explanation of the fields and how the values operate is useful information.

We essentially are trying to model a start and end date and a start and end time using the XML structure shown below. We do not deal with seconds or milliseconds which cron does. Instead we start at minute specificity. Instead of using pure cron notation, we have a startTime and endTime that makes it more human readable. We also use startDate and endDate which along with the start and end times, create the period of time over which the service is active. Then the repeat object handles how the schedule repeats within the specified date/timeframe. The repeat elements use actual Quartz cron notation.

startTime must be before endTime since it represents a range of time within a given day for the service to be active and it is used to build the cron object during processing.

Note **Service Evaluation "Gaps" - Seconds/Milliseconds**

The cron processing appends :59:999 (59 seconds and 999 milliseconds) to the endTime value which means that if you set the endTime to 12:59, the cron processing evaluates that as 12 hours 59 minutes 59 seconds and 999 milliseconds. This helps ensure that service evaluation for start and stop times does not have any "gaps". This is necessary for processing schedules like in the example below which cross date boundaries.

Note **Crossing Date Boundaries**

Schedules are tricky because they operate on two levels:

1. a date period for which the service is active
2. a time period for any given day which the service is active, meaning that you cannot cross date boundaries with the startTime and endTime

The typical gotcha scenario is trying to have a service be active for 24 hours across 2 days - for example, the service starts at 2 am on day 1 and ends at 2 am on day 2.

Most people try to do the following:

Schedule 1: startDate: 2013-10-03, endDate: 2013-10-04, startTime: 02:00, endTime: 01:59

The above does not work because the endTime is before the startTime which will result in an invalid cron object for processing.

Instead, do the following:

Schedule 1: startDate: 2013-10-03, endDate: 2013-10-03, startTime: 02:00, endTime: 23:59

Schedule 2: startDate: 2013-10-04, endDate: 2013-10-04, startTime: 00:00, endTime: 01:59

The above sets 2 schedules for the service: the first is valid from 2:00 am to 11:59 pm on October 3rd and the second is valid from 12:00 am to 1:59 am on October 4th. This creates a 24 hour active period for the service.

Note **Quartz Documentation**

As the Quartz documentation mentions, dayOfMonth and dayOfWeek are related and only one of the fields can contain ? for any given cron expression. dayOfMonth and dayOfWeek both cannot be configured at the same time. Only one parameter can be configured at any given point of time. If configuring dayOfWeek, set ? in dayOfMonth as <dayOfMonth>?</dayOfMonth>. If configuring dayOfMonth, set ? in dayOfWeek as <dayOfWeek>?</dayOfWeek>

While there is a great of flexibility with the current data structure, it is strongly recommended that you fill in all 4 values if you decide to include a repeat element.

field	regex	default
dayOfMonth	[\-,0-9*\?LW/]*	*
month	[\-,0-9*A-Z/]*	*
dayOfWeek	[\-,0-9*\?L#/]*	?
year	[\-,0-9*/]*	*

```
<schedule>
  <startDate>2011-01-01T00:00:00Z</startDate>
  <endDate>2012-01-01T00:00:00Z</endDate>
  <state>ON</state>
  <startTime>00:00</startTime>
```

```
  <endTime>23:59</endTime>
  <repeat>
    <dayOfMonth>*</dayOfMonth>
    <month>*</month>
    <dayOfWeek>?</dayOfWeek>
    <year>*</year>
  </repeat>
  <enabled>true</enabled>
</schedule>
```

Possibly the best feature of the schedule definition is that most of it contains defaults, so you only need to define a start date and if it's enabled, and you will have a schedule that operates forever from the start date, 24 hours a day.

```
<schedule>
  <startDate>2011-01-01T00:00:00Z</startDate>
  <enabled>true</enabled>
</schedule>
```

State

State is an additional layer of configuration that helps determine how to interpret the schedule. As noted above, the enabled field indicates whether the service is active or not. The state field indicates whether the time/date and cron values evaluate from a positive or negative perspective.

Example: state == ON, date range Jan 2000 - Jan 2001, time range = 9AM-5PM

```
<schedule>
  <startDate>2000-01-01T00:00:00Z</startDate>
  <endDate>2001-01-31T00:00:00Z</endDate>
  <state>ON</state>
  <startTime>09:00</startTime>
  <endTime>17:00</endTime>
  <enabled>true</enabled>
</schedule>
```

The above evaluates as: if at the time of evaluation the date is within range and the time is within the time range, the Policy Engine will return serviceActive=true and the Policy Engine will turn the service on or keep it on if already started for the subscriber.

Example: state == OFF, date range Jan 2000 - Jan 2001, time range = 9AM-5PM

The above evaluates as: if at the time of evaluation the date is within range and the time is within range, the Policy Engine will return serviceActive=false and the Policy Engine will turn the service off.

Custom Search Params

The basic search provides for name and credential matching. However, there is a large data structure that can be matched against. The data objects are structured as a large HashMap or KEY:VALUE pairs. Lists of HashMaps can be included as well. An industry-standard term for KEY:VALUE pairs is Attribute:Value pairs or AVPs. That is why the SearchSubscribersRequest uses "avp" as the element tag for complex search parameters. Currently, the Search views all parameters as an AND operation.

Each avp contains 2 children: code and value. The Code represents the KEY in the data HashMap, and the Value is the VALUE associated to that KEY in the data HashMap. For example, the following code block represented in JSON (JavaScript Object Notation) shows some of the key data points of a Subscriber.

We have tried to be consistent and append "_key" to the KEY portion of the KEY:VALUE pair. Notice that version_key is the KEY for an integer value, and that services_key is the KEY for a List of "services". Each service is also a HashMap of KEY:VALUE pairs.

Note **NoSQL**

It's important to note that the CPS database is a NoSQL database. It does not use tables and columns to structure the data. Because each record is a "document" (which is a HashMap of HashMaps), you can access keys in the same way you access properties in JavaScript with dot notation. In the example below, if you want to find subscribers who have the service AVP whose code is AVP_CODE use **services_key.avps_key.code_key**.

```
{ "_id_key" : null,
    "version_key" : 0,
    "services_key" : [
        {
            "code_key" : "GOLD",
            "enabled_key" : true,
            "avps_key" : [
                {
                    "code_key" : "AVP_CODE",
                    "value_key" : "AVP_VALUE"
                },
                {
                    "code_key" : "AVP_CODE_2",
                    "value_key" : "AVP_VALUE"
                }
            ]
        }
    ],
    "name_key" : { "full_name_key" : [ "Test", "Subscriber" ] },
    "status_key" : "ACTIVE",
    "credentials_key" : [
        {
            "network_id_key" : "networkId1",
            "password_key" : "password",
            "expiration_date_key" : null
        }
    ],
    "avps_key" : [
        {
            "code_key" : "SUBSCRIBER_AVP_CODE",
            "value_key" : "SUBSCRIBER_AVP_VALUE",
        }
    ]
    }
```

Example: Services:GOLD and Rate Plan:6MO_DISCOUNT. This should return all users who have the Gold Service and the 6 month discounted payment plan.

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <SearchSubscribersRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <filter>
        <avp>
          <code>services_key.code_key</code>
          <value>GOLD</value>
        </avp>
        <avp>
          <code>billing_info_key.rate_plan_code_key</code>
          <value>6MO_DISCOUNT</value>
        </avp>
      </filter>
    </SearchSubscribersRequest>
```

```
  </se:Body>
</se:Envelope>
```

Example: AVP:UPLINK. This should return all users who have an AVP with code = uplink.

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <SearchSubscribersRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <filter>
        <avp>
          <code>avps_key.code_key</code>
          <value>SUBSCRIBER_AVP_CODE</value>
        </avp>
      </filter>
    </SearchSubscribersRequest>
  </se:Body>
</se:Envelope>
```

Balance Engine Thresholds

The Threshold table in Policy Builder defines thresholds that trigger messages when quota is credited/debited and therefore qualifies as breached/unbreached. These messages are sent back to the Policy Engine from MSBM on Credit, Debit, Charge, and Provision functions so that a policy can make decisions and take actions based on the threshold breach. When breached, the current amount is reported.

Thresholds can be defined for an Account Balance Template (monitors all child quotas as an aggregate) and for a Quota Template (only monitors the credits of that quota). Thresholds operate against the total of all currently valid credits under the specified balance/quota. A currently valid credit is a credit for which the start date is before the current date/time and the end date is after the current date/time.

Note **Threshold Calculation**

Thresholds are based on charged amounts. Reserved amounts are not included.

Example

- A Subscriber has a credit of 1 GB that ends on Oct 15th
- The system is configured with a Percentage threshold of 90% on a Balance template
- The Subscriber uses 922 MB of credit
- The threshold has been crossed: 922 MB is 90% of 1024 MB (1 GB)
- The Subscriber purchases more credit that ends on Oct 30th - another 1 GB is credited
- The threshold is recalculated and is now at 45%. The calculation formula is: ((amount charged / the original credit amount) * 100) In this case, (922 MB / 2048 MB) * 100
- However, once the date passes Oct 15th, the first credit expires and is no longer used in the threshold calculation. As a result, if the Subscriber has not used any more quota, the threshold will be calculated at 0% - (0 MB / 1024) * 100

Note **Determing The Calculation Values**

The original amount that a threshold is compared against can be determined using the sum of balanceTotal + debitedTotal + reservedTotal returned in a QueryBalance request. The amount charged is the debitedTotal. Percentage thresholds are calculated as (debitedAmount/(balanceTotal + debitedTotal + reservedTotal)) * 100.

Reference Data vs. Subscriber Specific

Reference Data thresholds (RDT) are defined on the Balance or Quota Template to which they apply in Policy Builder. They are system or global thresholds and are applied to all subscribers who have purchased the related Balance or Quota package.

Subscriber Specific thresholds (SST) are defined via API or Policy Action. SSTs are only applicable for the subscriber for which the SST was defined. You must defined the SST individually for each subscriber for whom you want the threshold to apply.

Note **Unique Names**

Thresholds must have unique names. SSTs and RDTs must have unique names as well. You can use the same SST code name for multiple subscribers, but that value must be unique compared to the name values for the RDTs.

Reduction of Reservation Granted Amounts

A threshold defined on an Account Balance Template does reduce the reservation amount as it nears the threshold.

A threshold defined on a Quota Template does NOT reduce the reservation amount as it nears the threshold.

When the reservation granted amount is reduced from the requested amount due to a threshold, the quota granted is reduced to the amount between the current usage level and the value where the threshold would be breached. This reduction continues on each successive reservation until the Default Minimum Dosage defined on the Balance Plugin Configuration is reached. After that value is reached for the granted amount, the next reservation will go back to normal behavior and trigger the breach occurred condition.

Soft Thresholds

All thresholds in CPS are soft thresholds.

A soft threshold allows the Balance Engine to grant the minimum dosage even though it could cause the subscriber's balance to breach a threshold.

Threshold Groups

It is possible to group thresholds so that they operate in concert. By adding a group name in the Policy Builder configuration, thresholds in the same group are evaluated in the order they appear in the table (top to bottom). The Balance Engine will then only send notifications to the Policy Engine for the first threshold breach found.

Example

- The system is configured with three Percentage thresholds on a Balance template: 80%, 60% and 50% in descending order
- All three thresholds are grouped, for example, CPSPercents
- When a Subscriber's usage gets to 62%, the Balance Engine will only send notifications for the 60% threshold
- Once the Subscriber's usage goes above 80%, the Balance Engine will only send notifications for the 80% threshold and will not send notifications for the 60% or 50%

Note **Threshold Group Order**

Threshold group processing is based on the actual order of the thresholds in the Policy Builder configuration table NOT on the highest value. For example, if there are 2 thresholds: 60% and 80% and the 60% threshold is the top or first one listed, then notifications for the 80% threshold will never get sent. However, if the thresholds are defined as amount remaining instead of amount used (amount used is the default), then notifications for the 80% threshold will get processed and sent.

Bill Cycle

Recurring Quota now has the concept of Bill Cycle. If you decide to use a Bill Cycle Quota, it supercedes the use of manually setting Recurring Refresh dates. See Last Recurring Refresh (LRR) for more information.

Note **Converting Recurring Quota to Bill Cycle**

It is possible to change a Recurring Quota template to use Bill Cycle. For an existing subscriber, the LRR date is used going forward but the recurrence frequency and all other behaviors for the quota are then based on the Bill Cycle definition and are implemented during the next refresh. Existing subscribers cannot have 29, 30, or 31 as their Bill Cycle refresh date using a converted quota.

Bill Cycle values are 1 - 31 inclusive.

29th, 30th, and 31st

Compared to LRR, Bill Cycle handles the end of month problem in a much more intuitive manner. If the LRR is set to the 29th, 30th, or 31st with a Recurring Quota, the LRR gets changed to 28 on the next refresh. Whereas, if the bill cycle day for a Bill Cycle Quota is set to 30 the refresh in February, for example, will be on the 28th or on the 29th in a leap year. However, in any other month, the refresh will happen on the 30th as expected.

Note **Updating Bill Cycle**

Bill cycle can be changed by referring to *ChangeBillCycleRequest* API.

Note **ChangeRecurringRefreshDay API**

Do not use the ChangeRecurringRefreshDay API with Bill Cycle Quotas, instead use *ChangeBillCycleRequest*.

Note **Recurrence Frequency Amount**

For a regular Recurring Quota, the Recurrence Frequency Amount (RFA) field adds an additional layer of control to when the quota refreshes. If the RFA is set to 2, then refresh will wait 2 periods before refreshing the quota. This way you could have quota refresh every 2 months instead of every month. For Bill Cycle Quota, the Recurrence Frequency Amount (RFA) is ignored. Refresh happens once every bill cycle.

Last Recurring Refresh (LRR)

Recurring Quota uses the concept of Last Recurring Refresh (LRR) to properly calculate the refresh of the recurring quota.

LRR is the date that a recurring quota was provisioned or last refreshed by the Balance engine. It is the date that the system uses to determine the next time a recurring quota should be refreshed.

Note **Monthly Recurring Quota**

Be particularly careful setting this manually with a recurring quota if the refresh frequency is set to monthly. A month is not 30 days. When set to monthly, an actual month is used for the calculations and this does vary depending on which month you are doing this in as well as other factors like Daylight Savings Time.

Refreshed means a new credit will be created automatically on the next Balance action after the LRR + template recurrence frequency (the value of this calculation equals the Next Refresh Date). For example, if a recurring quota is defined as monthly and the LRR is "Wed Mar 28 2012 15:05:11 GMT-0600 (MDT)" (typically this will also be the start date of the corresponding credit), then the next refresh will occur on or after "Fri Apr 27 2012 15:05:11 GMT-0600 (MDT)" which should typically be the end date of the corresponding credit.

The refresh occurs on the next Balance action instead of on the actual next refresh date so that not all subscriber accounts refresh at the exact same moment, thus balancing load and resources. However, it should be noted that the date of the new credit created by the refresh will still have its dates based on the actual stored LRR and not on when it is actually refreshed by the Balance engine. The new credit will have a start date equal to the new LRR after the refresh has occurred. The new credit end date will be the start date + recurrence frequency. This value is also the new Next Refresh Date.

The LRR can be overridden in the CreateBalance or ChangeRecurringRefreshDay or ChangeBillCycle APIs.

Note **Override LRR**

If you override LRR, make sure that the start date and end date align properly. To do this consistently, set the startDate value the same as the LRR. This will ensure that the endDate equals the next refresh date (LRR + template recurrence frequency) so that the provisioned credit ends when the refresh (new credit is created) occurs.

29th, 30th, and 31st

- If the LRR is set to the 29th, 30th, or 31st, it will remain at the date until the first refresh and/or rollover event, then the LRR will be set to the 28th.
- Customers should be encouraged to not use dates of the 29th, 30th, or 31st, particularly if this is tied to their billing.
- Customer should be informed that while they can provision on the 29th, 30th, or 31st, the refresh date will "float" to the 28th the next month.

Note **30 days vs 1 month**

If you use a number of days, for example 30, instead of 1 month, the Balance engine will refresh on the exact number of days, but that will cause the refresh date to "float" to a different day of the month every month since no two consecutive months have the same number of days (except July and August).

Id, ParentId and Version

These fields require special handling. Do not modify id, parentId, and version at all for any reason.

These fields are marked as optional in the schema because the Unified API re-uses objects - in particular the subscriber object in creates and updates. If the id, for example, which represents the database generated id value was a required field, then the CreateSubscriber call would require a value. This does not make sense since the subscriber object is not yet in the databse.

The version field is used for optimistic locking, since MongoDB does not implement it. Optimistic locking is the concept of managing concurrent updates to objects using a value that increments in a known way for each modification. If the version field does not match the expected value on update, it is assumed that another thread modified the object and therefore the data is now "dirty".

XSS - Cross Site Scripting Defense

Each incoming request is now checked for dangerous characters and code.

Two regexes are used to check each request:

- ^.*?(?:[^\\p{L}\\p{Nd}\\p{Nl}!@#-_/:\'"\\s={}\\+]|[$^()\\\\]|([&]
  (?!(amp|apos|gt|lt|quot)[;]))|(?<!([&](amp|apos|gt|lt|quot)))[;])+.*?$
- <!\\[CDATA\\[.*?[<>].*?(?!\\]\\]>)

The first regex returns true if the request contains any characters that are not word characters, !@#-_/:'" or white space or if the request contains any of these characters $^&();\ The first regex allows & and ; if they are part of the XML 1.0 valid entities (amp,apos,gt,lt,quot). The second regex checks if <> are inside CDATA tags. Another way to explain the two regexes is that the following characters are allowed: alphanumeric including unicode for other languages, white space, valid XML 1.0 entities, .!@#-_/:'"?*[]={}+,% and <> except when inside CDATA tags.

For example, this is a valid request:

<CreateSubscriberRequest><subscriber><credential><networkId><![CDATA[testcredential]]></networkId></credential><service><code>GOD</code><enabled>true</enabled></service><status>ACTIVE</status></subscriber></CreateSubscriberRequest>

This is an invalid request:

```
<CreateSubscriberRequest><subscriber><credential><networkId><![CDATA[<script
alert(document.cookie);>]]></networkId></credential><service><code>GOD</code><enabled>true</enabled></service><status>ACTIVE</status></subscriber></CreateSubscriberRequest>
```

See CDATA for more information about using CDATA tags and XML entities with the Unified API.

Note **Data Compatibility**

Please note that because of the XSS restriction in the API, a deployment should only use the allowed character set for all configuration in Policy Builder to make sure that all data is compatible. It is possible to adjust the regex and to determine if only cdata is checked via two properties: -Dua.xss.pattern=#REGEX_PATTERN# and -Dua.xss.check.cdata.only=false. If no pattern is used: -Dua.xss.pattern="", then ua.xss.check.cdata.only will be set to true.

Note **Avoid**

Even though **$ & <** are the only restricted characters in the Control Center and Unified API from a schema perspective, considering the XSS checks, at a minimum, it is best to avoid the following characters: **$^&();=+<** See CDATA for more information about using CDATA tags and XML entities with the Unified API.

Error Codes

The **%s** is used as a replacement value so that more meaningful information can be included in the message.

Note **Error Codes**

Please note that due to API changes and bug fixes, some of the error codes are no longer used.

Note **Error Codes**

- Codes 9 and below apply to all APIs.
- Codes 10-15 are the Subscriber APIs like CreateSubscriber, DeleteSubscriber, etc.
- Codes 17-19 apply to all APIs.
- Code 55 is specifically related to password hashing for all APIs that modify credentials.
- For all other codes - the names match the request.

code	name	message
0	SUCCESS_CODE_GENERIC	Request completed successfully
1	SUCCESS_CODE_VALIDATION	Validation completed successfully
2	ERROR_CODE_GENERIC	Unable to process the request
3	ERROR_CODE_NULL	Object: %s is null
4	ERROR_CODE_ILLEGAL_VALUE	Invalid XML: %s
5	ERROR_CODE_ILLEGAL_VALUE	Illegal Value: %s
6	ERROR_CODE_INVALID_REQUEST	Invalid Request: %s
7	ERROR_CODE_INVALID_RESPONSE	Invalid Response: %s
8	ERROR_CODE_REQUIRED_DATA	Required Data: %s
9	ERROR_CODE_NON_UNIQUE	Duplicate Value for Unique Data Constraint: %s
10	ERROR_CODE_CREATE	Error Creating Object: %s
11	ERROR_CODE_UPDATE	Error Updating Object: %s
12	ERROR_CODE_UPDATE_VERSION	Optimistic Locking Error - the version number does not match the database version, another party has probably updated the data. Refresh the request data and try the request again
13	ERROR_CODE_DELETE	Error Deleting Object: %s
14	ERROR_CODE_DELETE_ CREDENTIAL_BALANCE_ID	Error Deleting Credential: The networkId(s) [%s] match(es) a balance id - please change the balance id before deleting the credential(s).

code	name	message
15	ERROR_CODE_SEARCH	Error Searching for Object with key: %s
16	ERROR_CODE_AUTHENTICATE	Error Authenticating User/Subscriber Object with credential: %s
17	ERROR_CODE_SERVLET_EXCEPTION	Servlet Processing Error: %s
18	ERROR_CODE_WS_MODULE_ NOT_INSTALLED_EXCEPTION	The expected module is not installed: %s
19	ERROR_CODE_WS_API_NOT_ IMPLEMENTED_EXCEPTION	The requested api is not implemented at this time
20	ERROR_CODE_QUERY_SESSION	Error Querying Sessions(s) for Subscriber: %s
21	ERROR_CODE_REFRESH_SESSION	Error Refreshing Subscriber Profile: %s
22	ERROR_CODE_START_SESSION	Error Starting Session(s) for Subscriber: %s
23	ERROR_CODE_STOP_SESSION	Error Stopping Session(s) for Subscriber: %s
24	ERROR_CODE_UPDATE_SESSION	Error Updating Session for Subscriber: %s
25	ERROR_CODE_CREATE_BALANCE	Error Creating Balance for Subscriber: %s
26	ERROR_CODE_CREDIT	Error Crediting Quota for Subscriber: %s
27	ERROR_CODE_DEBIT	Error Debiting Quota for Subscriber: %s
28	ERROR_CODE_DELETE_BALANCE	Error Deleting Balance for Subscriber: %s
29	ERROR_CODE_DELETE_QUOTA	Error Deleting Quota for Subscriber: %s
30	ERROR_CODE_QUERY_BALANCE	Error Querying Balance for Subscriber: %s
31	ERROR_CODE_ROLLOVER_CREDIT	Error Rolling Over Credit for Subscriber: %s

code	name	message
32	ERROR_CODE_UPDATE_BALANCE	Error Updating Balance for Subscriber: %s
33	ERROR_CODE_CREATE_VOUCHER	Error Creating Voucher: %s
34	ERROR_CODE_DELETE_VOUCHER	Error Deleting Voucher: %s
35	ERROR_CODE_QUERY_VOUCHER	Error Querying Voucher: %s
36	ERROR_CODE_EXECUTE_ACTION	Error Executing Action: %s
37	ERROR_CODE_DELETE_CREDIT	Error Delete Credit for Subscriber: %s
38	ERROR_CODE_AUDIT	Error Auditing: %s
39	ERROR_CODE_PURGE_ AUDIT_HISTORY	Error Purging Audit History: %s
40	ERROR_CODE_QUERY_ AUDIT_HISTORY	Error Querying Audit History: %s
41	ERROR_CODE_AUDIT_ MGR_IS_NOT_ENABLED	The Audit Module is not enabled. Please check the plug-in configuration.
42	ERROR_CODE_GET_ SUBSCRIBER_COUNT	Error Getting the Subscriber Count: %s
43	ERROR_CODE_ GENERATE_BATCH	Error Generating the Voucher Batch: %s
44	ERROR_CODE_ REDEEM_VOUCHER	Error Redeeming the Voucher for Subscriber: %s
45	ERROR_CODE_ CHANGE_STATUS	Error Changing the Status for Subscriber: %s
46	ERROR_CODE_ CHANGE_SUBSCRIBER_AVPS	Error Changing the Avps for Subscriber: %s
47	ERROR_CODE_ UPDATE_SERVICE	Error Updating the Service for Subscriber: %s
48	ERROR_CODE_ ADD_SERVICE	Error Adding the Service for Subscriber: %s

code	name	message
49	ERROR_CODE_ DELETE_SERVICE	Error Deleting the Service for Subscriber: %s
50	Error Deleting the Service for Subscriber: %s	Error Deleting the Voucher Batch: %s
51	ERROR_CODE_SWITCH_SERVER	Error Switching the Service for Subscriber: %s
52	ERROR_CODE_EXTEND_CREDIT	Error Extending the Credit for Subscriber: %s
53	ERROR_CODE_ GET_REF_DATA_SERVICES	Error Getting Service Reference Data: %s
54	ERROR_CODE_ GET_REF_DATA_BALANCE	Error Getting Balance Reference Data: %s
55	ERROR_CODE_ENCRYPTION	Error Encrypting: %s
56	ERROR_CODE_ADD_SSID	Error Adding SSID: %s
57	ERROR_CODE_UPDATE_SSID	Error Updating SSID: %s
58	ERROR_CODE_DELETE_SSID	Error Deleting SSID: %s

Policy Engine Error Codes

The Execute Action, Query Session, and Stop Session APIs send requests into the Policy Engine and interact with the policy state. The Policy Engine has a set of error codes that can be returned in the error messages that get returned by the APIs.

Table 2: Policy Engine Error Codes

Code	Message	Note
SS002	• Avps are empty • Port and/or ISG IP Address AVPs are empty	-
SS003	-	Failed to get a response object from startSession
SS004	-	login error
SS005	-	timeout (usually a COA timeout)
QND001	Avps are empty	Query Network Device
AR00	Success	-

Code	Message	Note
AR01	Success ALLOW_ALL authorization	-
AR02	Failed USUM_AUTHORIZATION no domain found	-
AR03	Failed USUM_AUTHORIZATION no user id retriever	-
AR04	Failed USUM_AUTHORIZATION no user id found	-
AR05	Failed USUM_AUTHORIZATION no password found for user	-
AR06	Success USUM_AUTHORIZATION	-
AR07	Failed USUM_AUTHORIZATION password and/or user name do not match	-
AR08	Failed USUM_ONLY_AUTHORIZATION no domain found	-
AR09	Failed USUM_ONLY_AUTHORIZATION no user id retriever	-
AR10	Failed USUM_ONLY_AUTHORIZATION no user id found	-
AR11	Failed USUM_ONLY_AUTHORIZATION no password found for user	-
AR12	Success USUM_ONLY_AUTHORIZATION	-
AR13	Failed USUM_ONLY_AUTHORIZATION password and/or user name do not match	-
AR14	Success ANONYMOUS_AUTHORIZATION - user id, password match	-
AR15	Failed ANONYMOUS_AUTHORIZATION - user id matches, password does not match	-

Code	Message	Note
AR16	Success ANONYMOUS_AUTHORIZATION - user id matches - no password check	-
AR17	Failed ANONYMOUS_AUTHORIZATION - user id does not match anonymous user id	-
AR18	Failed ANONYMOUS_AUTHORIZATION - no user id retriever	-
AR19	TAL success	Existing Subscriber
AR20	TAL success	TAL with no domain
AR23	AAA_AUTHORIZATION success	-
AR24	AAA_AUTHORIZATION success due to timeout	-
AR25	Authorization failed for the following user ['$userName'] to server ['$proxyAAAAuthorization. getAaaServer().getName()']	Access Reject Message
AR26	Could not find a User ID from this message using the retriever: '$userIdRetrieverClassName'	-
AR27	User ID '$userId', does not equal one-click User ID: '$oneClickVoucher. getOneClickUserId()'	-
AR28	one-click-voucher success	-
AR29	Password provided: '$password' does not equal one click password: '$oneClickVoucher. getOneClickPassword()'	-
AR30	Voucher is expired	-
AR31	Voucher authenticated	-

CDATA

The Unified API can accept CDATA tags for all fields.

Use the Plugin configuration in Policy Builder to set which fields will get CDATA tags for outgoing responses. By default, the following fields will have CDATA tags in responses: networkId, password, data, oldNetworkId, oldPassword, newPassword.

Note **Policy Builder Plugin CDATA Configuration**

Make sure to remove spaces from the CDATA fields configuration: networkId,password,data,oldNetworkId,oldPassword,newPassword

XML Entities

The Unified API can accept CDATA tags for all fields. If a field has a CDATA tag, any XML entities will not get resolved.

For example, the database will store the literal characters **& <**, if the following is sent in a request:

<SomeUnifiedApiRequest> ... <someElement><![CDATA[& <]]></someElement> ... </SomeUnifiedApiRequest>

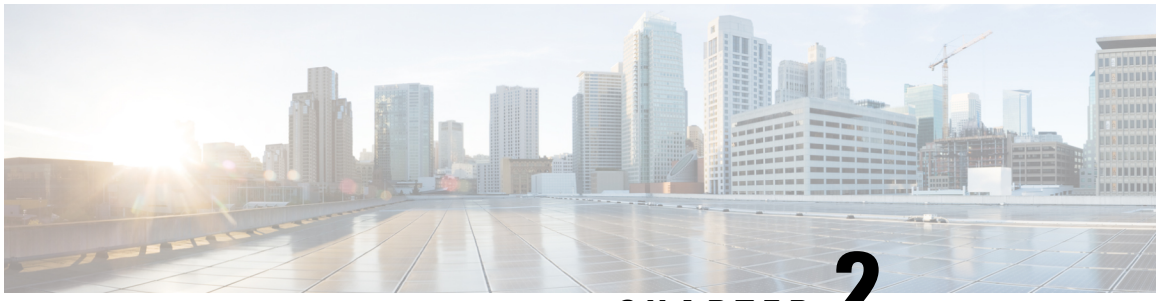
Conversely, the API will resolve the entities and the database will store **& <** if the following is sent in a request:

<SomeUnifiedApiRequest> ... <someElement>& <</someElement> ... </SomeUnifiedApiRequest>

Note **Resolved XML Entities** The Unified API only resolves XML entities for requests and does not resolve stored data back into XML entities in responses! Therefore in the above example, where the **& <** literal characters were stored in the database; those characters will now make the response invalid according to the XML 1.0 specification. Therefore, CDATA must be used when sending XML entity references in requests. Invalid response: <SomeUnifiedApiRequest> ... <someElement>& <</someElement> ... </SomeUnifiedApiRequest>

Namespace

Target Namespace	http://broadhop.com/unifiedapi/soap/types
Element and Attribute Namespaces	• Global element and attribute declarations belong to this schema's target namespace. • By default, local element declarations belong to this schema's target namespace. • By default, local attribute declarations have no namespace.



CHAPTER 2

Requests, Responses, and Schema

API Requests and Responses

Note Elements defined as mandatory ([1..x]) in CPS response schema is applicable only to success response and not to failure response.

AddCredentialRequest

This API adds a credential to an existing subscriber.

Schema

```
<AddCredentialRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <credential> CredentialType </credential> [1]
</AddCredentialRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AddCredentialRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      <audit>
      <networkId>uniqueIdentifier</networkId>
      <credential>
        <networkId>newUniqueIdentifier</networkId>
        <password>password</password>
        <type>type</type>
        <description>my Credential</description>
      </credential>
    </AddCredentialRequest>
```

```
  </se:Body>
</se:Envelope>
```

AddCredentialResponse

Schema

```
<AddCredentialResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</AddCredentialResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AddCredentialResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </AddCredentialResponse>
  </se:Body>
</se:Envelope>
```

AddCredentialsRequest

This API adds multiple credentials to an existing subscriber.

Schema

```
<AddCredentialsRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <credential> CredentialType </credential> [1..5]
</AddCredentialsRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AddCredentialsRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <credential>
        <networkId>newUniqueIdentifier</networkId>
        <password>password</password>
      </credential>
      <credential>
        <networkId>anotherUniqueIdentifier</networkId>
      </credential>
    </AddCredentialsRequest>
  </se:Body>
</se:Envelope>
```

AddCredentialsResponse

Schema

```
<AddCredentialsResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</AddCredentialsResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AddCredentialsResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </AddCredentialsResponse>
  </se:Body>
</se:Envelope>
```

AddServiceRequest

This API adds service definitions and corresponding Balance entries for a given subscriber.

The new Balances follow existing Balance rules - meaning if new, then provision, but if the Balance already exists, then just add a new credit.

If the service code already exists for the Subscriber, the service is not added or changed.

Note **Not a Replace**

If the service already exists for the Subscriber, the service is not updated or changed in any way.

Note **Automatic Balance Provisioning**

This feature allows Service Options to be configured so that when the Service is applied to the Subscriber, Balance is automatically provisioned. (It also removes Balance when a Service is removed.) If the system is setup for auto-provisioning, do not include the Balance object when using this API. That is, only send in the Balance object when the system is not setup for auto-provisioning.

Schema

```
<AddServiceRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <service> ServiceType </service> [1..10]
   <balance> CreateBalanceType </balance> [0..10]
</AddServiceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AddServiceRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
```

```
      <service>
        <code>SERVICE_CODE</code>
        <enabled>true</enabled>
        <avp>
          <code>AVP_CODE</code>
          <value>AVP_VALUE</value>
        </avp>
        <schedule>
          <startDate>2011-01-01T00:00:00Z</startDate>
          <endDate>2012-01-01T00:00:00Z</endDate>
          <state>ON</state>
          <startTime>00:00</startTime>
          <endTime>23:59</endTime>
          <repeat>
            <dayOfMonth>*</dayOfMonth>
            <month>*</month>
            <dayOfWeek>?</dayOfWeek>
            <year>*</year>
          </repeat>
          <enabled>true</enabled>
        </schedule>
      </service>
      <balance>
        <code>DATA</code>
        <quotaCode>RECURRING</quotaCode>
        <startDate>2011-01-01T00:00:00Z</startDate>
        <expirationDate>2012-01-01T00:00:00Z</expirationDate>
        <initialAmount>500</initialAmount>
      </balance>
    </AddServiceRequest>
  </se:Body>
</se:Envelope>
```

AddServiceResponse

Schema

```
<AddServiceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</AddServiceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AddServiceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </AddServiceResponse>
  </se:Body>
</se:Envelope>
```

AddSubscriberSsidsRequest

This API adds SSID details to a subscriber in SPR SSID extension collection.

Schema

```
<AddSubscriberSsidsRequest>
   <audit> AuditType </audit> [0..1] ?
```

```
   <networkId> xsd:string </networkId> [1] ?
   <subscriberSsid> SsidType </subscriberSsid> [1..40]
</AddSubscriberSsidsRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AddSubscriberSsidsRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      <audit>
     <networkId>subscriber credential used for provisioning the subscriber to SPR</networkId>

      <subscriberSsid>
        <ssidKey>UniqueIdentifier</ssidKey>
        <ssid>ssid</ssid>
        <accessType>accessType</accessType>
        <authType>Authentication Type</authType>
        <username>Username</username>
        <password>Password</password>
        <loginUrl>URL for login</loginUrl>
        <configUrl>details</configUrl>
        <verficationCertUrl>details</verficationCertUrl>
        <configMessage>details</configMessage>
        <portalFailMessage>details</portalFailMessage>
        <unmanagedVpnConnectPrompt>details</unmanagedVpnConnectPrompt>
        <unmanagedVpnDisconnectPrompt>details</unmanagedVpnDisconnectPrompt>
      </subscriberSsid>
      <subscriberSsid>
        <ssidKey>UniqueIdentifier</ssidKey>
        <ssid>ssid</ssid>
        ...
        <unmanagedVpnDisconnectPrompt>details</unmanagedVpnDisconnectPrompt>
      </subscriberSsid>
    </AddSubscriberSsidsRequest>
  </se:Body>
</se:Envelope>
```

AddSubscriberSsidsResponse

Schema

```
<AddSubscriberSsidsResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</AddSubscriberSsidsResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AddSubscriberSsidsResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </AddSubscriberSsidsResponse>
  </se:Body>
</se:Envelope>
```

AuditRequest

This API adds an entry to the Audit History. See Audit History, on page 1 and AuditType, on page 110 for more information.

Note **AuditRequests**

As a consequence of the XSS defense changes to the API standard operation, any XML data sent in an AuditRequest must be properly escaped even if inside CDATA tags. For example, <ExampleRequest>...</ExampleRequest> See Audit History, on page 1 for more information.

Schema

```
<AuditRequest>
   <audit> AuditType </audit> [0..1] ?
</AuditRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AuditRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <id>csrusername</id>
      <comment>comment</comment>
      <timestamp>2011-01-01T00:00:00Z</timestamp>
      <request>ExampleRequest</request>
      <dataid>subscriber@gmail.com</dataid>
      <data><![CDATA[<ExampleRequest>...</ExampleRequest>]]></data>
    </AuditRequest>
  </se:Body>
</se:Envelope>
```

AuditResponse

Schema

```
<AuditResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</AuditResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AuditResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </AuditResponse>
  </se:Body>
</se:Envelope>
```

AuthenticateSubscriberRequest

This API validates a subscriber against the USuM database and returns a subscriber.

Schema

```
<AuthenticateSubscriberRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <password> xsd:string </password> [0..1]
</AuthenticateSubscriberRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AuthenticateSubscriberRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <password>password</password>
    </AuthenticateSubscriberRequest>
  </se:Body>
</se:Envelope>
```

AuthenticateSubscriberResponse

Schema

```
<AuthenticateSubscriberResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <subscriber> SubscriberType </subscriber> [0..1]
</AuthenticateSubscriberResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <AuthenticateSubscriberResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <subscriber>
      ...
      </subscriber>
    </AuthenticateSubscriberResponse>
  </se:Body>
</se:Envelope>
```

ChangeBalanceSubscriberIdRequest

This API alters the chargingId value for a subscriber and the MsBM SubscriberId. This API replaces the old MsBM API ChangeSubscriberAccountId.

The chargingId (subscriber.getBillingInfo().getChargingId()) is used as a correlation id value between Balance and USuM. The default correlation is the USuM id (generated by the database). If a chargingId is set on the subscriber, the chargingId value becomes the correlation id.

This API must be used to add an existing subscriber to a shared Balance account. Set the shared flag == true.

When removing a subscriber from a shared Balance account, set the shared flag == true. The newBalanceSubscriberId value is used to create a new chargingId for the subscriber, and the new Balance

account will have no Balance. If <balance/> elements are included in the request, then the new account will be provisioned in the normal fashion. Because the new Balance account has no Balance in the shared scenario, the <extendCredit/> elements are not applicable.

Note **Update Scope**

Please note that the UpdateSubscriber API does not/cannot change the chargingId/Balance SubscriberId relationship. To make such a change you must use ChangeBalanceSubscriberId.

Note **Old Account is Deleted!**

When adding a subscriber to a shared Balance, the Balance record for the old account is permanently deleted from the database and all quota is lost, unless the quota is migrated manually using the ExtendCredit or CreateBalance elements.

Schema

```
<ChangeBalanceSubscriberIdRequest>
  <audit> AuditType </audit> [0..1] ?
  <networkId> xsd:string </networkId> [1] ?
  <newBalanceSubscriberId> xsd:string </newBalanceSubscriberId> [1]
  <shared> xsd:boolean (default = false) </shared> [0..1]
  <removeOriginalAccount> xsd:boolean (default = false) </removeOriginalAccount> [0..1] ?
  <balance> CreateBalanceType </balance> [0..10]
  <extendCredit> ExtendCreditType </extendCredit> [0..10]
</ChangeBalanceSubscriberIdRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeBalanceSubscriberIdRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <newBalanceSubscriberId>chargingId</newBalanceSubscriberId>
    </ChangeBalanceSubscriberIdRequest>
  </se:Body>
</se:Envelope>
```

ChangeBalanceSubscriberIdResponse

Schema

```
<ChangeBalanceSubscriberIdResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <returnCredit> ReturnCreditType </returnCredit> [0..10]
</ChangeBalanceSubscriberIdResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeBalanceSubscriberIdResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </ChangeBalanceSubscriberIdResponse>
  </se:Body>
</se:Envelope>
```

ChangeBillCycleRequest

This API changes the bill cycle day for the Balance account for a given subscriber.

Schema

```
<ChangeBillCycleRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <accountBalanceCode> xsd:string </accountBalanceCode> [1]
   <recurringQuotaCode> xsd:string </recurringQuotaCode> [1]
   <newBillCycleDay> xsd:integer (1 >= value <= 31) </newBillCycleDay> [1] ?
</ChangeBillCycleRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeBillCycleRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <newBillCycleDay>15</newBillCycleDay>
      <accountBalanceCode>DATA</accountBalanceCode>
      <recurringQuotaCode>RECURRING</recurringQuotaCode>
    </ChangeBillCycleRequest>
  </se:Body>
</se:Envelope>
```

ChangeBillCycleResponse

Schema

```
<ChangeBillCycleResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</ChangeBillCycleResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeBillCycleResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </ChangeBillCycleResponse>
  </se:Body>
</se:Envelope>
```

ChangeCredentialPasswordRequest

This API changes the password for a subscriber's credential.

Schema

```
<ChangeCredentialPasswordRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <oldPassword> xsd:string </oldPassword> [1]
   <newPassword> xsd:string </newPassword> [1]
</ChangeCredentialPasswordRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeCredentialPasswordRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <oldPassword>password</oldPassword>
      <newPassword>newpassword</newPassword>
    </ChangeCredentialPasswordRequest>
  </se:Body>
</se:Envelope>
```

ChangeCredentialPasswordResponse

Schema

```
<ChangeCredentialPasswordResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</ChangeCredentialPasswordResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeCredentialPasswordResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </ChangeCredentialPasswordResponse>
  </se:Body>
</se:Envelope>
```

ChangeCredentialUsernameRequest

This API changes the networkId (username) for a subscriber's credential.

Schema

```
<ChangeCredentialUsernameRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <oldNetworkId> xsd:string </oldNetworkId> [1]
```

```
</ChangeCredentialUsernameRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeCredentialUsernameRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>newUniqueIdentifier</networkId>
      <oldNetworkId>uniqueIdentifier</oldNetworkId>
    </ChangeCredentialUsernameRequest>
  </se:Body>
</se:Envelope>
```

ChangeCredentialUsernameResponse

Schema

```
<ChangeCredentialUsernameResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</ChangeCredentialUsernameResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeCredentialUsernameResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </ChangeCredentialUsernameResponse>
  </se:Body>
</se:Envelope>
```

ChangeRecurringRefreshDayRequest

This API changes the refresh day for the monthly recurring quota accounting, which is the billing date. This API replaces the old MsBM API ChangeRecurringRefreshDayOfTheMonth.

For a monthly refreshing quota, this would change the refresh day of the month to the specified value and the quota would always refresh on that day of the month.

For a non-month based refresh period, the value passed in will just denote the next day of the month the quota will refresh. After that date the quota will continue to refresh on the frequency set up in reference data, i.e. every 10 days, every 2 weeks, etc. The time element of the new datetime will be zeroed out.

Note **What This API Does NOT Do!**

This API was designed/tested for monthly recurring quotas only. The behavior with non-monthly refresh periods is eccentric and not guaranteed to behave as desired.

Schema

```
<ChangeRecurringRefreshDayRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <balanceCode> xsd:string </balanceCode> [1]
   <quotaCode> xsd:string </quotaCode> [1]
   <newDayOfTheMonth> xsd:integer (1 >= value <= 28) </newDayOfTheMonth> [1] ?
   <resetCreditEndDates> xsd:boolean </resetCreditEndDates> [0..1] ?
</ChangeRecurringRefreshDayRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeRecurringRefreshDayRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <balanceCode>DATA</balanceCode>
      <quotaCode>Recurring</quotaCode>
      <newDayOfTheMonth>15</newDayOfTheMonth>
      <resetCreditEndDates>true</resetCreditEndDates>
    </ChangeRecurringRefreshDayRequest>
  </se:Body>
</se:Envelope>
```

ChangeRecurringRefreshDayResponse

Schema

```
<ChangeRecurringRefreshDayResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</ChangeRecurringRefreshDayResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeRecurringRefreshDayResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </ChangeRecurringRefreshDayResponse>
  </se:Body>
</se:Envelope>
```

ChangeSubscriberAvpsRequest

This API changes a subscriber's or subaccount's AVPs. The order of operation is delete, modify, add (new). The modify avps only modify the value.

Schema

```
<ChangeSubscriberAvpsRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <deletedAvp> AvpType </deletedAvp> [0..100]
   <modifiedAvp> AvpType </modifiedAvp> [0..100]
   <newAvp> AvpType </newAvp> [0..100]
```

```
</ChangeSubscriberAvpsRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeSubscriberAvpsRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <deletedAvp>
        <code>AVP_CODE</code>
        <value>VALUE</code>
      </deletedAvp>
      <modifiedAvp>
        <code>AVP_CODE</code>
        <value>VALUE</code>
        <newValue>NEW_VALUE</newValue>
      </modifiedAvp>
      <newAvp>
        <code>AVP_CODE</code>
        <value>VALUE</code>
      </newAvp>
    </ChangeSubscriberAvpsRequest>
  </se:Body>
</se:Envelope>
```

ChangeSubscriberAvpsResponse

Schema

```
<ChangeSubscriberAvpsResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</ChangeSubscriberAvpsResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeSubscriberAvpsResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </ChangeSubscriberAvpsResponse>
  </se:Body>
</se:Envelope>
```

ChangeSubscriberStatusRequest

This API changes the subscriber's and all subaccounts' status. The changeAll boolean flag default == true which maintains backwards compatibility. When changeAll == false, the API will change the status for the specified subscriber only (sub account or parent account)

Schema

```
<ChangeSubscriberStatusRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
```

```
   <status> StatusType </status> [1]
   <changeAll> xsd:boolean </changeAll> [0..1]
</ChangeSubscriberStatusRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeSubscriberStatusRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <status>ACTIVE</status>
    </ChangeSubscriberStatusRequest>
  </se:Body>
</se:Envelope>
```

ChangeSubscriberStatusResponse

Schema

```
<ChangeSubscriberStatusResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</ChangeSubscriberStatusResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ChangeSubscriberStatusResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </ChangeSubscriberStatusResponse>
  </se:Body>
</se:Envelope>
```

CreateBalanceRequest

This API provisions balance/quota for a given subscriber. This API replaces the old MsBM API ProvisionSubscriber.

If the balance already exists, the API will just credit the existing balance unless the quota is recurring, then it throws an error.

By default, CreateBalance will set lastRecurringRefresh to the current datetime and WILL NOT zero out the time to midnight.

Note **CreateSubscriberRequest and UpdateSubscriberRequest**

CreateSubscriber and UpdateSubscriber can also provision initial balance for a subscriber.

Note **Removed Elements**

The nextRefreshDate and avp elements in a threshold have been removed because they are not used by the Balance module.

Schema

```
<CreateBalanceRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <balance> CreateBalanceType </balance> [1..10]
</CreateBalanceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
   <se:Body>
      <CreateBalanceRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
            <audit>
              <id>username</id>
              <comment>comment</comment>
            </audit>
            <networkId>uniqueIdentifier</networkId>
            <balance>
               <code>DATA</code>
               <quotaCode>RECURRING</quotaCode>
               <startDate>2011-01-01T00:00:00Z</startDate>
               <expirationDate>2012-01-01T00:00:00Z</expirationDate>
               <initialAmount>500</initialAmount>
               <lastRecurringRefresh>2011-01-01T00:00:00Z</lastRecurringRefresh>
            </balance>
      </CreateBalanceRequest>
   </se:Body>
</se:Envelope>
```

CreateBalanceResponse

Schema

```
<CreateBalanceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</CreateBalanceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateBalanceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </CreateBalanceResponse>
  </se:Body>
</se:Envelope>
```

CreateSubscriberRequest

This API creates a subscriber in the USuM database. It also allows provisioning initial quota/balance using the CreateBalance element.

Schema

```
<CreateSubscriberRequest>
   <audit> AuditType </audit> [0..1] ?
   <subscriber> SubscriberType </subscriber> [1]
</CreateSubscriberRequest>
```

Example

Example 1 - Minimum required fields

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateSubscriberRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <subscriber>
        <credential>
          <networkId>uniqueIdentifier</networkId>
          <password>password</password>
        </credential>
        <status>ACTIVE</status>
      </subscriber>
    </CreateSubscriberRequest>
  </se:Body>
</se:Envelope>
```

Example 2 - A more complete subscriber with multiple credentials and a service and some additional fields including AVP examples

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateSubscriberRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <subscriber>
        <name>
          <fullName>Test User</fullName>
        </name>
        <credential>
          <networkId>uniqueIdentifier</networkId>
          <password>password</password>
          <expirationDate>2011-12-31T23:59:59Z</expirationDate>
        </credential>
        <credential>
          <networkId>uniqueIdentifier</networkId>
          <password>password</password>
        </credential>
        <service>
          <code>SERVICE_CODE</code>
          <enabled>true</enabled>
          <avp>
            <code>AVP_CODE</code>
```

```
            <value>AVP_VALUE</value>
          </avp>
          <avp>
            <code>AVP_CODE_2</code>
            <value>AVP_VALUE</value>
          </avp>
        </service>
        <status>ACTIVE</status>
        <startDate>2011-01-01T00:00:00+00:00</startDate>
        <endDate>2031-01-01T00:00:00+00:00</endDate>
        <billingInfo>
          <chargingId>123456789</chargingId>
        </billingInfo>
        <avp>
          <code>AVP_CODE</code>
          <value>AVP_VALUE</value>
        </avp>
        <avp>
          <code>AVP_CODE_2</code>
          <value>AVP_VALUE</value>
        </avp>
      </subscriber>
    </CreateSubscriberRequest>
  </se:Body>
</se:Envelope>
```

Example 3 - CreateBalance xml can be added to the request to provision quota when the subscriber is created

```
<createBalance>
  <code>DATA</code>
  <quotaCode>Recurring</quotaCode>
  <startDate>2011-01-01T00:00:00Z</startDate>
  <expirationDate>2012-01-01T00:00:00Z</expirationDate>
  <initialAmount>500</initialAmount>
  <lastRecurringRefresh>2011-01-01T00:00:00Z</lastRecurringRefresh>
</createBalance>
```

CreateSubscriberResponse

Schema

```
<CreateSubscriberResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</CreateSubscriberResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateSubscriberResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </CreateSubscriberResponse>
  </se:Body>
</se:Envelope>
```

CreateSubscribersRequest

This API creates multiple subscribers in the USuM database. It also allows provisioning initial quota/balance using the CreateBalance element.

Schema

```
<CreateSubscribersRequest>
   <audit> AuditType </audit> [0..1] ?
   <subscriber> SubscriberType </subscriber> [1..1000]
</CreateSubscribersRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateSubscribersRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <subscriber>
        ...
      </subscriber>
      <subscriber>
        ...
      </subscriber>
    </CreateSubscribersRequest>
  </se:Body>
</se:Envelope>
```

CreateSubscribersResponse

Schema

```
<CreateSubscribersResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</CreateSubscribersResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateSubscribersResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </CreateSubscribersResponse>
  </se:Body>
</se:Envelope>
```

CreateVoucherRequest

This API adds a voucher to the system.

Schema

```
<CreateVoucherRequest>
   <audit> AuditType </audit> [0..1] ?
   <voucher> VoucherType </voucher> [1]
```

```
</CreateVoucherRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateVoucherRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
         <audit>
            <id>username</id>
            <comment>comment</comment>
         </audit>
         <voucher>
            <code>voucher</code>
            <pin>pin</pin>
            <maxConcurrentSessions>5</maxConcurrentSessions>
            <duration>10</duration>
            <durationMeasure>Minutes</durationMeasure>
            <serviceCode>serviceCode</serviceCode>
            <expirationDate>2012-01-01T00:00:00Z</expirationDate>
            <locationCode>location</locationCode>
            <timeQuota>10</timeQuota>
            <timeMeasure>timemeasure</timeMeasure>
         </voucher>
    </CreateVoucherRequest>
  </se:Body>
</se:Envelope>
```

CreateVoucherResponse

Schema

```
<CreateVoucherResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</CreateVoucherResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateVoucherResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </CreateVoucherResponse>
  </se:Body>
</se:Envelope>
```

CreateVouchersRequest

This API adds multiple vouchers to the system.

Schema

```
<CreateVouchersRequest>
   <audit> AuditType </audit> [0..1] ?
   <voucher> VoucherType </voucher> [1..100]
</CreateVouchersRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateVouchersRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <voucher>
        ...
      </voucher>
      <voucher>
        ...
      </voucher>
    </CreateVouchersRequest>
  </se:Body>
</se:Envelope>
```

CreateVouchersResponse

Schema

```
<CreateVouchersResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</CreateVouchersResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreateVouchersResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </CreateVouchersResponse>
  </se:Body>
</se:Envelope>
```

CreditRequest

This API credits quota for a subscriber.

Schema

```
<CreditRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <balanceCode> xsd:string </balanceCode> [1] ?
   <quotaCode> xsd:string </quotaCode> [1] ?
   <amount> xsd:long </amount> [1] ?
   <startDate> xsd:dateTime </startDate> [1] ?
   <expirationDate> xsd:dateTime </expirationDate> [1] ?
</CreditRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreditRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
```

```
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <balanceCode>DATA</balanceCode>
      <quotaCode>RECURRING</quotaCode>
      <amount>100</amount>
      <startDate>2011-01-01T00:00:00Z</startDate>
      <expirationDate>2012-01-01T00:00:00Z</expirationDate>
    </CreditRequest>
  </se:Body>
</se:Envelope>
```

CreditResponse

Schema

```
<CreditResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <returnCredit> ReturnCreditType </returnCredit> [1]
</CreditResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <CreditResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <returnCredit>
        <creditId>_wertDSD1234sfsdge5657yfc</creditId>
        <nextRefreshDate>2012-11-28T00:00:00Z</nextRefreshDate>
        <balanceRemaining>250</balanceRemaining>
        <amountCredited>50</amountCredited>
        <callbackValidityTime>2012-11-28T00:00:00Z</callbackValidityTime>
      </returnCredit>
    </CreditResponse>
  </se:Body>
</se:Envelope>
```

DebitRequest

This API debits quota for a subscriber.

Schema

```
<DebitRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <balanceCode> xsd:string </balanceCode> [1] ?
   <quotaCode> xsd:string </quotaCode> [0..1] ?
   <amount> xsd:long </amount> [1] ?
</DebitRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DebitRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
```

```
      </audit>
      <networkId>networkId</networkId>
      <balanceCode>DATA</balanceCode>
      <quotaCode>Recurring</quotaCode>
      <amount>200</amount>
    </DebitRequest>
  </se:Body>
</se:Envelope>
```

DebitResponse

Schema

```
<DebitResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <returnDebit> ReturnDebitType </returnDebit> [1]
</DebitResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DebitResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <returnDebit>
        <nextRefreshDate>2012-11-28T00:00:00Z</nextRefreshDate>
        <balanceRemaining>250</balanceRemaining>
        <amountDebited>50</amountDebited>
        <callbackValidityTime>2012-11-28T00:00:00Z</callbackValidityTime>
        <exhausted>false</exhausted>
      </returnDebit>
    </DebitResponse>
  </se:Body>
</se:Envelope>
```

DeleteBalanceRequest

This API removes balance from a subscriber. This API does not deprovision a balance. To deprovision a balance, use UpdateBalance.

Schema

```
<DeleteBalanceRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <code> xsd:string </code> [1] ?
   <hardDelete> xsd:boolean </hardDelete> [0..1] ?
</DeleteBalanceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteBalanceRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
```

```
      <networkId>uniqueIdentifier</networkId>
      <code>DATA</code>
      <hardDelete>false</hardDelete>
    </DeleteBalanceRequest>
  </se:Body>
</se:Envelope>
```

DeleteBalanceResponse

Schema

```
<DeleteBalanceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</DeleteBalanceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteBalanceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </DeleteBalanceResponse>
  </se:Body>
</se:Envelope>
```

DeleteCredentialRequest

This API deletes a credential from a subscriber.

Schema

```
<DeleteCredentialRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
</DeleteCredentialRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteCredentialRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
    </DeleteCredentialRequest>
  </se:Body>
</se:Envelope>
```

DeleteCredentialResponse

Schema

```
<DeleteCredentialResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
```

```
</DeleteCredentialResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteCredentialResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </DeleteCredentialResponse>
  </se:Body>
</se:Envelope>
```

DeleteCredentialsRequest

This API deletes a set of credentials from a subscriber.

Note **Minimum Number of Credentials**

A subscriber must always have at least 1 credential. Therefore, as the API removes credentials, once there is only one left, it stops processing.

Note **Delete From One Subscriber**

This API is only supposed to delete from one subscriber at a time. The API uses the credentials passed in to find a subscriber or sub account, and the first match is used. Therefore, the API should only send in a set of credentials from the same subscriber or sub account. Once a subscriber has been found, then each credential is checked for a match. Any credentials not matched are ignored.

Schema

```
<DeleteCredentialsRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1..5]
</DeleteCredentialsRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteCredentialsRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <networkId>uniqueIdentifier1</networkId>
      <networkId>uniqueIdentifier2</networkId>
      <networkId>uniqueIdentifier3</networkId>
    </DeleteCredentialsRequest>
  </se:Body>
</se:Envelope>
```

DeleteCreditRequest

Schema

```
<DeleteCreditRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <balanceCode> xsd:string </balanceCode> [1] ?
   <quotaCode> xsd:string </quotaCode> [1] ?
   <creditId> xsd:string </creditId> [1] ?
</DeleteCreditRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteCreditRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <balanceCode>DATA</balanceCode>
      <quotaCode>RECURRING</quotaCode>
      <creditId>1</creditId>
    </DeleteCreditRequest>
  </se:Body>
</se:Envelope>
```

DeleteCreditResponse

Schema

```
<DeleteCreditResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</DeleteCreditResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteCreditResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </DeleteCreditResponse>
  </se:Body>
</se:Envelope>
```

DeleteQuotaRequest

This API removes a quota from a balance. This API replaces the old MsBM API RemoveQuota.

The hardDelete element has been added to provide operational consistency with DeleteBalance.

Schema

```
<DeleteQuotaRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
```

```
   <balanceCode> xsd:string </balanceCode> [1] ?
   <code> xsd:string </code> [1] ?
   <hardDelete> xsd:boolean </hardDelete> [0..1] ?
</DeleteQuotaRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteQuotaRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <balanceCode>DATA</balanceCode>
      <code>RECURRING</code>
      <hardDelete>true</hardDelete>
    </DeleteQuotaRequest>
  </se:Body>
</se:Envelope>
```

DeleteQuotaResponse

Schema

```
<DeleteQuotaResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</DeleteQuotaResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteQuotaResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </DeleteQuotaResponse>
  </se:Body>
</se:Envelope>
```

DeleteServiceRequest

This API deletes services and corresponding Balance entries for a given subscriber.

Note **Deleting Old Balances**

The deleteOldBalance field is set to false by default. If it is set to true and no balanceCodes are sent in the request, then ALL balances will be removed from the account.

Note **Automatic Balance Provisioning**

This feature allows Service Options to be configured so that when the Service is applied to the Subscriber, Balance is automatically provisioned. (It also removes Balance when a Service is removed.) If the system is setup for auto-provisioning, do not include the Balance object when using this API. That is, only send in the Balance object when the system is not setup for auto-provisioning.

Schema

```
<DeleteServiceRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <serviceCode> xsd:string </serviceCode> [1..10]
   <balance> DeleteBalanceType </balance> [0..10] ?
   <hardDelete> xsd:boolean </hardDelete> [0..1] ?
   <deleteOldBalance> xsd:boolean </deleteOldBalance> [0..1] ?
</DeleteServiceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteServiceRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <serviceCode>SERVICE_CODE</serviceCode>
      <balance>
        <code>BALANCE_CODE</code>
        <quotaCode>QUOTA_CODE</quotaCode>
      </balance>
      <hardDelete>true</hardDelete>
    </DeleteServiceRequest>
  </se:Body>
</se:Envelope>
```

DeleteServiceResponse

Schema

```
<DeleteServiceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</DeleteServiceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteServiceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </DeleteServiceResponse>
  </se:Body>
</se:Envelope>
```

DeleteSubscriberRequest

This API deletes a subscriber from the USuM database.

Note **Renamed**

The API has been renamed. It is DeleteSubscriberByKey in v1.0 API.

Schema

```
<DeleteSubscriberRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <hardDelete> xsd:boolean </hardDelete> [0..1] ?
</DeleteSubscriberRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteSubscriberRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <hardDelete>false</hardDelete>
    </DeleteSubscriberRequest>
  </se:Body>
</se:Envelope>
```

DeleteSubscriberResponse

Schema

```
<DeleteSubscriberResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</DeleteSubscriberResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteSubscriberResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </DeleteSubscriberResponse>
  </se:Body>
</se:Envelope>
```

DeleteSubscriberSsidRequest

This API deletes all the SSIDs for the given subscriber from the SSID extension collection.

Schema

```
<DeleteSubscriberSsidRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
</DeleteSubscriberSsidRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteSubscriberSsidRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      <audit>
      <networkId>the credential id of the provisioned subscriber whose records have to be
deleted from Subscriber SSID extention table</networkId>
    </DeleteSubscriberSsidRequest>
  </se:Body>
</se:Envelope>
```

DeleteSubscriberSsidResponse

Schema

```
<DeleteSubscriberSsidResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</DeleteSubscriberSsidResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteSubscriberSsidResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </DeleteSubscriberSsidResponse>
  </se:Body>
</se:Envelope>
```

DeleteVoucherBatchRequest

This API deletes a batch of vouchers from the system.

The API uses a code and/or pin value with maskChars to match the vouchers to delete. The code and pin values are 'mask' values which define a range of values to match.

See the code and pin and maskChars fields in the VoucherBatchKeyType for more information.

Schema

```
<DeleteVoucherBatchRequest>
   <audit> AuditType </audit> [0..1] ?
   <key> VoucherKeyType </key> [1]
</DeleteVoucherBatchRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
```

```
    <DeleteVoucherBatchRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
         <audit>
            <id>username</id>
            <comment>comment</comment>
         </audit>
         <key>
           <voucherBatchKey>
             <code>codeMask****</code>
             <pin>pinMask####</pin>
             <maskChars>abcd1234</maskChars>
           </voucherBatchKey>
         </key>
    </DeleteVoucherBatchRequest>
  </se:Body>
</se:Envelope>
```

DeleteVoucherBatchResponse

Schema

```
<DeleteVoucherBatchResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</DeleteVoucherBatchResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteVoucherBatchResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </DeleteVoucherBatchResponse>
  </se:Body>
</se:Envelope>
```

DeleteVoucherRequest

This API deletes a voucher from the system.

Schema

```
<DeleteVoucherRequest>
   <audit> AuditType </audit> [0..1] ?
   <code> xsd:string </code> [1]
</DeleteVoucherRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
   <se:Body>
      <DeleteVoucherRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
        <audit>
          <id>username</id>
          <comment>comment</comment>
        </audit>
        <code>voucher</code>
      </DeleteVoucherRequest>
   </se:Body>
</se:Envelope>
```

DeleteVoucherResponse

Schema

```
<DeleteVoucherResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</DeleteVoucherResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <DeleteVoucherResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </DeleteVoucherResponse>
  </se:Body>
</se:Envelope>
```

ExecuteActionRequest

This API provides a mechanism to run commands against the Policy Engine.

Location Query

The Location Query ExecuteActionRequest replaces the original Policy Engine getCompleteId request and returns location data plus AVPs from the relevant network device.

Parameters

- code - location-query
- args
  - ip-address - the framed ip address of the subscriber's device.
  - port - the port of the subscriber's device.
  - type - indicates the type of network device to check. If the value is set to the string literal 'null', then no device is checked. e.g. isg, car, asr9k or null

Network Device Query

The Network Device Query ExecuteActionRequest returns AVPs from the relevant network device like the getCompleteId request.

Parameters

- code - network_device_query
- args
  - ip-address - the framed ip address of the subscriber's device.
  - port - the port of the subscriber's device.

- type - indicates the type of network device to check. If the value is set to the string literal 'null', then no device is checked. e.g. isg, car, asr9k or null

One Time Code

The One Time Code process is 2-step process (Create and Validate). The first request, Create One Time Code, establishes a unique code and dummy subscriber in the database. The code value is then sent to the user via SMS or email. That user enters that code which is then used in the 2nd step, Validate One Time Code. If validation of the code against the dummy subscriber in the database is successful, the dummy subscriber is removed and the API returns success.

Policy Builder Custom Configuration

There are built in extension points in the Policy Builder blueprints that allow for additional custom actions to be performed when these 2 API requests are made. The most common thing is to have additional checks against 3rd party datastores.

Create One Time Code

Parameters

- code - create-onetimecode-request
- args
  - validity-time-min - the time in minutes for how long the code is valid e.g. 10
  - code-length - the length of the generated random code value e.g. 5
  - code-chars - the set of characters to use for the generated code e.g. abcd1234
  - type - specifies the type of identity used for validating the user. e.g. email or mobile
  - identity - specifies a credential used for validating the user against the external system. e.g. test@gmail.com or 13035551212
  - destination - specifies the destination address to send the generated code. This is generally the same as the identity field.
  - dest-type - specifies the notification mechanism used to send the generated code to the user user. Note this is different then the type field since it specifies the transport used to send the code to the user.
    - A dest-type of native-email will use the CPS SMTP interface with a notification template of OTC-EMAIL
    - A dest-type of native-sms will use the CPS SMSC interface with a notification template of OTC-SMS
    - Any other value for dest-type will fall through the Non-Native policy portion of the configuration. In the Non-Native scenario, all notification templates are available.

Validate One Time Code

Parameters

- code - validate-onetimecode-request
- args
  - code - the random unique code generated in the Create One Time Code request and sent to the user via sms or email. e.g. ser45tfd
  - identity - specifies a credential used for validating the user against the external system. e.g. test@gmail.com or 13035551212

Note **Passcode and Identity Variables**

The OTC-EMAIL and OTC-SMS notification templates are pre-configured with $passcode and $identity keywords on which CPS can perform variable substitution. This is the mechanism of how the sms or email message gets the generated random code.

Password Reset with One Time Password

The Password Reset ExecuteActionRequest provides a way for subscribers to reset their passwords which is a common function of most websites. The Password Reset with One Time Password functionality piggy-backs on the Create One Time Code request.

Parameters

- code - create-onetimecode-request
- args
  - validity-time-min - the time in minutes for how long the code is valid e.g. 10
  - code-length - the length of the generated random code value e.g. 5
  - code-chars - the set of characters to use for the generated code e.g. abcd1234
  - type - specifies the type of identity used for validating the user. e.g. email or mobile
  - identity - specifies a credential used for validating the user against the external system. e.g. test@gmail.com#!PWR#! or 13035551212#!PWR#!
  - destination - specifies the destination address to send the generated code. This is generally the same as the identity field.
  - dest-type - specifies the notification mechanism used to send the generated code to the user user. Note this is different then the type field since it specifies the transport used to send the code to the user.
    - A dest-type of native-email will use the CPS SMTP interface with a notification template of OTC-EMAIL
    - A dest-type of native-sms will use the CPS SMSC interface with a notification template of OTC-SMS
    - Any other value for dest-type will fall through the Non-Native policy portion of the configuration. In the Non-Native scenario, all notification templates are available.

Note **Append #!PWR#!**

You must append #!PWR#! to the identity value. The reason for this is that unlike the One Time Code flow which assumes the subscriber is not in the SPR database, the Password Reset flow is used with a subscriber that is already in the SPR database. However, the Create One Time Code action fails if a subscriber profile is found for the given username. Therefore, if you append a unique value such as #!PWR#!, the action will not find a subscriber and allow the process to continue.

Validate Registration

The Validate Registration ExecuteActionRequest provides a mechanism to validate subscribers against external systems. It is similar to the One Time Code APIs but it only works against the 3rd party datastores. Therefore, it will always require additional Policy Builder configuration via the Validate Registration extension point.

Parameters

- code - validate-registration-request
- args
  - type - specifies the type of identity used for validating the user. e.g. email or mobile
  - identity - unique indentifier used for validation
  - validation-identity - additional unique identifier used for validation - some systems require 2 values
  - password

Start Session

The Start Session ExecuteActionRequest replaces the original Policy Engine setupSubscriberProfile request. It initiates a session on a network device. Currently, supports ISG, CAR, ASR5K, and ASR9K.

Parameters

- code - start-session
- args
  - ISG_IP - the framed ip address of the subscriber's device. e.g. 172.12.9.1 NOTE: The L4 redirect will provide this information to the portal.
  - PORT_NUMBER - the port of the subscriber's device. e.g. 1234 NOTE: The L4 redirect will provide this information to the portal.
  - type - indicates the type of network device that will be used. e.g. isg, car, or asr9k. If the value is set to the string literal 'null', the API will fall through and do generic setup based on blueprints and policy configuration.
  - USER_NAME - username of the subscriber.
  - PASSWORD - password of the subscriber.

Refresh Device Usage

The Refresh Device Usage Query ExecuteActionRequest returns is an asynchronous request that triggers the network device such as ISG or SCE to update the accounting usage data for a given subscriber. This causes CPS to update the data as well.

Parameters

- code - refresh-device-usage
- key
  - code - USuMSubscriberIdKey or USuMCredentialKey
  - keyField code - usumSubscriberId or networkId: if you are using the USuMSubscriberIdKey:usumSubscriberId then the value is the database id value of the subscriber e.g. 4f5e4cc0e4b027c556fd0d7c. If you are using the USuMCredentialKey:networkId then the value is the subscriber's username e.g. username@gmail.com
- args
  - code - bucket-id. The name of the quota bucket to refresh if this is supported by the network device.

Schema

```
<ExecuteActionRequest>
   <audit> AuditType </audit> [0..1] ?
   <key> SessionKeyType </key> [0..1]
   <code> xsd:string </code> [1]
   <arg> AvpType </arg> [0..100]
</ExecuteActionRequest>
```

Example

```
Location Query

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <code>location-query</code>
      <arg>
        <code>ip-address</code>
        <value>0.0.0.0</value>
      </arg>
      <arg>
        <code>port</code>
        <value>PBHK</value>
      </arg>
      <arg>
        <code>type</code>
        <value>isg|car|asr9k|null</value>
      </arg>
      <arg>
        <code>USERID_QUERY</code>
        <value>userId</value>
      </arg>
      <arg>
```

```
        <code>MSISDN_QUERY</code>
        <value>msisdn</value>
      </arg>
      <arg>
        <code>IMSI_QUERY</code>
        <value>imsi</value>
      </arg>
      <arg>
        <code>MAC_QUERY</code>
        <value>mac address</value>
      </arg>
      <arg>
        <code>CIRCUIT_ID_QUERY</code>
        <value>circuit id</value>
      </arg>
    </ExecuteActionRequest>
  </se:Body>
</se:Envelope>
```

Network Device Query

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <code>network_device_query</code>
      <arg>
        <code>ip-address</code>
        <value>0.0.0.0</value>
      </arg>
      <arg>
        <code>port</code>
        <value>PBHK</value>
      </arg>
      <arg>
        <code>type</code>
        <value>isg|car|asr9k|null</value>
      </arg>
    </ExecuteActionRequest>
  </se:Body>
</se:Envelope>
```

Create One Time Code

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <code>create-onetimecode-request</code>
      <arg>
        <code>type</code>
        <value>email</value>
      </arg>
      <arg>
        <code>dest-type</code>
        <value>native-sms</value>
      </arg>
      <arg>
```

```
        <code>destination</code>
        <value>3035551212</value>
      </arg>
      <arg>
        <code>identity</code>
        <value>uniqueIdentifier</value>
      </arg>
      <arg>
        <code>validity-time-min</code>
        <value>10</value>
      </arg>
      <arg>
        <code>code-length</code>
        <value>5</value>
      </arg>
      <arg>
        <code>code-chars</code>
        <value>abcdefgh</value>
      </arg>
    </ExecuteActionRequest>
  </se:Body>
</se:Envelope>

Validate One Time Code

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <code>validate-onetimecode-request</code>
      <arg>
        <code>code</code>
        <value>sw34edft5</value>
      </arg>
      <arg>
        <code>identity</code>
        <value>uniqueIdentifier</value>
      </arg>
    </ExecuteActionRequest>
  </se:Body>
</se:Envelope>

Password Reset with One Time Password

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <code>create-onetimecode-request</code>
      <arg>
        <code>type</code>
        <value>email</value>
      </arg>
      <arg>
        <code>dest-type</code>
        <value>native-sms</value>
      </arg>
      <arg>
```

```
        <code>destination</code>
        <value>3035551212</value>
      </arg>
      <arg>
        <code>identity</code>
        <value>uniqueIdentifier#!PWR#!</value>
      </arg>
      <arg>
        <code>validity-time-min</code>
        <value>10</value>
      </arg>
      <arg>
        <code>code-length</code>
        <value>5</value>
      </arg>
      <arg>
        <code>code-chars</code>
        <value>abcdefgh</value>
      </arg>
    </ExecuteActionRequest>
  </se:Body>
</se:Envelope>
```

Validate Registration

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <code>validate-registration-request</code>
      <arg>
        <code>type</code>
        <value>email</value>
      </arg>
      <arg>
        <code>identity</code>
        <value>uniqueIdentifier</value>
      </arg>
      <arg>
        <code>validation-identity</code>
        <value>1234567</value>
      </arg>
      <arg>
        <code>password</code>
        <value>Password</value>
      </arg>
    </ExecuteActionRequest>
  </se:Body>
</se:Envelope>
```

Start Session

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <code>start-session</code>
      <arg>
```

```
        <code>ISG_IP</code>
        <value>10.10.10.10</value>
      </arg>
      <arg>
        <code>PORT_NUMBER</code>
        <value>PBHK</value>
      </arg>
      <arg>
        <code>type</code>
        <value>isg|car|asr9k|null</value>
      </arg>
      <arg>
        <code>USER_NAME</code>
        <value>123456789</value>
      </arg>
      <arg>
        <code>PASSWORD</code>
        <value>password</value>
      </arg>
    </ExecuteActionRequest>
  </se:Body>
</se:Envelope>
```

Refresh Device Usage No Buckets with USuMSubscriberIdKey

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <key>
        <code>USuMSubscriberIdKey</code>
        <primary>false</primary>
        <keyField>
          <code>usumSubscriberId</code>
          <value>4f5e4cc0e4b027c556fd0d7c</value>
        </keyField>
      </key>
      <code>refresh-device-usage</code>
    </ExecuteActionRequest>
  </se:Body>
</se:Envelope>
```

Refresh Device Usage For A Specific Bucket with USuMCredentialKey

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <key>
        <code>USuMCredentialKey</code>
        <primary>false</primary>
        <keyField>
          <code>networkId</code>
          <value>username@gmail.com</value>
        </keyField>
      </key>
      <code>refresh-device-usage</code>
      <arg>
        <code>bucket-id</code>
        <value>GENERIC_USAGE</value>
      </arg>
    </ExecuteActionRequest>
  </se:Body>
</se:Envelope>
```

ExecuteActionResponse

Schema

```
<ExecuteActionResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <executeActionResponse> ExecuteActionResponseType </executeActionResponse> [0..500]
</ExecuteActionResponse>
```

Example

```
Location Query type=null

<se:Envelope
xmlns:se="http://schemas.xmlsoap.org/soap/envelope/"><se:Body><ExecuteActionResponse
xmlns="http://broadhop.com/unifiedapi/soap/types">
  <errorCode>0</errorCode>
  <errorMessage>Request completed successfully</errorMessage>
  <executeActionResponse>
    <responseObject>
      <entry>
        <string>_type</string>
        <string>QueryResult</string>
      </entry>
      <entry>
        <string>queryAvps</string>
        <list>
          <map>
            <entry>
              <string>_type</string>
              <string>QueryAvp</string>
            </entry>
            <entry>
              <string>value</string>
              <string>BHOP</string>
            </entry>
            <entry>
              <string>code</string>
              <string>locationCode</string>
            </entry>
          </map>
          <map>
            <entry>
              <string>_type</string>
              <string>QueryAvp</string>
            </entry>
            <entry>
              <string>value</string>
              <string>USuM Authorization</string>
            </entry>
            <entry>
              <string>code</string>
              <string>domainCode</string>
            </entry>
          </map>
          <map>
            <entry>
              <string>_type</string>
              <string>QueryAvp</string>
            </entry>
            <entry>
```

```
              <string>value</string>
              <string>false</string>
            </entry>
            <entry>
              <string>code</string>
              <string>loggedIn</string>
            </entry>
          </map>
        </list>
      </entry>
    </responseObject>
  </executeActionResponse>
</ExecuteActionResponse></se:Body></se:Envelope>

Location Query type=isg

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExecuteActionResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <executeActionResponse>
        <responseObject>
          <entry>
            <string>_type</string>
            <string>QueryResult</string>
          </entry>
          <entry>
            <string>queryAvps</string>
            <list>
              <map>
                <entry>
                  <string>_type</string>
                  <string>QueryAvp</string>
                </entry>
                <entry>
                  <string>value</string>
                  <string>0</string>
                </entry>
                <entry>
                  <string>code</string>
                  <string>NAS-PORT</string>
                </entry>
              </map>
              <map>
                <entry>
                  <string>_type</string>
                  <string>QueryAvp</string>
                </entry>
                <entry>
                  <string>value</string>
                  <string>No valid Session</string>
                </entry>
                <entry>
                  <string>code</string>
                  <string>REPLY-MESSAGE</string>
                </entry>
              </map>
              <map>
                <entry>
                  <string>_type</string>
                  <string>QueryAvp</string>
                </entry>
                <entry>
```

```
    <string>value</string>
    <string>sg-version=1.0</string>
  </entry>
  <entry>
    <string>code</string>
    <string>CISCO-AVPAIR</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>503</string>
  </entry>
  <entry>
    <string>code</string>
    <string>ERROR-CAUSE</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>BHOP</string>
  </entry>
  <entry>
    <string>code</string>
    <string>locationCode</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>S10.10.12.10:68</string>
  </entry>
  <entry>
    <string>code</string>
    <string>CISCO-ACCOUNT-INFO</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>sg-version=1.0</string>
  </entry>
  <entry>
    <string>code</string>
    <string>CISCO-AVPAIR</string>
  </entry>
</map>
```

```
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>No valid Session</string>
  </entry>
  <entry>
    <string>code</string>
    <string>REPLY-MESSAGE</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>sg-version=1.0</string>
  </entry>
  <entry>
    <string>code</string>
    <string>CISCO-AVPAIR</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>S10.10.12.10</string>
  </entry>
  <entry>
    <string>code</string>
    <string>CISCO-ACCOUNT-INFO</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>sg-version=1.0</string>
  </entry>
  <entry>
    <string>code</string>
    <string>CISCO-AVPAIR</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>172.17.1.11</string>
```

```
    </entry>
    <entry>
      <string>code</string>
      <string>FRAMED-IP-ADDRESS</string>
    </entry>
  </map>
  <map>
    <entry>
      <string>_type</string>
      <string>QueryAvp</string>
    </entry>
    <entry>
      <string>value</string>
      <string>S10.10.12.10</string>
    </entry>
    <entry>
      <string>code</string>
      <string>CISCO-ACCOUNT-INFO</string>
    </entry>
  </map>
  <map>
    <entry>
      <string>_type</string>
      <string>QueryAvp</string>
    </entry>
    <entry>
      <string>value</string>
      <string>172.17.1.11</string>
    </entry>
    <entry>
      <string>code</string>
      <string>FRAMED-IP-ADDRESS</string>
    </entry>
  </map>
  <map>
    <entry>
      <string>_type</string>
      <string>QueryAvp</string>
    </entry>
    <entry>
      <string>value</string>
      <string>USuM Authorization</string>
    </entry>
    <entry>
      <string>code</string>
      <string>domainCode</string>
    </entry>
  </map>
  <map>
    <entry>
      <string>_type</string>
      <string>QueryAvp</string>
    </entry>
    <entry>
      <string>value</string>
      <string>false</string>
    </entry>
    <entry>
      <string>code</string>
      <string>loggedIn</string>
    </entry>
  </map>
  <map>
    <entry>
```

```
      <string>_type</string>
      <string>QueryAvp</string>
    </entry>
    <entry>
      <string>value</string>
      <string>nas-port:0.0.0.0:0/0/0</string>
    </entry>
    <entry>
      <string>code</string>
      <string>NAS-PORT-ID</string>
    </entry>
  </map>
  <map>
    <entry>
      <string>_type</string>
      <string>QueryAvp</string>
    </entry>
    <entry>
      <string>value</string>
      <string>S10.10.12.10:68</string>
    </entry>
    <entry>
      <string>code</string>
      <string>CISCO-ACCOUNT-INFO</string>
    </entry>
  </map>
  <map>
    <entry>
      <string>_type</string>
      <string>QueryAvp</string>
    </entry>
    <entry>
      <string>value</string>
      <string>$MA000c.29f1.d050</string>
    </entry>
    <entry>
      <string>code</string>
      <string>CISCO-ACCOUNT-INFO</string>
    </entry>
  </map>
  <map>
    <entry>
      <string>_type</string>
      <string>QueryAvp</string>
    </entry>
    <entry>
      <string>value</string>
      <string>503</string>
    </entry>
    <entry>
      <string>code</string>
      <string>ERROR-CAUSE</string>
    </entry>
  </map>
  <map>
    <entry>
      <string>_type</string>
      <string>QueryAvp</string>
    </entry>
    <entry>
      <string>value</string>
      <string>503</string>
    </entry>
    <entry>
```

```
    <string>code</string>
    <string>ERROR-CAUSE</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>$MA000c.29f1.d050</string>
  </entry>
  <entry>
    <string>code</string>
    <string>CISCO-ACCOUNT-INFO</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>sg-version=1.0</string>
  </entry>
  <entry>
    <string>code</string>
    <string>CISCO-AVPAIR</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>No valid Session</string>
  </entry>
  <entry>
    <string>code</string>
    <string>REPLY-MESSAGE</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
  </entry>
  <entry>
    <string>value</string>
    <string>nas-port:0.0.0.0:0/0/0</string>
  </entry>
  <entry>
    <string>code</string>
    <string>NAS-PORT-ID</string>
  </entry>
</map>
<map>
  <entry>
    <string>_type</string>
    <string>QueryAvp</string>
```

```
                  </entry>
                  <entry>
                    <string>value</string>
                    <string>0</string>
                  </entry>
                  <entry>
                    <string>code</string>
                    <string>NAS-PORT</string>
                  </entry>
                </map>
                <map>
                  <entry>
                    <string>_type</string>
                    <string>QueryAvp</string>
                  </entry>
                  <entry>
                    <string>value</string>
                    <string>S10.10.12.10</string>
                  </entry>
                  <entry>
                    <string>code</string>
                    <string>CISCO-ACCOUNT-INFO</string>
                  </entry>
                </map>
              </list>
            </entry>
          </responseObject>
        </executeActionResponse>
      </ExecuteActionResponse>
    </se:Body>
</se:Envelope>

Create One Time Code Success

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
   <se:Body>
      <ExecuteActionResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
         <errorCode>0</errorCode>
         <errorMessage>Request completed successfully</errorMessage>
      </ExecuteActionResponse>
   </se:Body>
</se:Envelope>

Create One Time Code Failure

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
   <se:Body>
      <ExecuteActionResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
         <errorCode>2</errorCode>
         <errorMessage>com.broadhop.exception.BroadhopException: OTC001:  User is already
registered. One time code generation is disabled
com.broadhop.spr.impl.actions.CreateOneTimeCode.execute(CreateOneTimeCode.java36)
com.broadhop.policy.impl.RulesPolicyService.processSyncAction(RulesPolicyService.java486)
com.broadhop.policy.Rule_Validate_Code__247e55a8_1da4_4bf9_b095_d826bf53748d__yHv0IaBQEeGrGeuRX01s5g__0.consequence(Unknown
 Source)
com.broadhop.policy.Rule_Validate_Code__247e55a8_1da4_4bf9_b095_d826bf53748d__yHv0IaBQEeGrGeuRX01s5g__0ConsequenceInvoker.evaluate(Unknown
 Source)
org.drools.common.DefaultAgenda.fireActivation(DefaultAgenda.java554)
org.drools.common.DefaultAgenda.fireNextItem(DefaultAgenda.java518)
org.drools.common.AbstractWorkingMemory.fireAllRules(AbstractWorkingMemory.java475)
org.drools.common.AbstractWorkingMemory.fireAllRules(AbstractWorkingMemory.java439)
com.broadhop.policy.impl.RulesPolicyService.internalProcessRules(RulesPolicyService.java358)
com.broadhop.policy.impl.RulesPolicyService.process(RulesPolicyService.java210)
com.broadhop.policy.impl.RulesPolicyService$PolicyExecutionRunnable.run(RulesPolicyService.java793)
```

```
java.util.concurrent.Executors$RunnableAdapter.call(Unknown Source)
java.util.concurrent.FutureTask$Sync.innerRun(Unknown Source)
java.util.concurrent.FutureTask.run(Unknown Source)
java.util.concurrent.ThreadPoolExecutor$Worker.runTask(Unknown Source)
java.util.concurrent.ThreadPoolExecutor$Worker.run(Unknown Source)
java.lang.Thread.run(Unknown Source)</errorMessage>
      </ExecuteActionResponse>
   </se:Body>
</se:Envelope>

Validate One Time Code Success

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
   <se:Body>
      <ExecuteActionResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
         <errorCode>0</errorCode>
         <errorMessage>Request completed successfully</errorMessage>
      </ExecuteActionResponse>
   </se:Body>
</se:Envelope>

Validate One Time Code Failure

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
   <se:Body>
      <ExecuteActionResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
         <errorCode>2</errorCode>
         <errorMessage>com.broadhop.exception.BroadhopException: OTC001:  One time code
does not exist for user or code is invalid
com.broadhop.spr.impl.actions.ValidateOneTimeCode.execute(ValidateOneTimeCode.java57)
com.broadhop.policy.impl.RulesPolicyService.processSyncAction(RulesPolicyService.java486)
com.broadhop.policy.Rule_Validate_Code__247e55a8_1da4_4bf9_b095_d826bf53748d__yHv0IaBQEeGrGeuRX01s5g__0.consequence(Unknown
 Source)
com.broadhop.policy.Rule_Validate_Code__247e55a8_1da4_4bf9_b095_d826bf53748d__yHv0IaBQEeGrGeuRX01s5g__0ConsequenceInvoker.evaluate(Unknown
 Source)
org.drools.common.DefaultAgenda.fireActivation(DefaultAgenda.java554)
org.drools.common.DefaultAgenda.fireNextItem(DefaultAgenda.java518)
org.drools.common.AbstractWorkingMemory.fireAllRules(AbstractWorkingMemory.java475)
org.drools.common.AbstractWorkingMemory.fireAllRules(AbstractWorkingMemory.java439)
com.broadhop.policy.impl.RulesPolicyService.internalProcessRules(RulesPolicyService.java358)
com.broadhop.policy.impl.RulesPolicyService.process(RulesPolicyService.java210)
com.broadhop.policy.impl.RulesPolicyService$PolicyExecutionRunnable.run(RulesPolicyService.java793)
java.util.concurrent.Executors$RunnableAdapter.call(Unknown Source)
java.util.concurrent.FutureTask$Sync.innerRun(Unknown Source)
java.util.concurrent.FutureTask.run(Unknown Source)
java.util.concurrent.ThreadPoolExecutor$Worker.runTask(Unknown Source)
java.util.concurrent.ThreadPoolExecutor$Worker.run(Unknown Source)
java.lang.Thread.run(Unknown Source)</errorMessage>
      </ExecuteActionResponse>
   </se:Body>
</se:Envelope>
```

ExtendCreditRequest

This API extends (modifies) a credit by moving the expiration date into the future and/or adding to the amount of credit available.

The resulting modified credit does not account for any debits. For example in the case of add = true, if the original credit amount is 100 and 50 is debited, and it is then extended by 100, the resulting credit amount will be 200, and the available amount will be 150. For example in the case of add = false (meaning replace),

if the original credit amount is 100 and 50 is debited, and it is changed with a replacement amount of 300, the resulting credit amount will be 300, and the available amount will be 250.

Note **One Time Quota Only!**

ExtendCredit API only works for One Time Quota NOT Recurring.

Note **What This API Does Not Do**

This API does not modify the start date, move the end date to an earlier date, or reduce of the amount of quota. Changes of these types will cause system instability and will almost always invalidate active reservations.

Schema

```
<ExtendCreditRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <extendCredit> ExtendCreditType </extendCredit> [1..10]
</ExtendCreditRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExtendCreditRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <extendCredit>
        <balanceCode>DATA</balanceCode>
        <quotaCode>QUOTA</quotaCode>
        <creditId>_Dsdggsdw01282323jd</creditId>
        <add>false</add>
        <endDate>2013-01-31T00:00:00Z</endDate>
        <amount>500</amount>
      </extendCredit>
    </ExtendCreditRequest>
  </se:Body>
</se:Envelope>
```

ExtendCreditResponse

Note **Amount Credited**

The amountCredited field is overloaded because the API can do an add or a replace. If the API has performed a replace the amountCredited will show the new total amount of credit which should match the passed in value. If the API has performed an add the amountCredited will show the new total amount of credit which is not the amount that was added (the value passed into the API).

Schema

```
<ExtendCreditResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <returnCredit> ReturnCreditType </returnCredit> [1..10]
</ExtendCreditResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ExtendCreditResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <returnCredit>
        <id>_wertDSD1234sfsdge5657yfc</id>
        <nextRefreshDate>2012-11-28T00:00:00Z</nextRefreshDate>
        <balanceRemaining>250</balanceRemaining>
        <amountCredited>50</amountCredited>
        <callbackValidityTime>2012-11-28T00:00:00Z</callbackValidityTime>
      </returnCredit>
    </ExtendCreditResponse>
  </se:Body>
</se:Envelope>
```

GenerateVoucherBatchRequest

This API generates a batch of vouchers and adds them to the system.

The API takes a sample voucher object and generates a set of voucher instances based on that sample. The code and pin values are 'mask' values which define a range of values that can be used for each instance.

See the code and pin fields in the VoucherType for more information.

Schema

```
<GenerateVoucherBatchRequest>
   <audit> AuditType </audit> [0..1] ?
   <voucher> VoucherType </voucher> [1]
   <batchAmount> xsd:integer (1 >= value <= 1000) </batchAmount> [1]
   <maskChars> xsd:string </maskChars> [0..1] ?
</GenerateVoucherBatchRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GenerateVoucherBatchRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
         <audit>
            <id>username</id>
            <comment>comment</comment>
         </audit>
         <voucher>
            <code>codeMask****</code>
            <pin>pinMask####</pin>
            <maxConcurrentSessions>5</maxConcurrentSessions>
            <duration>10</duration>
            <durationMeasure>Minutes</durationMeasure>
            <serviceCode>serviceCode</serviceCode>
            <expirationDate>2012-01-01T00:00:00Z</expirationDate>
            <locationCode>location</locationCode>
```

```
            <timeQuota>10</timeQuota>
            <timeMeasure>timemeasure</timeMeasure>
            <balanceCode>balanceCode</balanceCode>
            <quotaCode>quotaCode</quotaCode>
          </voucher>
          <batchAmount>100</batchAmount>
          <maskChars>abcd1234</maskChars>
    </GenerateVoucherBatchRequest>
  </se:Body>
</se:Envelope>
```

GenerateVoucherBatchResponse

Schema

```
<GenerateVoucherBatchResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</GenerateVoucherBatchResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GenerateVoucherBatchResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </GenerateVoucherBatchResponse>
  </se:Body>
</se:Envelope>
```

GenericErrorResponse

This response is sent back for all known errors related to the function and health of the API server itself rather than errors returning from the operation of the APIs.

Schema

```
<GenericErrorResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</GenericErrorResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GenericErrorResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>6</errorCode>
      <errorMessage>Invalid Request: CannotResolveClassException</errorMessage>
    </GenericErrorResponse>
  </se:Body>
</se:Envelope>
```

GetRefDataBalanceRequest

This API retrieves a list of the balance templates, quota templates, and associated ref data thresholds and the values defined on the templates in the reference data.

Schema

```
<GetRefDataBalanceRequest>
   <audit> AuditType </audit> [0..1] ?
</GetRefDataBalanceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GetRefDataBalanceRequest xmlns="http://broadhop.com/unifiedapi/soap/types"/>
  </se:Body>
</se:Envelope>
```

GetRefDataBalanceResponse

Schema

```
<GetRefDataBalanceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <refDataBalanceTemplate> RefDataBalanceTemplateType </refDataBalanceTemplate> [0..1000]
</GetRefDataBalanceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
   <se:Body>
      <GetRefDataBalanceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
         <errorCode>0</errorCode>
         <errorMessage>Request completed successfully</errorMessage>
         <refDataBalanceTemplate>
            <code>VOUCHER-TIME</code>
            <description/>
            <quotaUnits>Second</quotaUnits>
            <refDataQuotaTemplate>
               <code>VOUCHER</code>
               <amount>0</amount>
            </refDataQuotaTemplate>
         </refDataBalanceTemplate>
         <refDataBalanceTemplate>
            <code>VOUCHER-DATA</code>
            <description/>
            <quotaUnits>Byte</quotaUnits>
            <refDataQuotaTemplate>
               <code>VOUCHER</code>
               <amount>0</amount>
            </refDataQuotaTemplate>
         </refDataBalanceTemplate>
         <refDataBalanceTemplate>
            <code>QNS_DATA</code>
            <description>Default data balance</description>
            <quotaUnits>Byte</quotaUnits>
            <refDataQuotaTemplate>
               <code>QNS_DATA</code>
               <amount>0</amount>
            </refDataQuotaTemplate>
         </refDataBalanceTemplate>
         <refDataBalanceTemplate>
            <code>QNS_TIME</code>
            <description/>
            <quotaUnits>Second</quotaUnits>
```

```
            <refDataQuotaTemplate>
               <code>QNS_TIME</code>
               <amount>0</amount>
            </refDataQuotaTemplate>
         </refDataBalanceTemplate>
         <refDataBalanceTemplate>
            <code>DATA</code>
            <description/>
            <quotaUnits>Byte</quotaUnits>
            <refDataQuotaTemplate>
               <code>onetime</code>
               <amount>100</amount>
               <refDataThreshold>
                  <code>50Percent</code>
                  <amount>50</amount>
                  <thresholdType>Percentage</thresholdType>
                  <triggerOnRemaining>false</triggerOnRemaining>
               </refDataThreshold>
            </refDataQuotaTemplate>
            <refDataQuotaTemplate>
               <description>monthly quota</description>
               <code>monthly</code>
               <amount>100</amount>
               <refDataThreshold>
                  <code>25Percent</code>
                  <amount>25</amount>
                  <thresholdType>Percentage</thresholdType>
                  <triggerOnRemaining>true</triggerOnRemaining>
               </refDataThreshold>
            </refDataQuotaTemplate>
         </refDataBalanceTemplate>
      </GetRefDataBalanceResponse>
   </se:Body>
</se:Envelope>
```

GetRefDataServicesRequest

This API retrieves a list of the services and their top level attributes defined in the reference data.

Schema

```
<GetRefDataServicesRequest>
   <audit> AuditType </audit> [0..1] ?
</GetRefDataServicesRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GetRefDataServicesRequest xmlns="http://broadhop.com/unifiedapi/soap/types"/>
  </se:Body>
</se:Envelope>
```

GetRefDataServicesResponse

Schema

```
<GetRefDataServicesResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <refDataService> RefDataServiceType </refDataService> [0..100]
```

```
</GetRefDataServicesResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GetRefDataServicesResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <refDataService>
        <name>100 Megabit Service</name>
        <code>100Mbit</code>
        <addToSubAccounts>false</addToSubAccounts>
        <balanceService>true</balanceService>
        <enabled>true</enabled>
        <suppressInPortal>true</suppressInPortal>
      </refDataService>
      <refDataService>
        <name>default</name>
        <code>myservice</code>
        <addToSubAccounts>false</addToSubAccounts>
        <balanceService>true</balanceService>
        <enabled>true</enabled>
        <suppressInPortal>true</suppressInPortal>
      </refDataService>
    </GetRefDataServicesResponse>
  </se:Body>
</se:Envelope>
```

GetSubscriberCountRequest

This API retrieves the number of subscribers in the USuM database.

Schema

```
<GetSubscriberCountRequest>
   <audit> AuditType </audit> [0..1] ?
</GetSubscriberCountRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GetSubscriberCountRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
    </GetSubscriberCountRequest>
  </se:Body>
</se:Envelope>
```

GetSubscriberCountResponse

Schema

```
<GetSubscriberCountResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <count> xsd:integer </count> [1]
```

```
</GetSubscriberCountResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GetSubscriebrCountResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <count>450000</count>
    </GetSubscriebrCountResponse>
  </se:Body>
</se:Envelope>
```

GetSubscriberRequest

This API retrieves a subscriber from the USuM database.

Note

Success Response

The GetSubscriber API returns error code 0 (success) even if no subscriber is found.

See the QueryBalance request for information about the boolean options: includeExpiredData and excludeReservationsFromCreditTotal

Schema

```
<GetSubscriberRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <returnSessions> xsd:boolean </returnSessions> [0..1] ?
   <returnBalances> xsd:boolean </returnBalances> [0..1] ?
   <includeExpiredData> xsd:boolean </includeExpiredData> [0..1] ?
   <excludeReservationsFromCreditTotal> xsd:boolean </excludeReservationsFromCreditTotal>
[0..1] ?
</GetSubscriberRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GetSubscriberRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <returnSessions>false</returnSessions>
      <returnBalances>true</returnBalances>
      <includeExpiredData>false</includeExpiredData>
      <excludeReservationsFromCreditTotal>true</excludeReservationsFromCreditTotal>
    </GetSubscriberRequest>
  </se:Body>
</se:Envelope>
```

GetSubscriberResponse

Schema

```
<GetSubscriberResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <subscriber> SubscriberType </subscriber> [0..1]
</GetSubscriberResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GetSubscriberResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <subscriber>
      ...
      </subscriber>
    </GetSubscriberResponse>
  </se:Body>
</se:Envelope>
```

GetSubscriberSsidsRequest

This API retrieves a subscriber from the USuM database.

Note

Success Response

The GetSubscriberSsids API returns error code 0 (success) even if no subscriber is found.

Schema

```
<GetSubscriberSsidsRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
</GetSubscriberSsidsRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GetSubscriberSsidsRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
    </GetSubscriberSsidsRequest>
  </se:Body>
</se:Envelope>
```

GetSubscriberSsidsResponse

Schema

```
<GetSubscriberSsidsResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <subscriber> SubscriberSSIDType </subscriber> [0..1]
</GetSubscriberSsidsResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <GetSubscriberSsidsResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <subscriberSsids>
      ...
      </subscriberSsids>
    </GetSubscriberSsidsResponse>
  </se:Body>
</se:Envelope>
```

KeepAliveRequest

This API verifies that the server is active. It does not require the server to do any processing and therefore does not increase load.

Schema

```
<KeepAliveRequest/>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <KeepAliveRequest xmlns="http://broadhop.com/unifiedapi/soap/types"/>
  </se:Body>
</se:Envelope>
```

KeepAliveResponse

Schema

```
<KeepAliveResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</KeepAliveResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <KeepAliveResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </KeepAliveResponse>
  </se:Body>
</se:Envelope>
```

ProvisionServiceRequest

This API provisions service definitions and corresponding Balance entries for a given subscriber.

The new Balances follow existing Balance rules - meaning if new, then provision, but if the Balance already exists, then just add a new credit.

If the service code already exists for the Subscriber, the service is updated with the new data from the API.

Note **Update = Replace**

If the service already exists for the Subscriber, the service is updated by replacing the existing data with the new data from the API. It is NOT an incremental update, it is a complete replacement of the object. For example, if the existing service object has an AVP stored on it, and the new service data from the API does not, the resulting service object will not have the AVP.

Note **Automatic Balance Provisioning**

This feature allows Service Options to be configured so that when the Service is applied to the Subscriber, Balance is automatically provisioned. (It also removes Balance when a Service is removed.) If the system is setup for auto-provisioning, do not include the Balance object when using this API. That is, only send in the Balance object when the system is not setup for auto-provisioning.

Schema

```
<ProvisionServiceRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <service> ServiceType </service> [1..10]
   <balance> CreateBalanceType </balance> [0..10]
</ProvisionServiceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ProvisionServiceRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <service>
        <code>SERVICE_CODE</code>
        <enabled>true</enabled>
        <avp>
          <code>AVP_CODE</code>
          <value>AVP_VALUE</value>
        </avp>
        <schedule>
          <startDate>2011-01-01T00:00:00Z</startDate>
          <endDate>2012-01-01T00:00:00Z</endDate>
          <state>ON</state>
          <startTime>00:00</startTime>
          <endTime>23:59</endTime>
```

```
          <repeat>
            <dayOfMonth>*</dayOfMonth>
            <month>*</month>
            <dayOfWeek>?</dayOfWeek>
            <year>*</year>
          </repeat>
          <enabled>true</enabled>
        </schedule>
      </service>
      <balance>
        <code>DATA</code>
        <quotaCode>Recurring</quotaCode>
        <startDate>2011-01-01T00:00:00Z</startDate>
        <expirationDate>2012-01-01T00:00:00Z</expirationDate>
        <initialAmount>500</initialAmount>
      </balance>
    </ProvisionServiceRequest>
  </se:Body>
</se:Envelope>
```

ProvisionServiceResponse

Schema

```
<ProvisionServiceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</ProvisionServiceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <ProvisionServiceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </ProvisionServiceResponse>
  </se:Body>
</se:Envelope>
```

PurgeAuditHistoryRequest

This API purges the Audit History. See Audit History, on page 1 for more information.

The query is very flexible - it uses regex automatically for the id and dataid, and only one of the following are required: id, dataid, or request. The dataid element typically will be the networkId (Credential) value of a subscriber.

The id element is the person or application who made the API request. For example, if a CSR logs into Control Center and queries a subscriber balance, the id will be that CSR's username.

The dataid element is typically the subscriber's username. For example, if a CSR logs into Control Center and queries a subscriber, the id will be that CSR's username, and the dataid will be the subscriber's credential (networkId value). For queries, the dataid value is checked for spaces and then tokenized and each word is used as a search parameter. For example, "networkId1 networkId2" is interpreted as two values to check.

The fromDate represents the date in the past from which to start the purge or query. If the date is null, the api starts at the oldest entry in the history.

The toDate represents the date in the past to which the purge or query of data includes. If the date is null, the api includes the most recent entry in the purge or query.

Note **Size-Capped Database**

If the database is capped by size, then the purge request ignores the request key values and drops the entire database due to restrictions of the database software.

Schema

```
<PurgeAuditHistoryRequest>
   <key> AuditKeyType </key> [1]
</PurgeAuditHistoryRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <PurgeAuditHistoryRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <key>
        <id>username</id>
        <dataid>subscriber</dataid>
        <request>API Name</request>
        <fromDate>2011-01-01T00:00:00Z</fromDate>
        <toDate>2011-01-01T00:00:00Z</toDate>
      </key>
    </PurgeAuditHistoryRequest>
  </se:Body>
</se:Envelope>

To purge all CreateSubscriberRequest:

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <PurgeAuditHistoryRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <key>
        <request>CreateSubscriberRequest</request>
      </key>
    </PurgeAuditHistoryRequest>
  </se:Body>
</se:Envelope>

To purge all CreateSubscriberRequest by CSR:

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <PurgeAuditHistoryRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <key>
        <id>csrusername</id>
        <request>CreateSubscriberRequest</request>
      </key>
    </PurgeAuditHistoryRequest>
  </se:Body>
</se:Envelope>

To purge all actions by CSR for a given subscriber for a date range:

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <PurgeAuditHistoryRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
```

```
      <key>
        <id>csrusername</id>
        <dataid>subscriber@gmail.com</dataid>
        <fromDate>2010-01-01T00:00:00Z</fromDate>
        <toDate>2012-11-01T00:00:00Z</toDate>
      </key>
    </PurgeAuditHistoryRequest>
  </se:Body>
</se:Envelope>
```

PurgeAuditHistoryResponse

Schema

```
<PurgeAuditHistoryResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</PurgeAuditHistoryResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <PurgeAuditHistoryResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </PurgeAuditHistoryResponse>
  </se:Body>
</se:Envelope>
```

QueryAuditHistoryRequest

This API queries the Audit History. See Audit History, on page 1 for more information.

The query is very flexible - it uses regex automatically for the id and dataid, and only one of the following are required: id, dataid, or request. The dataid element typically will be the networkId (Credential) value of a subscriber.

The id element is the person or application who made the API request. For example, if a CSR logs into Control Center and queries a subscriber balance, the id will be that CSR's username.

The dataid element is typically the subscriber's username. For example, if a CSR logs into Control Center and queries a subscriber, the id will be that CSR's username, and the dataid will be the subscriber's credential (networkId value). For queries, the dataid value is checked for spaces and then tokenized and each word is used as a search parameter. For example, "networkId1 networkId2" is interpreted as two values to check.

The fromDate represents the date in the past from which to start the purge or query. If the date is null, the api starts at the oldest entry in the history.

The toDate represents the date in the past to which the purge or query of data includes. If the date is null, the api includes the most recent entry in the purge or query.

Schema

```
<QueryAuditHistoryRequest>
   <key> AuditKeyType </key> [1]
</QueryAuditHistoryRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QueryAuditHistoryRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <key>
        <id>username</id>
        <dataid>subscriber</dataid>
        <request>API Name</request>
        <fromDate>2011-01-01T00:00:00Z</fromDate>
        <toDate>2011-01-01T00:00:00Z</toDate>
      </key>
    </QueryAuditHistoryRequest>
  </se:Body>
</se:Envelope>
```

To find all CreateSubscriberRequest:

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QueryAuditHistoryRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <key>
        <request>CreateSubscriberRequest</request>
      </key>
    </QueryAuditHistoryRequest>
  </se:Body>
</se:Envelope>
```

To find all CreateSubscriberRequest by CSR:

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QueryAuditHistoryRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <key>
        <id>csrusername</id>
        <request>CreateSubscriberRequest</request>
      </key>
    </QueryAuditHistoryRequest>
  </se:Body>
</se:Envelope>
```

To find all actions by CSR for a given subscriber for a date range:

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QueryAuditHistoryRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <key>
        <id>csrusername</id>
        <dataid>subscriber@gmail.com</dataid>
        <fromDate>2010-01-01T00:00:00Z</fromDate>
        <toDate>2012-11-01T00:00:00Z</toDate>
      </key>
    </QueryAuditHistoryRequest>
  </se:Body>
</se:Envelope>
```

QueryAuditHistoryResponse

Schema

```
<QueryAuditHistoryResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <audit> AuditType </audit> [0..1000]
```

```
</QueryAuditHistoryResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QueryAuditHistoryResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <audit>
      </audit>
    </QueryAuditHistoryResponse>
  </se:Body>
</se:Envelope>
```

QueryBalanceRequest

This API retrieves a subscriber's balance.

This API replaces the old MsBM QuerySubscriber API. The set of boolean options in the old API have been condensed to 2 booleans: includeExpiredData and excludeReservationsFromCreditTotal.

- includeExpireData: if true, returns all account balances whether they are currently active or deprovisioned. Also returns all credits including expired credits.
- excludeReservationsFromCreditTotal: if true, returns credit totals without reservation data being calculated into the totals.

New Parameters to Old Parameters

current	old
includeExpiredData	showDeprovisionedBalances, showAllCreditsInDetail
excludeReservationsFromCreditTotal	doNotDebitReservedAmtFromCreditElementAmt
	showDetailedInformation, showNextRefreshListInDetail, and showDefinedQuotaCodeListInDetail are always set to true

Old Parameters Behavior

- showDetailedInformation: if true, it will return lists of the currently valid credits for each account balance.
- showAllCreditsInDetail: if true then all credits, including expired credits will be returned. Only valid when showDetailedInformation is set to true.
- showDefinedQuotaCodeListInDetail: if true, displays of a list of all quota codes whether they have currently valid credits or not. Only valid when showDetailedInformation is set to true.
- showDeprovisionedBalances: if true, displays all account balances of the subscriber whether they are currently active or deprovisioned. Normally only active account balances are displayed.

- doNotDebitReservedAmtFromCreditElementAmt: if true, then credits listed do not have the amount of pending reservations deducted from the credit amount, only actually debited amounts are used in the calculation. Reservation amounts are listed separately.
- showNextRefreshListInDetail: if true, then a list of the next refresh dates for recurring quotas will be returned. Only valid when showDetailedInformation is set to true.

Auto Rollover

For Recurring Quota that has Auto Rollover setup, there are additional values that get returned with the Rollover Credit objects. These fields are there to assist portals display the proper values for when credit expires. For example, the Recurring Quota refreshes each month, but the Rollover is valid for 2 months from the time of rollover which means that the credit is valid for a total of 3 months. Technically according to the system, there is a credit associated to the Recurring Quota valid for 1 month and then a credit associated to the Rollover Quota that is valid for 2 months. However, for the subscriber, credit is valid for 3 months. To properly display when the rollover credit expires, the response must include the template data.

- rolloverPeriodAmount
- rolloverPeriodUnits
- rolloverExpirationDate
- rolloverTemplateName

Schema

```
<QueryBalanceRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <includeExpiredData> xsd:boolean </includeExpiredData> [0..1]
   <excludeReservationsFromCreditTotal> xsd:boolean </excludeReservationsFromCreditTotal>
[0..1]
</QueryBalanceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QueryBalanceRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <includeExpiredData>true</includeExpiredData>
      <excludeReservationsFromCreditTotal>true</excludeReservationsFromCreditTotal>
    </QueryBalanceRequest>
  </se:Body>
</se:Envelope>
```

QueryBalanceResponse

Schema

```
<QueryBalanceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
```

```
   <balance> BalanceType </balance> [0..100]
</QueryBalanceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QueryBalanceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <balance>
      </balance>
    </QueryBalanceResponse>
  </se:Body>
</se:Envelope>
```

QuerySessionRequest

This API retrieves session data from active sessions in the Policy Engine session cache. Because of the flexible nature of CPS configuration, session data may differ for every installation/deployment. Therefore the response XML from a QuerySession request simply defines a map that can contain any of the following objects: Map, List, String, Boolean, Long, Integer, and Byte-Array.

In addition to the examples below, there may be the following keys stored on the session:

- FramedIpKey:framedIp:VALUE - for example, FramedIpKey:framedIp:173.251.37.147
- MacAddressKey:macAddress:VALUE - for example, MacAddressKey:macAddress:0A2B.3C4D.5E6F
- ciscoAccountInfo:NASIpVALUE:FramedIpVALUE - for example, ciscoAccountInfo:167.206.20.1:S173.251.37.147

Schema

```
<QuerySessionRequest>
    <audit> AuditType </audit> [0..1] ?
    <key> SessionKeyType </key> [1]
    <retrieveAll> xsd:boolean </retrieveAll> [0..1] ?
</QuerySessionRequest>
```

Example

```
Example - UserIdKey

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QuerySessionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <key>
        <code>UserIdKey</code>
        <primary>false</primary>
        <keyField>
          <code>userId</code>
          <value>username</value>
        </keyField>
      </key>
    </QuerySessionRequest>
```

```
  </se:Body>
</se:Envelope>
```

Example - USuMSubscriberIdKey

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QuerySessionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <key>
        <code>USuMSubscriberIdKey</code>
        <primary>false</primary>
        <keyField>
          <code>usumSubscriberId</code>
          <value>12zzcvasdfqwer234qwfvr4fqwe</value>
        </keyField>
      </key>
    </QuerySessionRequest>
  </se:Body>
</se:Envelope>
```

Example - USuMCredentialKey

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QuerySessionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <key>
        <code>USuMCredentialKey</code>
        <primary>false</primary>
        <keyField>
          <code>networkId</code>
          <value>emediatest320@optimum.net</value>
        </keyField>
      </key>
    </QuerySessionRequest>
  </se:Body>
</se:Envelope>
```

Example - FramedIpKey

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QuerySessionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <key>
        <code>FramedIpKey</code>
        <primary>false</primary>
        <keyField>
          <code>framedIp</code>
          <value>172.0.0.1</value>
        </keyField>
      </key>
    </QuerySessionRequest>
```

```
  </se:Body>
</se:Envelope>
```

QuerySessionResponse

Note RADIUS-based policy control is no longer supported in CPS 14.0.0 and later releases as 3GPP Gx Diameter interface has become the industry-standard policy control interface.

Schema

```
<QuerySessionResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <session> SessionType </session> [0..500]
</QuerySessionResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QuerySessionResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <session>
        <sessionKey>
          <code>accountSessionId</code>
          <primary>true</primary>
          <keyField>
            <code>accountSessionId</code>
            <value>167.206.20.1:A7CE14420000163A</value>
          </keyField>
        </sessionKey>
        <sessionObject>
          <entry>
            <string>tags</string>
            <list>
            <string>USuMSubscriberIdKey:usumSubscriberId:50b51183e4b0b2dcee401c47</string>

              <string>USuMCredentialKey:networkId:emediatest302%40optimum.net</string>
              <string>UserIdKey:userId:emediatest302%40optimum.net</string>
              <string>MacAddressKey:macAddress:ac811233519f</string>
              <string>ciscoAccountInfo:167.206.20.1:S173.251.37.147</string>
              <string>ciscoAccountInfo:173.251.37.147:S173.251.37.147</string>
              <string>FramedIpKey:framedIp:173.251.37.147</string>
            </list>
          </entry>
          <entry>
            <string>avps</string>
            <list>
              <map>
                <entry>
                  <string>_type</string>
                  <string>Avp</string>
                </entry>
                <entry>
                  <string>value</string>
                  <string>AWIFILOC1</string>
                </entry>
                <entry>
```

```
                    <string>code</string>
                    <string>CISCO-ACCOUNT-INFO</string>
                  </entry>
                </map>
                <map>
                  <entry>
                    <string>_type</string>
                    <string>Avp</string>
                  </entry>
                  <entry>
                    <string>value</string>
                    <string>75B4EAEF5AAF060585904F3E7FE09C80</string>
                  </entry>
                  <entry>
                    <string>code</string>
                    <string>MESSAGE-AUTHENTICATOR</string>
                  </entry>
                </map>
              </list>
            </entry>
            <entry>
              <string>_transId</string>
              <string>ddb708c9-8138-4499-adbf-73db195fce64-1</string>
            </entry>
            <entry>
              <string>macAddress</string>
              <string>ac811233519f</string>
            </entry>
            <entry>
              <string>deviceSessions</string>
              <list>
                <map>
                  <entry>
                    <string>deviceService</string>
                    <string>WIFILOC1</string>
                  </entry>
                  <entry>
                    <string>_type</string>

<string>com.broadhop.radius.impl.devicemanager.domain.RadiusUsageTracking</string>
                  </entry>
                  <entry>
                    <string>inBytes</string>
                    <long>103906</long>
                  </entry>
                  <entry>
                    <string>sessionId</string>
                    <string>A7CE14420000163D</string>
                  </entry>
                  <entry>
                    <string>deviceManagerId</string>

<string>com.broadhop.radius.impl.devicemanager.RadiusReportingManager</string>
                  </entry>
                  <entry>
                    <string>outBytes</string>
                    <long>671971</long>
                  </entry>
                </map>
                <map>
                  <entry>
                    <string>locationCode</string>
                    <string>AAA Proxy User</string>
                  </entry>
```

```
                    <entry>
                      <string>_type</string>
                      <string>com.broadhop.policy.authdomain.SessionAuthDomain</string>
                    </entry>
                    <entry>
                      <string>talSession</string>
                      <boolean>false</boolean>
                    </entry>
                    <entry>
                      <string>deviceManagerId</string>
                      <string>com.broadhop.policy.authdomain.impl.DomainDeviceManager</string>
                    </entry>
                    <entry>
                      <string>providerCode</string>
                      <string>Cablevision Optimum.Net</string>
                    </entry>
                    <entry>
                      <string>domainCode</string>
                      <string>Cablevision</string>
                    </entry>
                  </map>
                  <map>
                    <entry>
                      <string>_type</string>

<string>com.broadhop.policy.authdomain.impl.domain.AuthorizedSession</string>
                    </entry>
                    <entry>
                      <string>deviceManagerId</string>
                      <string>com.broadhop.policy.authdomain.impl.DomainDeviceManager</string>
                    </entry>
                  </map>
                  <map>
                    <entry>
                      <string>_type</string>
                      <string>com.broadhop.balance.impl.autowire.BalanceDeviceSession</string>
                    </entry>
                    <entry>
                      <string>deviceManagerId</string>

<string>com.broadhop.balance.impl.autowire.AutowireBalanceManagerBlueprint</string>
                    </entry>
                  </map>
                  <map>
                    <entry>
                      <string>_type</string>

<string>com.broadhop.radius.impl.devicemanager.domain.IsgDeviceSession</string>
                    </entry>
                    <entry>
                      <string>services</string>
                      <list>
                        <map>
                          <entry>
                            <string>_type</string>
                            <string>com.broadhop.radius.devices.IsgServiceSession</string>
                          </entry>
                          <entry>
                            <string>sessionId</string>
                            <string>A7CE14420000163D</string>
                          </entry>
                          <entry>
                            <string>reactivationAllowed</string>
                            <map>
```

```
                                <entry>
                                  <string>_type</string>
                                  <string>java.util.Date</string>
                                </entry>
                                <entry>
                                  <string>time</string>
                                  <long>1359998144594</long>
                                </entry>
                              </map>
                            </entry>
                            <entry>
                              <string>minReactWaitTime</string>
                              <int>30</int>
                            </entry>
                            <entry>
                              <string>active</string>
                              <boolean>false</boolean>
                            </entry>
                            <entry>
                              <string>serviceCode</string>
                              <string>WIFILOC1</string>
                            </entry>
                          </map>
                        </list>
                      </entry>
                      <entry>
                        <string>keyType</string>
                        <int>0</int>
                      </entry>
                      <entry>
                        <string>radiusGroup</string>
                        <string>ISG1</string>
                      </entry>
                      <entry>
                        <string>deviceManagerId</string>

<string>com.broadhop.radius.impl.devicemanager.IsgNetworkDeviceManager</string>
                      </entry>
                      <entry>
                        <string>terminated</string>
                        <boolean>false</boolean>
                      </entry>
                      <entry>
                        <string>accountInfo</string>
                        <string>S173.251.37.147</string>
                      </entry>
                      <entry>
                        <string>loopbackAddress</string>
                        <string>173.251.37.147</string>
                      </entry>
                      <entry>
                        <string>callingStationId</string>
                        <string>ac811233519f</string>
                      </entry>
                      <entry>
                        <string>sessionAvps</string>
                        <list/>
                      </entry>
                      <entry>
                        <string>radiusUserId</string>
                        <string>emediatest302@optimum.net</string>
                      </entry>
                      <entry>
                        <string>accountSessionId</string>
```

```
                <string>A7CE14420000163A</string>
              </entry>
              <entry>
                <string>ipAddress</string>
                <string>167.206.20.1</string>
              </entry>
            </map>
          </list>
        </entry>
        <entry>
          <string>credentialId</string>
          <string>emediatest302@optimum.net</string>
        </entry>
        <entry>
          <string>startTime</string>
          <date>2013-02-04T09:38:21.000-07:00</date>
        </entry>
        <entry>
          <string>_type</string>
          <string>com.broadhop.session.domain.NetworkSession</string>
        </entry>
        <entry>
          <string>_id</string>
          <map>
            <entry>
              <string>accountSessionId</string>
              <string>167.206.20.1:A7CE14420000163A</string>
            </entry>
          </map>
        </entry>
        <entry>
          <string>expirationTime</string>
          <date>2013-02-04T18:15:14.345-07:00</date>
        </entry>
        <entry>
          <string>framedIp</string>
          <string>173.251.37.147</string>
        </entry>
        <entry>
          <string>userId</string>
          <string>emediatest302@optimum.net</string>
        </entry>
        <entry>
          <string>nextEvalTime</string>
          <date>2013-02-04T18:15:14.345-07:00</date>
        </entry>
        <entry>
          <string>countsAgainstMaxSessions</string>
          <boolean>true</boolean>
        </entry>
        <entry>
          <string>key</string>
          <map>
            <entry>
              <string>accountSessionId</string>
              <string>167.206.20.1:A7CE14420000163A</string>
            </entry>
          </map>
        </entry>
      </sessionObject>
    </session>
  </QuerySessionResponse>
 </se:Body>
</se:Envelope>
```

QueryVoucherRequest

This API retrieves vouchers.

Schema

```
<QueryVoucherRequest>
   <audit> AuditType </audit> [0..1] ?
   <key> VoucherKeyType </key> [1]
</QueryVoucherRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QueryVoucherRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
     <audit>
       <id>username</id>
       <comment>comment</comment>
     </audit>
     <key>
       <voucherLocationKey>
         <locationCode>location</locationCode>
         <active>true</active>
       </voucherLocationKey>
     </key>
    </QueryVoucherRequest>
  </se:Body>
</se:Envelope>
```

QueryVoucherResponse

Schema

```
<QueryVoucherResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <voucher> VoucherType </voucher> [0..1000]
</QueryVoucherResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <QueryVoucherResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <voucher>
        <code>voucher</code>
        <pin>pin</pin>
        <maxConcurrentSessions>5</maxConcurrentSessions>
        <duration>10</duration>
        <durationMeasure>Minutes</durationMeasure>
        <serviceCode>serviceCode</serviceCode>
        <expirationDate>2012-01-01T00:00:00Z</expirationDate>
        <locationCode>location</locationCode>
        <timeQuota>10</timeQuota>
        <timeMeasure>timemeasure</timeMeasure>
        <balanceCode>balanceCode</balanceCode>
        <quotaCode>quotaCode</quotaCode>
      </voucher>
```

```
      <voucher>
      ...
      </voucher>
    </QueryVoucherResponse>
  </se:Body>
</se:Envelope>
```

RedeemVoucherRequest

This API redeems a voucher for a subscriber. It marks the voucher as redeemed and sets up the subscriber with the appropriate services and quota based on the data stored in the voucher. The code and pin are used to match a specific voucher instance.

The code and pin are added as a credential to the subscriber.

Note **No New Subscriber**

This API does not create a new subscriber unless the subscriber element is included in the request. This means that the api assumes the subscriber already exists in the SPR database unless there is a subscriber element included in the request. If the subscriber element is included in the request, the API attempts to create the subscriber and will error if the credential already exists in the SPR database.

Schema

```
<RedeemVoucherRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <code> xsd:string </code> [1]
   <pin> xsd:string </pin> [1]
   <subscriber> SubscriberType </subscriber> [0..1]
</RedeemVoucherRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
   <se:Body>
      <RedeemVoucherRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
        <audit>
          <id>username</id>
          <comment>comment</comment>
        </audit>
        <networkId>uniqueIdentifier</networkId>
        <code>voucher</code>
        <pin>voucher</pin>
        <subscriber>
        ...
        </subscriber>
      </RedeemVoucherRequest>
   </se:Body>
</se:Envelope>
```

RedeemVoucherResponse

Schema

```
<RedeemVoucherResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</RedeemVoucherResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <RedeemVoucherResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </RedeemVoucherResponse>
  </se:Body>
</se:Envelope>
```

RemoveSubscriberSsidRequest

This API removes a subscriber SSID from the SPR extension collection.

Schema

```
<RemoveSubscriberSsidRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <ssidKey> xsd:string </ssidKey> [0..1]
</RemoveSubscriberSsidRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <RemoveSubscriberSsidRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <ssidKey>keyOfSSid<ssidKey>
    </RemoveSubscriberSsidRequest>
  </se:Body>
</se:Envelope>
```

RemoveSubscriberSsidRequest

Schema

```
<RemoveSubscriberSsidResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</RemoveSubscriberSsidResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <RemoveSubscriberSsidResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </RemoveSubscriberSsidResponse>
```

```
  </se:Body>
</se:Envelope>
```

RolloverCreditRequest

This API operates the same as the old MsBM API. It marks a current credit to be rolled over on the next refresh date, and immediately rolls over an expired credit. It can do this even for recurring quota types that are not specifically set to rollover quota for other subscribers.

Note **Recurring Quota**

Please note that a Rollover Quota must be specified on the Recurring Quota template in order for this API to work.

Schema

```
<RolloverCreditRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <balanceCode> xsd:string </balanceCode> [1] ?
   <quotaCode> xsd:string </quotaCode> [1] ?
   <creditId> xsd:string </creditId> [1] ?
   <rollover> xsd:boolean </rollover> [1] ?
</RolloverCreditRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <RolloverCreditRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <balanceCode>DATA</balanceCode>
      <quotaCode>Recurring</quotaCode>
      <creditId>1</creditId>
      <rollover>true</rollover>
    </RolloverCreditRequest>
  </se:Body>
</se:Envelope>
```

RolloverCreditResponse

Schema

```
<RolloverCreditResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</RolloverCreditResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <RolloverCreditResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
```

```
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </RolloverCreditResponse>
  </se:Body>
</se:Envelope>
```

SearchSubscribersRequest

This API retrieves all Subscribers that match the given search criteria (filter element).

Searches using the pre-defined filter options are "fuzzy" by default, meaning that the search will return values that are like matches and not just exact matches.

See Custom Search Params, on page 8 for information about using custom search params rather than the pre-defined filter options.

Note **Plugin Configuration**

Fuzzy or Regex searching is enabled by default in the Unified API Plugin Configuration. AVPs used in the custom search params can also use the same regex algorhythm as the pre-defined filters and must be enabled in the plugin configuration. (AVP regex is disabled by default.) Be careful because AVP regex searching can impact performance.

Note **Fuzzy Matching Caveats**

Do not include regular expressions in the search values. The code is written to do a case-insensitive regex match in the following manner: /^value/ This regex means to match values that start (^) with the same characters. For example, if you send 'rob' as the credential value in the request, the API will match rob, Robert or ROBERTA. If you send '123' as the credential value in the request, the API will match 123, 1234, etc.

Schema

```
<SearchSubscribersRequest>
   <audit> AuditType </audit> [0..1] ?
   <filter> SearchType </filter> [1]
   <returnSessions> xsd:boolean </returnSessions> [0..1]
   <returnBalances> xsd:boolean </returnBalances> [0..1]
</SearchSubscribersRequest>
```

Example

```
Example 1 - Name Search

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <SearchSubscribersRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <filter>
        <name>
          <fullName>Test Subscriber</fullName>
        </name>
```

```
      </filter>
    </SearchSubscribersRequest>
  </se:Body>
</se:Envelope>

Example 2 - Name Search with balances and sessions

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <SearchSubscribersRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <filter>
        <name>
          <fullName>Test Subscriber</fullName>
        </name>
      </filter>
      <returnSessions>true</returnSessions>
      <returnBalances>true</returnBalances>
    </SearchSubscribersRequest>
  </se:Body>
</se:Envelope>

Example 3 - NetworkId Search

<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <SearchSubscribersRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <filter>
        <networkId>uniqueId</networkId>
      </filter>
    </SearchSubscribersRequest>
  </se:Body>
</se:Envelope>
```

SearchSubscribersResponse

Schema

```
<SearchSubscribersResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <subscriber> SubscriberType </subscriber> [0..1000]
</SearchSubscribersResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <SearchSubscribersResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <subscriber>
      ...
      </subscriber>
      <subscriber>
```

```
      ...
      </subscriber>
      ...
    </SearchSubscribersResponse>
  </se:Body>
</se:Envelope>
```

StopSessionRequest

This API stops an active session on the network and discards the data from the Policy Engine session cache.

This API replaces the version 5.2 Policy Engine RemoveSession API.

Please see QuerySession for more information about keys to use.

Schema

```
<StopSessionRequest>
   <audit> AuditType </audit> [0..1] ?
   <key> SessionKeyType </key> [1]
</StopSessionRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <StopSessionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <key>
        <code>UserIdKey</code>
        <primary>true</primary>
        <keyField>
          <code>userId</code>
          <value>uniqueIndentifier</value>
        </keyField>
      </key>
    </StopSessionRequest>
  </se:Body>
</se:Envelope>
```

StopSessionResponse

Schema

```
<StopSessionResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</StopSessionResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <StopSessionResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </StopSessionResponse>
```

```
  </se:Body>
</se:Envelope>
```

SwitchServiceRequest

This API changes a service definition and corresponding Balance entry for a given subscriber to new ones.

The oldServiceCode value is used to find the oldBalanceCode if oldBalanceCode is not sent in. If no balance is found, the API then checks for the number of balances. If 1 balance is found, then it is deleted, if more than 1, then an error is thrown.

This API works with One Time or Recurring Quotas. The new quota is provisioned per the createBalance values. The lastRecurringRefresh date of the new quota is set per normal new provision rules. Old dates are not migrated and the validity period for the reservation stays the same.

Note **Automatic Balance Provisioning**

This feature allows Service Options to be configured so that when the Service is applied to the Subscriber, Balance is automatically provisioned. (It also removes Balance when a Service is removed.) If the system is setup for auto-provisioning, do not include the Balance object when using this API. That is, only send in the Balance object when the system is not setup for auto-provisioning.

Note **Reservations are not migrated**

Reservations are not migrated from the old Balance or Quota because Autowire code handles any latent charges.

Note **Quota Capacity**

The new quota must have the same or more capacity than the old quota currently has available.

Schema

```
<SwitchServiceRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <oldServiceCode> xsd:string </oldServiceCode> [1] ?
   <service> ServiceType </service> [1]
   <oldBalanceCode> xsd:string </oldBalanceCode> [0..1]
   <oldQuotaCode> xsd:string </oldQuotaCode> [0..1] ?
   <balance> CreateBalanceType </balance> [0..1] ?
</SwitchServiceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <SwitchServiceRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
```

```
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <oldServiceCode>SERVICE_ORIGINAL</oldServiceCode>
      <service>
        <code>SERVICE_CODE</code>
        <enabled>true</enabled>
        <avp>
          <code>AVP_CODE</code>
          <value>AVP_VALUE</value>
        </avp>
        <schedule>
          <startDate>2011-01-01T00:00:00Z</startDate>
          <endDate>2012-01-01T00:00:00Z</endDate>
          <state>ON</state>
          <startTime>00:00</startTime>
          <endTime>23:59</endTime>
          <repeat>
            <dayOfMonth>*</dayOfMonth>
            <month>*</month>
            <dayOfWeek>?</dayOfWeek>
            <year>*</year>
          </repeat>
          <enabled>true</enabled>
        </schedule>
      </service>
      <oldBalanceCode>DATA</oldBalanceCode>
      <oldQuotaCode>OLD_QUOTA</oldQuotaCode>
      <balance>
        <code>DATA</code>
        <quotaCode>RECURRING</quotaCode>
        <startDate>2011-01-01T00:00:00Z</startDate>
        <expirationDate>2012-01-01T00:00:00Z</expirationDate>
        <initialAmount>500</initialAmount>
      </balance>
    </SwitchServiceRequest>
  </se:Body>
</se:Envelope>
```

SwitchServiceResponse

Schema

```
<SwitchServiceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</SwitchServiceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <SwitchServiceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </SwitchServiceResponse>
  </se:Body>
</se:Envelope>
```

UpdateBalanceRequest

This API updates non-calculated data fields on a subscriber's balance. Similar to UpdateSubscriberRequest, on page 108 this API is not incremental; meaning an entire balance object must be sent.

This API replaces several old MsBM APIs.

- DeProvisionBalance
- ModifyAccountBalanceProvisionStatus
- CreateSubscriberThreshold
- RemoveSubscriberThreshold
- UpdateSubscriberThreshold

Only subscriber specific thresholds can be managed via this API. Any global thresholds configured in Policy Builder must be updated through the Policy Builder.

Note **Breached and Amount**

The amount field for a threshold is the amount at which the threshold gets triggered. If the threshold is in a breached state according to the Balance engine, the amount field cannot be updated!

Note **What This API Does NOT Do!**

This API will not handle ChangeRecurringRefresh or ChangeBillCycle or ChangeBalanceSubscriberId or DeleteQuota or DeleteCredit because UpdateBalance does not allow users to adjust Quota values manually. This would have dire consequences on the integrity of the data.

Note **Removed Elements**

The nextRefreshDate and avp elements in a threshold have been removed because they are not used by the Balance module.

Note **The proper steps to use this API:**

1. Call GetSubscriber or QueryBalance API to get the balance object.
2. Update returned balance object as required.
3. Call UpdateBalance API with updated balance object.

Schema

```
<UpdateBalanceRequest>
   <audit> AuditType </audit> [0..1] ?
```

```
   <networkId> xsd:string </networkId> [1] ?
   <balance> BalanceType </balance> [1..100] ?
</UpdateBalanceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <UpdateBalanceRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <balance>
        <code>DATA</code>
        <deprovisioned>true</deprovisioned>
        <depleted>true</depleted>
        <startDate>2011-01-01T00:00:00Z</startDate>
        <expirationDate>2012-01-01T00:00:00Z</expirationDate>
        <quota>
          <code>TopUp</code>
          <threshold>
            <code>THRESHUPDATE</code>
            <amount>70</amount>
            <quotaCode>TopUp</quotaCode>
            <type>Percentage</type>
            <breached>false</breached>
            <subscriberSpecific>true</subscriberSpecific>
          </threshold>
        </quota>
        <threshold>
          <code>THRESHUPDATE</code>
          <amount>70</amount>
          <type>Percentage</type>
          <breached>false</breached>
          <subscriberSpecific>true</subscriberSpecific>
        </threshold>
      </balance>
    </UpdateBalanceRequest>
  </se:Body>
</se:Envelope>
```

UpdateBalanceResponse

Schema

```
<UpdateBalanceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</UpdateBalanceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <UpdateBalanceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </UpdateBalanceResponse>
  </se:Body>
</se:Envelope>
```

UpdateServiceRequest

This API updates a service definition and corresponding Balance entries for a given subscriber.

The order of operation for the AVPs is delete, modify, add (new). The modify avps only modify the value.

Note **Schedules**

Because it is not possible to match an individual schedule object, the list is simply a replacement. If no list is present in the request, then nothing happens. However, if you send an empty element (<schedule/> or <schedule></schedule>), the list will get nulled out.

Note **Automatic Balance Provisioning**

This feature allows Service Options to be configured so that when the Service is applied to the Subscriber, Balance is automatically provisioned. (It also removes Balance when a Service is removed.) If the system is setup for auto-provisioning, do not include the Balance object when using this API. That is, only send in the Balance object when the system is not setup for auto-provisioning.

Schema

```
<UpdateServiceRequest>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
   <code> xsd:string </code> [1]
   <enabled> xsd:boolean </enabled> [0..1]
   <deletedAvp> AvpType </deletedAvp> [0..100]
   <modifiedAvp> AvpType </modifiedAvp> [0..100]
   <newAvp> AvpType </newAvp> [0..100]
   <schedule> ScheduleType </schedule> [0..10]
   <balance> CreateBalanceType </balance> [0..10]
   <extendCredit> ExtendCreditType </extendCredit> [0..10]
</UpdateServiceRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <UpdateServiceRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <networkId>uniqueIdentifier</networkId>
      <code>SERVICE_CODE</code>
      <enabled>true</enabled>
      <deletedAvp>
        <code>AVP_CODE</code>
        <value>AVP_VALUE</value>
      </deletedAvp>
      <modifiedAvp>
        <code>AVP_CODE_2</code>
        <value>AVP_VALUE</value>
        <newValue>NEW_AVP_VALUE</newValue>
      </modifiedAvp>
```

```
      <newAvp>
        <code>NEW_AVP_CODE</code>
        <value>NEW_AVP_VALUE</value>
      </newAvp>
      <schedule>
        <startDate>2011-01-01T00:00:00Z</startDate>
        <endDate>2012-01-01T00:00:00Z</endDate>
        <state>ON</state>
        <startTime>00:00</startTime>
        <endTime>23:59</endTime>
        <repeat>
          <dayOfMonth>*</dayOfMonth>
          <month>*</month>
          <dayOfWeek>?</dayOfWeek>
          <year>*</year>
        </repeat>
        <enabled>true</enabled>
      </schedule>
      <balance>
        <code>DATA</code>
        <quotaCode>RECURRING</quotaCode>
        <startDate>2011-01-01T00:00:00Z</startDate>
        <expirationDate>2012-01-01T00:00:00Z</expirationDate>
        <initialAmount>500</initialAmount>
      </balance>
      <extendCredit>
        <balanceCode>DATA</balanceCode>
        <quotaCode>QUOTA</quotaCode>
        <creditId>_Dsdggsdw01282323jd</creditId>
        <add>false</add>
        <endDate>2013-01-31T00:00:00Z</endDate>
        <amount>500</amount>
      </extendCredit>
    </UpdateServiceRequest>
  </se:Body>
</se:Envelope>
```

UpdateServiceResponse

Schema

```
<UpdateServiceResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
   <returnCredit> ReturnCreditType </returnCredit> [0..10]
</UpdateServiceResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <UpdateServiceResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
      <returnCredit>
        <id>_wertDSD1234sfsdge5657yfc</id>
        <nextRefreshDate>2012-11-28T00:00:00Z</nextRefreshDate>
        <balanceRemaining>250</balanceRemaining>
        <amountCredited>50</amountCredited>
        <callbackValidityTime>2012-11-28T00:00:00Z</callbackValidityTime>
      </returnCredit>
    </UpdateServiceResponse>
```

```
  </se:Body>
</se:Envelope>
```

UpdateSessionRequest

This API updates an active session on the network and in the Policy Engine session cache. It removes or adds AVPs.

Pleasee see QuerySession for more information about keys to use.

Schema

```
<UpdateSessionRequest>
   <audit> AuditType </audit> [0..1] ?
   <key> SessionKeyType </key> [1]
   <newAvp> AvpType </newAvp> [1..100]
   <deletedAvp> AvpType </deletedAvp> [0..100]
</UpdateSessionRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <UpdateSessionRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <key>
        <code>UserIdKey</code>
        <primary>true</primary>
        <keyField>
          <code>userId</code>
          <value>uniqueIdentifier</value>
        </keyField>
      </key>
      <newAvp>
        <code>cisco</code>
        <value>sharedsecret</value>
      </newAvp>
      <deletedAvp>
        <code>key</code>
        <value>{}</value>
      </deletedAvp>
    </UpdateSessionRequest>
  </se:Body>
</se:Envelope>
```

UpdateSessionResponse

Schema

```
<UpdateSessionResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</UpdateSessionResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <UpdateSessionResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </UpdateSessionResponse>
  </se:Body>
</se:Envelope>
```

UpdateSubscriberRequest

This API updates a subscriber. An entire subscriber object must be sent. This request also updates credentials. It also allows provisioning initial quota/balance using the CreateBalance element.

Charging Id

The chargingId (subscriber.getBillingInfo().getChargingId()) is used as a correlation id value between Balance and USuM. The default correlation is the USuM id (generated by the database). If a chargingId is set on the subscriber, the chargingId value becomes the correlation id.

Note **Cannot Change the Charging Id**

The UpdateSubscriber API does not/cannot change the chargingId/Balance SubscriberId relationship. To make such a change you must use ChangeBalanceSubscriberId.

Note **Balance**

The UpdateSubscriber API does allow Balance updates and it can create new Balance. Please see UpdateBalance and CreateBalance for more information.

Note **The proper steps to use this API:**

1. Call GetSubscriber API to get the subscriber object.
2. Update returned subscriber object as required.
3. Call UpdateSubscriber API with updated subscriber object.

Schema

```
<UpdateSubscriberRequest>
   <audit> AuditType </audit> [0..1] ?
   <subscriber> SubscriberType </subscriber> [1] ?
</UpdateSubscriberRequest>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
```

```
    <UpdateSubscriberRequest xmlns="http://broadhop.com/unifiedapi/soap/types">
      <audit>
        <id>username</id>
        <comment>comment</comment>
      </audit>
      <subscriber>
        <id>4d4dc3c0f2e1f8ca3871bbd8</id>
        <parentId></parentId>
        <name>
          <fullName>Test User</fullName>
        </name>
        <credential>
          <networkId>70.1.128.7</networkId>
          <password>testuser</password>
          <expirationDate>2011-12-31T23:59:59Z</expirationDate>
        </credential>
        <credential>
          <networkId>70.1.128.9</networkId>
          <password>testuser</password>
        </credential>
        <service>
          <code>SERVICE_CODE</code>
          <enabled>true</enabled>
          <avp>
            <code>AVP_CODE</code>
            <value>AVP_VALUE</value>
          </avp>
          <avp>
            <code>AVP_CODE_2</code>
            <value>AVP_VALUE</value>
          </avp>
        </service>
        <status>ACTIVE</status>
        <version>0</version>
      </subscriber>
    </UpdateSubscriberRequest>
  </se:Body>
</se:Envelope>
```

UpdateSubscriberResponse

Schema

```
<UpdateSubscriberResponse>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</UpdateSubscriberResponse>
```

Example

```
<se:Envelope xmlns:se="http://schemas.xmlsoap.org/soap/envelope/">
  <se:Body>
    <UpdateSubscriberResponse xmlns="http://broadhop.com/unifiedapi/soap/types">
      <errorCode>0</errorCode>
      <errorMessage>Request completed successfully</errorMessage>
    </UpdateSubscriberResponse>
  </se:Body>
</se:Envelope>
```

Schema Object Definitions

Note By default, schema validation is disabled to avoid performance impact. When the schema validation is disabled, the number of AVPs values is not restricted.

To enable the schema validation, set `-Dua.validate.xml=true` in `/etc/broadhop/qns.conf` file.

AuditKeyType

Super-types	None
Sub-types	None

Name	AuditKeyType
Abstract	no

Schema

```
<...>
   <id> xsd:string </id> [0..1] ?
   <dataid> xsd:string </dataid> [0..1] ?
   <request> xsd:string </request> [0..1]
   <fromDate> xsd:dateTime </fromDate> [0..1] ?
   <toDate> xsd:dateTime </toDate> [0..1] ?
</...>
```

AuditType

Super-types	None
Sub-types	None

Name	AuditType
Abstract	no

Schema

```
<...>
   <id> xsd:string </id> [1] ?
   <comment> xsd:string </comment> [0..1] ?
   <timestamp> xsd:dateTime </timestamp> [0..1]
   <request> xsd:string </request> [0..1] ?
   <dataid> xsd:string </dataid> [0..1] ?
   <data> xsd:string </data> [0..1] ?
   <avp> AvpType </avp> [0..100]
</...>
```

AvpType

Super-types	None
Sub-types	None

Name	AvpType
Abstract	no

Schema

```
<...>
   <code> xsd:string </code> [1]
   <value> xsd:string </value> [1]
   <newValue> xsd:string </newValue> [0..1] ?
</...>
```

BalanceType

Super-types	None
Sub-types	None

Name	BalanceType
Abstract	no
Documentation	A balance is the top-level object that represents a subscriber's balance (amount of time, data, or bandwidth) that can be used.

Schema

```
<...>
   <code> xsd:string </code> [1]
   <deprovisioned> xsd:boolean </deprovisioned> [0..1] ?
   <depleted> xsd:boolean </depleted> [0..1]
   <billCycle> xsd:integer (1 >= value <= 31) </billCycle> [0..1] ?
   <quota> QuotaType </quota> [0..1000]
   <threshold> ThresholdType </threshold> [0..10]
   <reservation> ReservationType </reservation> [0..1000]
   <startDate> xsd:dateTime </startDate> [0..1]
   <expirationDate> xsd:dateTime </expirationDate> [0..1]
   <totals> TotalsType </totals> [0..1]
   <avp> AvpType </avp> [0..100]
</...>
```

BaseRequestAuditType

Super-types:	None
Sub-types:	BaseRequestNetworkIdType (by extension)

Name	BaseRequestAuditType

Abstract	no

Schema

```
<...>
   <audit> AuditType </audit> [0..1] ?
</...>
```

BaseRequestNetworkIdType

Super-types:	BaseRequestAuditType < BaseRequestNetworkIdType (by extension)
Sub-types:	None

Name	BaseRequestNetworkIdType
Abstract	no

Schema

```
<...>
   <audit> AuditType </audit> [0..1] ?
   <networkId> xsd:string </networkId> [1] ?
</...>
```

BillingInfoType

Super-types:	None
Sub-types:	None

Name	BillingInfoType
Abstract	no

Schema

```
<...>
   <chargingId> xsd:string </chargingId> [0..1] ?
   <ratePlanCode> xsd:string </ratePlanCode> [0..1]
   <avp> AvpType </avp> [0..100]
</...>
```

CreateBalanceType

Super-types:	None
Sub-types:	None

Name	CreateBalanceType
Abstract	no

Schema

```
<...>
   <code> xsd:string </code> [1] ?
   <quotaCode> xsd:string </quotaCode> [1] ?
   <startDate> xsd:dateTime </startDate> [0..1] ?
   <expirationDate> xsd:dateTime </expirationDate> [0..1] ?
   <initialAmount> xsd:long </initialAmount> [0..1]
   <threshold> ThresholdType </threshold> [0..10]
   <lastRecurringRefresh> xsd:dateTime </lastRecurringRefresh> [0..1] ?
   <billCycle> xsd:integer (1 >= value <= 31) </billCycle> [0..1] ?
   <recurrenceLimit> xsd:integer (1 >= value <= 1000) </recurrenceLimit> [0..1] ?
   <quotaExpirationDate> xsd:dateTime </quotaExpirationDate> [0..1] ?
</...>
```

CredentialType

Super-types:	None
Sub-types:	None

Name	CredentialType
Abstract	no

Schema

```
<...>
   <networkId> xsd:string </networkId> [1] ?
   <password> xsd:string </password> [0..1]
   <type> xsd:string </type> [0..1] ?
   <description> xsd:string </description> [0..1] ?
   <expirationDate> xsd:dateTime </expirationDate> [0..1] ?
   <avp> AvpType </avp> [0..100]
</...>
```

CreditType

Super-types:	None
Sub-types:	None

Name	CreditType
Abstract	no

Schema

```
<...>
   <id> xsd:string </id> [1]
   <initialAmount> xsd:long </initialAmount> [1]
   <amount> xsd:long </amount> [1]
   <reservedAmount> xsd:long </reservedAmount> [1]
   <startDate> xsd:dateTime </startDate> [0..1]
   <expirationDate> xsd:dateTime </expirationDate> [0..1]
   <valid> xsd:boolean </valid> [0..1]
   <rolloverPeriodAmount> xsd:integer </rolloverPeriodAmount> [0..1]
   <rolloverPeriodUnits> xsd:string (value comes from list:
```

```
{'Minute'|'Hour'|'Day'|'Week'|'Month'}) </rolloverPeriodUnits> [0..1]
   <rolloverExpirationDate> xsd:dateTime </rolloverExpirationDate> [0..1] ?
   <rolloverTemplateName> xsd:string </rolloverTemplateName> [0..1]
   <avp> AvpType </avp> [0..100]
</...>
```

DeleteBalanceType

Super-types:	None
Sub-types:	None

Name	DeleteBalanceType
Abstract	no

Schema

```
<...>
   <code> xsd:string </code> [1] ?
   <quotaCode> xsd:string </quotaCode> [0..1] ?
</...>
```

EntryType

Super-types:	None
Sub-types:	None

Name	EntryType
Abstract	no

Schema

```
<...> Start Choice [1]
   <string> xsd:string </string> [1]
   <key> xsd:string </key> [1]
   End Choice
   Start Choice [1]
   <list> ListType </list> [1]
   <linked-list> ListType </linked-list> [1]
   <map> MapType </map> [1]
   <string> xsd:string </string> [1]
   <boolean> xsd:boolean </boolean> [1]
   <int> xsd:integer </int> [1]
   <long> xsd:long </long> [1]
   <date> xsd:dateTime </date> [1]
   <byte-array> xsd:base64Binary </byte-array> [1]
   <value> xsd:anyType </value> [1]
   End Choice
</...>
```

ExecuteActionResponseType

Super-types:	None
Sub-types:	None

Name	ExecuteActionResponseType
Abstract	no
Documentation	The ExecuteActionResponseType is a catch all object that translates data into a map of key:value pairs. Therefore, from deployment to deployment, an ExecuteActionResponseType can look different.

Schema

```
<...>
   <responseObject> MapType </responseObject> [0..*]
</...>
```

ExtendCreditType

Super-types:	None
Sub-types:	None

Name	ExtendCreditType
Abstract	no

Schema

```
<...>
   <balanceCode> xsd:string </balanceCode> [1]
   <quotaCode> xsd:string </quotaCode> [0..1]
   <creditId> xsd:string </creditId> [0..1] ?
   <add> xsd:boolean </add> [0..1] ?
   <endDate> xsd:dateTime </endDate> [0..1] ?
   <minutes> xsd:integer (value >= 1) </minutes> [0..1] ?
   <amount> xsd:long (value >= 1) </amount> [0..1] ?
</...>
```

KeyFieldType

Super-types:	None
Sub-types:	None

Name	KeyFieldType
Abstract	no

Schema

```
<...>
   <code> xsd:string </code> [1]
   <value> xsd:string </value> [1]
</...>
```

ListType

Super-types:	None
Sub-types:	None

Name	ListType
Abstract	no

Schema

```
<...> Start Choice [1..*]
   <map> MapType </map> [1]
   <string> xsd:string </string> [1]
  End Choice
</...>
```

MapType

Super-types:	None
Sub-types:	None

Name	MapType
Abstract	no

Schema

```
<...>
   <entry> EntryType </entry> [0..*]
</...>
```

NameType

Super-types:	None
Sub-types:	None

Name	NameType
Abstract	no

Schema

```
<...>
   <fullName> xsd:string (pattern = [^$&<]*) </fullName> [1] ?
</...>
```

NotificationType

Super-types:	None
Sub-types:	None

Name	NotificationType
Abstract	no
Documentation	A notification is a holder for subscriber messaging data.

Schema

```
<...>
   <destination> xsd:string </destination> [1]
   <enabled> xsd:boolean </enabled> [0..1]
   <transport> xsd:string (value comes from list: {'SMS'|'EMAIL'|'APPLE_PUSH'|'GCM'})
</transport> [1]
   <avp> AvpType </avp> [0..100]
</...>
```

QuotaType

Super-types:	None
Sub-types:	None

Name	QuotaType
Abstract	no

Schema

```
<...>
   <code> xsd:string </code> [1]
   <credit> CreditType </credit> [0..*]
   <threshold> ThresholdType </threshold> [0..10]
   <nextRefreshDate> xsd:dateTime </nextRefreshDate> [0..1]
   <recurrenceLimit> xsd:integer </recurrenceLimit> [0..1]
   <quotaExpirationDate> xsd:dateTime </quotaExpirationDate> [0..1]
   <totals> TotalsType </totals> [0..1]
   <avp> AvpType </avp> [0..100]
</...>
```

RefDataBalanceTemplateType

Super-types:	None
Sub-types:	None

Name	RefDataBalanceTemplateType
Abstract	no

Documentation	A ref data balance template is a reference data object defined in Policy Builder that defines an Account Balance for MsBM and also contains any associated Quota and Threshold definitions.

Schema

```
<...>
   <code> xsd:string </code> [1]
   <description> xsd:string </description> [0..1]
   <quotaUnits> xsd:string </quotaUnits> [1]
   <refDataQuotaTemplate> RefDataQuotaTemplateType </refDataQuotaTemplate> [0..100]
   <refDataThreshold> RefDataThresholdType </refDataThreshold> [0..100]
</...>
```

RefDataQuotaTemplateType

Super-types:	None
Sub-types:	None

Name	RefDataQuotaTemplateType
Abstract	no
Documentation	A ref data quota template is a reference data object defined in Policy Builder that defines an Quota for MsBM and also contains any associated Threshold definitions.

Schema

```
<...>
   <code> xsd:string </code> [1]
   <description> xsd:string </description> [0..1]
   <amount> xsd:string </amount> [1]
   <priority> xsd:integer </priority> [0..1]
   <refDataThreshold> RefDataThresholdType </refDataThreshold> [0..100]
</...>
```

RefDataServiceType

Super-types:	None
Sub-types:	None

Name	RefDataServiceType
Abstract	no
Documentation	A ref data service is a reference data object defined in Policy Builder that defines the top level values defined for a service.

Schema

```
<...>
   <name> xsd:string </name> [1]
   <code> xsd:string </code> [1]
```

```
   <addToSubAccounts> xsd:boolean </addToSubAccounts> [1] ?
   <balanceService> xsd:boolean </balanceService> [1] ?
   <enabled> xsd:boolean </enabled> [1] ?
   <suppressInPortal> xsd:boolean </suppressInPortal> [1] ?
</...>
```

RefDataThresholdType

Super-types:	None
Sub-types:	None

Name	RefDataThresholdType
Abstract	no
Documentation	A ref data threshold is a reference data object defined in Policy Builder that defines a threshold on either a Balance or Quota in MsBM.

Schema

```
<...>
   <code> xsd:string </code> [1]
   <amount> xsd:string </amount> [1]
   <thresholdType> xsd:string </thresholdType> [1]
   <group> xsd:string </group> [0..1]
   <triggerOnRemaining> xsd:boolean </triggerOnRemaining> [1]
</...>
```

RepeatType

Super-types:	None
Sub-types:	None

Name	RepeatType
Abstract	no

Schema

```
<...>
   <dayOfMonth> xsd:string (pattern = [\-,0-9\*\?LW/]*) </dayOfMonth> [0..1]
   <month> xsd:string (pattern = [\-,0-9\*A-Z/]*) </month> [0..1]
   <dayOfWeek> xsd:string (pattern = [\-,0-9\*\?L#/]*) </dayOfWeek> [0..1]
   <year> xsd:string (pattern = [\-,0-9\*/]*) </year> [0..1]
</...>
```

ReservationType

Super-types:	None
Sub-types:	None

Name	ReservationType
Abstract	no

Schema

```
<...>
   <id> xsd:string </id> [1]
   <amount> xsd:long </amount> [1]
   <expirationDate> xsd:dateTime </expirationDate> [1]
   <avp> AvpType </avp> [0..100]
</...>
```

ResponseType

Super-types:	None
Sub-types:	None

Name	ResponseType
Abstract	no

Schema

```
<...>
   <errorCode> xsd:integer (0 >= value < 1000) </errorCode> [1] ?
   <errorMessage> xsd:string </errorMessage> [1] ?
</...>
```

ReturnCreditType

Super-types:	None
Sub-types:	None

Name	ReturnCreditType
Abstract	no

Schema

```
<...>
   <id> xsd:string </id> [1]
   <nextRefreshDate> xsd:dateTime </nextRefreshDate> [0..1]
   <balanceRemaining> xsd:long </balanceRemaining> [1]
   <amountCredited> xsd:long </amountCredited> [1]
   <callbackValidityTime> xsd:dateTime </callbackValidityTime> [1]
</...>
```

ReturnDebitType

Super-types:	None
Sub-types:	None

Name	ReturnDebitType
Abstract	no

Schema

```
<...>
   <nextRefreshDate> xsd:dateTime </nextRefreshDate> [0..1]
   <balanceRemaining> xsd:long </balanceRemaining> [1]
   <amountDebited> xsd:long </amountDebited> [1]
   <callbackValidityTime> xsd:dateTime </callbackValidityTime> [1]
   <exhausted> xsd:boolean </exhausted> [1]
</...>
```

ScheduleType

Super-types:	None
Sub-types:	None

Name	ScheduleType
Abstract	no
Documentation	A schedule is a holder for a cron-like time structure that customizes service (de)activation. See Services and Service Schedules for more information.

Schema

```
<...>
   <startDate> xsd:dateTime </startDate> [0..1]
   <endDate> xsd:dateTime </endDate> [0..1]
   <state> xsd:string (value comes from list: {'ON'|'OFF'}) </state> [0..1]
   <startTime> xsd:string (pattern = [0-9]{2,2}:[0-9]{2,2}) </startTime> [0..1] ?
   <endTime> xsd:string (pattern = [0-9]{2,2}:[0-9]{2,2}) </endTime> [0..1] ?
   <repeat> RepeatType </repeat> [0..1]
   <enabled> xsd:boolean </enabled> [0..1]
   <avp> AvpType </avp> [0..100]
</...>
```

SearchType

Super-types:	None
Sub-types:	None

Name	SearchType
Abstract	no

Schema

```
<...> Start Choice [0..1]
   <name> NameType </name> [1]
```

```
   <networkId> xsd:string </networkId> [1]
  End Choice
  <avp> AvpType </avp> [0..100]
</...>
```

ServiceType

Super-types:	None
Sub-types:	None

Name	ServiceType
Abstract	no
Documentation	A service indicates what service CPS should provision to a subscriber and contains any special custom data that helps CPS determine what to provision.

Schema

```
<...>
   <code> xsd:string </code> [1] ?
   <enabled> xsd:boolean </enabled> [0..1]
   <avp> AvpType </avp> [0..100] ?
   <schedule> ScheduleType </schedule> [0..10] ?
</...>
```

SessionKeyType

Super-types:	None
Sub-types:	None

Name	SessionKeyType
Abstract	no
Documentation	A sessionKey is used to find sessions in the session cache.

Schema

```
<...>
   <code> xsd:string </code> [1] ?
   <primary> xsd:boolean </primary> [0..1]
   <keyField> KeyFieldType </keyField> [0..20]
</...>
```

SessionType

Super-types:	None
Sub-types:	None

Name	SessionType

Abstract	no
Documentation	Similar to the ExecuteActionResponseType a SessionType is a map of key:value pairs. CPS is very flexible and allows for many session configurations. Therefore, all data is structured as a map of key:value pairs. Therefore, from deployment to deployment, a session can look different.

Schema

```
<...>
   <sessionKey> SessionKeyType </sessionKey> [1]
   <sessionObject> MapType </sessionObject> [0..*]
</...>
```

SsidType

Super-types:	None
Sub-types:	None

Name	SsidType
Abstract	no

Schema

```
<...>
   <ssidKey> xsd:string </ssidKey> [1]
   <ssid> xsd:string </ssid> [0..1]
   <accessType> xsd:string </accessType> [0..1]
   <authType> xsd:string </authType> [0..1]
   <username> xsd:string </username> [0..1]
   <password> xsd:string </password> [0..1]
   <loginUrl> xsd:string </loginUrl> [0..1]
   <configUrl> xsd:string </configUrl> [0..1]
   <verficationCertUrl> xsd:string </verficationCertUrl> [0..1]
   <configMessage> xsd:string </configMessage> [0..1]
   <portalFailMessage> xsd:string </portalFailMessage> [0..1]
   <unmanagedVpnConnectPrompt> xsd:string </unmanagedVpnConnectPrompt> [0..1]
   <unmanagedVpnDisconnectPrompt> xsd:string </unmanagedVpnDisconnectPrompt> [0..1]
</...>
```

SubscriberSSIDType

Super-types:	None
Sub-types:	None

Name	SubscriberSSIDType
Abstract	no

Schema

```
<...>
   <subscriberId> xsd:string </subscriberId> [1]
   <ssidList> SsidType </ssidList> [0..40]
</...>
```

SubscriberType

Super-types:	UserType < SubscriberType (by extension)
Sub-types:	None

Name	SubscriberType
Abstract	no

Schema

```
<...>
   <id> xsd:string </id> [0..1] ?
   <parentId> xsd:string </parentId> [0..1] ?
   <name> NameType </name> [0..1]
   <authType> xsd:string (value comes from list: {'NONE'|'BASIC'|'DIGEST'|'SIMPLE'})
</authType> [0..1]
   <authUsername> xsd:string </authUsername> [0..1]
   <authPassword> xsd:string </authPassword> [0..1]
   <credential> CredentialType </credential> [1..20]
   <service> ServiceType </service> [0..20]
   <notification> NotificationType </notification> [0..10]
   <session> SessionType </session> [0..100]
   <balance> BalanceType </balance> [0..100]
   <status> StatusType </status> [1]
   <startDate> xsd:dateTime </startDate> [0..1]
   <endDate> xsd:dateTime </endDate> [0..1]
   <role> xsd:string (value comes from list:
{'READ_ALL'|'READ_SELF'|'WRITE_ALL'|'WRITE_SELF'}) </role> [0..1]
   <externalId> xsd:string (pattern = .{0,100}) </externalId> [0..1] ?
   <billingInfo> BillingInfoType </billingInfo> [0..1]
   <avp> AvpType </avp> [0..100]
   <version> xsd:integer </version> [0..1] ?
   <realm> xsd:string </realm> [0..1] ?
   <subAccount> UserType </subAccount> [0..1000] ?
   <createBalance> CreateBalanceType </createBalance> [0..10]
</...>
```

ThresholdType

Super-types:	None
Sub-types:	None

Name	ThresholdType
Abstract	no

Schema

```
<...>
   <code> xsd:string </code> [1]
```

```
   <amount> xsd:long </amount> [1]
   <quotaCode> xsd:string </quotaCode> [0..1]
   <type> xsd:string (value comes from list:
{'Percentage'|'Bytes'|'Kilobytes'|'Megabytes'|'Gigabytes'|'Other'}) </type> [1]
   <group> xsd:string </group> [0..1]
   <breached> xsd:boolean </breached> [0..1] ?
   <subscriberSpecific> xsd:boolean </subscriberSpecific> [1]
</...>
```

TotalsType

Super-types:	None
Sub-types:	None

Name	TotalsType
Abstract	no
Documentation	The totals object is a convenience field showing a quick summary of the debited, reserved, and available amounts for the balance.

Schema

```
<...>
   <balance> xsd:decimal </balance> [0..1]
   <reserved> xsd:decimal </reserved> [0..1]
   <debited> xsd:decimal </debited> [0..1]
</...>
```

UserType

Super-types:	None
Sub-types:	SubscriberType (by extension)

Name	UserType
Abstract	no

Schema

```
<...>
   <id> xsd:string </id> [0..1] ?
   <parentId> xsd:string </parentId> [0..1] ?
   <name> NameType </name> [0..1]
   <authType> xsd:string (value comes from list: {'NONE'|'BASIC'|'DIGEST'|'SIMPLE'})
</authType> [0..1]
   <authUsername> xsd:string </authUsername> [0..1]
   <authPassword> xsd:string </authPassword> [0..1]
   <credential> CredentialType </credential> [1..20]
   <service> ServiceType </service> [0..20]
   <notification> NotificationType </notification> [0..10]
   <session> SessionType </session> [0..100]
   <balance> BalanceType </balance> [0..100]
   <status> StatusType </status> [1]
   <startDate> xsd:dateTime </startDate> [0..1]
```

```
   <endDate> xsd:dateTime </endDate> [0..1]
   <role> xsd:string (value comes from list:
{'READ_ALL'|'READ_SELF'|'WRITE_ALL'|'WRITE_SELF'}) </role> [0..1]
   <externalId> xsd:string (pattern = .{0,100}) </externalId> [0..1] ?
   <billingInfo> BillingInfoType </billingInfo> [0..1]
   <avp> AvpType </avp> [0..100]
</...>
```

VoucherBatchKeyType

Super-types:	None
Sub-types:	None

Name	VoucherBatchKeyType
Abstract	no

Schema

```
<...>
   <code> xsd:string </code> [1] ?
   <pin> xsd:string </pin> [0..1] ?
   <maskChars> xsd:string </maskChars> [0..1] ?
</...>
```

VoucherKeyType

Super-types:	None
Sub-types:	None

Name	VoucherKeyType
Abstract	no

Schema

```
<...> Start Choice [1]
   <voucherCode> xsd:string </voucherCode> [1]
   <networkId> xsd:string </networkId> [1] ?
   <voucherLocationKey> VoucherLocationKeyType </voucherLocationKey> [1]
   <voucherBatchKey> VoucherBatchKeyType </voucherBatchKey> [1]
 End Choice
 <skip> xsd:integer (value >= 0) </skip> [0..1] ?
 <limit> xsd:integer (1 >= value <= 1000) </limit> [0..1] ?
</...>
```

VoucherLocationKeyType

Super-types:	None
Sub-types:	None

Name	VoucherLocationKeyType
Abstract	no

Schema

```
<...>
   <locationCode> xsd:string </locationCode> [1] ?
   <active> xsd:boolean </active> [0..1]
</...>
```

VoucherType

Super-types:	None
Sub-types:	None

Name	VoucherType
Abstract	no

Schema

```
<...>
   <code> xsd:string </code> [1] ?
   <pin> xsd:string </pin> [0..1] ?
   <subscriberId> xsd:string </subscriberId> [0..1] ?
   <maxConcurrentSessions> xsd:integer </maxConcurrentSessions> [1] ?
   <duration> xsd:long </duration> [1] ?
   <durationMeasure> xsd:string (value comes from list:
{'Minutes'|'Hours'|'Days'|'Weeks'|'Months'}) </durationMeasure> [1] ?
   <serviceCode> xsd:string </serviceCode> [1] ?
   <expirationDate> xsd:dateTime </expirationDate> [0..1] ?
   <locationCode> xsd:string </locationCode> [0..1] ?
   <timeQuota> xsd:long </timeQuota> [0..1] ?
   <timeMeasure> xsd:string </timeMeasure> [0..1] ?
   <volumeQuota> xsd:string </volumeQuota> [0..1] ?
   <volumeMeasure> xsd:string </volumeMeasure> [0..1] ?
   <balanceCode> xsd:string </balanceCode> [0..1] ?
   <quotaCode> xsd:string </quotaCode> [0..1] ?
</...>
```

StatusType

Super-types:	xsd:string < StatusType (by restriction)
Sub-types:	None

Name	StatusType
Content	• 'string' super type was not found in this schema. Its facets could not be printed out. • value comes from list: {'ACTIVE'|'DELETED'|'SUSPENDED'|'INACTIVE'}